

Model of Community Empowerment at Mangrove Forest Area: Case Study in the Wild Reserve of Kuala Lupak Barito Kuala District

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Abstract. Wildlife Reserve (Suaka Margasatwa) Kuala Lupak has an area of 3,307.96 hectares. The degraded condition of the area until 2018 covering an area of 1,193 hectares was turned into a people's pond controlled by around 181 people. The existence of ponds without permits in conservation areas has given rise to prolonged tenure conflicts and negative impacts, namely: a) conservation areas cannot be managed according to conservation principles; b) farmers without permits cannot optimize their ponds because they do not comply with existing regulations. Both of these impacts require wise and sustainable solutions. This research aims to explore the community empowerment model at SM Kuala Lupak which has been carried out by the South Kalimantan Natural Resources Conservation Center. The method used is a participatory qualitative approach using phenomenological analysis. The results of the research show that tenure conflicts over fish ponds in conservation areas can be resolved using the policy of Minister of Environment and Forestry Regulation Number 83 of 2016 and Director General of KSDAE Number 6 of 2018 concerning Technical Guidelines for Conservation Partnerships in Nature Reserve Areas and Nature Conservation Areas. The community empowerment model was developed through a 3 (three) P approach, namely embracing, planning and implementing. The embrace includes involving relevant parties and forming forest farmer groups. Planning is prepared in a participatory manner between area managers and fish farmers. Implementation of the plans prepared includes planting mangrove and *Baccaurea* species, and productive business, namely developing crab seeds.

Keywords: community empowerment, mangrove forest, wild reserve

1 Introduction

Based on the Decree of the Minister of Forestry of the Republic of Indonesia Number 435 of 2009, concerning the RTRWP of South Kalimantan Province, the total conservation area *in situ* managed by the South Kalimantan KSDA Office is 101,268.558 hectares consisting of 10 areas and KSA/KPA. Data on the potential for tenurial conflict in 2019 was around $\pm 6,349.128$ hectares with the causal factors being the continuation of ponds, rice fields, and oil palm plantations. Specifically in SM Kuala Lupak which has an area of 3,307.96 hectares, by 2018 it had been

degraded into ponds covering an area of 1,193 hectares. The number of identified pond farmers was 181 people. The pond locations are spread across ten tributaries and in two villages, namely Kuala Lupak Village and Sungai Telan Besar Village[1]. According to Ridwan, as the Acting Head of Conservation Section Region 2 (SKW 2), the vastness of the ponds located within the conservation area has caused prolonged tenurial conflicts between pond farmers and South Kalimantan BKSDA officers. Repressive actions involving law enforcement (Police) have actually worsened and exacerbated the conflict.

Forest management activities that are more oriented towards economic growth have marginalized communities living around the forest[2]. The nature of prioritizing forests in a bio-physical manner will give rise to social problems as evidenced by the obstacles to the development of social forestry and community empowerment to date[3]. The challenge for conservation area managers today and in the future is how to build management and balance management mechanisms. They are required to be able to bridge economic interests and environmental conservation interests[4]. On another occasion, that community involvement in managing conservation areas is part of the solution as well as a potential for its development[5]. One of the steps taken is through the Integrated Conservation and Development Project (ICDP) program approach, which aims to link biodiversity conservation with economic and social development at the local level in conservation areas. In reality, ICDP has not been able to answer the problems that occur in conservation areas, because the problems are not only in the local community but also related to government policies (Central and Regional). The approach is perfected through the Adaptive Collaborative Management (ACM) program, namely activities that are adaptive to changes in policies and social, economic, cultural, and political situations that are developing dynamically, so that conservation area management can be sustainable. A program will be accepted if there is a positive interaction process between the implementer and community leaders[6]. Active socialization is needed to the community and stakeholders if an activity is to be successful[7].

The maintenance of fruit plants (Dukuh/People's Forest) has supported benefits in the social aspect, namely increasing the sense of kinship between villagers, especially during fruit harvesting[8]. Wetlands, including mangrove forests, are rich ecosystems that provide a variety of flowering plants can be developed for beekeeping, which can increase added value and business opportunities for fishpond farmers, and, of course, benefit health[9]. Communication problems in the community can be a determining factor in solving fire problems in forest areas[10]. Efforts to improve the economy of communities in coastal forest areas require government and private support, such as Corporate Social Responsibility/CSR[11]. Corporate Social Responsibility activities that benefit the community will have a positive impact on the lives of the people involved[12]. Community participation in climate change adaptation and mitigation requires management support such as community roles, social capital, and public participation[13]. The policy for managing conservation areas in the Teluk Kelumpang CA requires attention to social and ecological aspects as a priority, of course by combining socio-cultural and socio-economic approaches to the community around the area[14]. Besides, political communication by the Regional People's Representative Council will greatly support activities related to the community, through the preparation, implementation and evaluation stages[15]. Based on the problems and several research results above which emphasize the importance of social aspects in managing conservation forest areas, this research explores and analyzes the process of community

empowerment in managing mangrove areas in the Kuala Lupak wildlife reserve, Barito Kuala district.

2 Methods

Research period for 6 (six) months from July to December 2023, starting from secondary data collection, primary data collection using participatory observation methods (going down and being involved in the activity process), and writing research results. The research location was in two villages, namely Kuala Lupak Village and Sungai Telan Besar Village, Tabunganen District, Barito Kuala Regency. The two villages are directly adjacent to SM Kuala Lupak, while community empowerment activities in the form of IPPKH DAS Rehabilitation planting are entirely within the SM Kuala Lupak area, with details: a) in 2020 planted an area of 128 hectares in Sungai Bakau, Kuala Lupak Village; b) an area of 286 hectares in Sungai Bahaur, Sungai Telan Besar Village, so that the total planted area is 414 hectares. (Map of the Continuity of Fishponds in the SM Kuala Lupak Area in Figure 1).

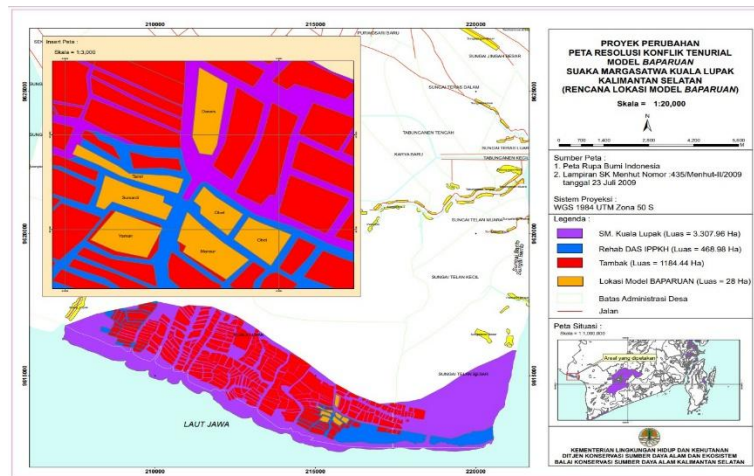


Fig. 1. Map of Research Location

The research method is qualitative with a phenomenological nature, namely a study of consciousness from a person's main perspective, so that it can understand the structure of reality that is directly related to human experience[16]. Primary data collection using in-depth interview methods using semi-structured interview guidelines to informants and field participant observation[17]. The informants who were interviewed in depth and had been actively involved in community empowerment were: Mr. Jawase (Head of the Suka Maju Conservation Partnership, Kuala Lupak Village); Mr. H. Nurdin (Head of the Mandiri Joint Conservation Partnership, Sungai Telan Besar Village); and the implementers of activities from the South Kalimantan BKSDA, namely: Mr. Moh. Ridwan (Head of SKW 2) and Mr. Barkati (Head of SM Kuala Lupak Resort)

and Mr. Bakeri (Member of the Conservation Partnership Group). In-depth interviews were also conducted with Mr. Zulkifli Noor Yadi (as the Regional Secretary of Barito Kuala Regency). The results of in-depth interviews were analyzed with reference to phenomenological data analysis, namely organizing and sorting data into patterns, categories and basic units so that themes are found to be narrated into a written text (transcript)[18].

3 Results and Discussion

3.1 Land Tenure Conflict

Tenurial conflicts in the Kuala Lupak Nature Reserve conservation area were greatly influenced by the political process that occurred in Indonesia, namely when the "Reformation" or euphoria of reform occurred in 1998. As we know, before the reformation, the Indonesian government was very rigid and harsh, especially against security disturbances in forest areas. Arrests and law enforcement were the only means taken by the authorities (Central and Regional Governments). This condition made the community antipathetic towards area managers, such as officers from the South Kalimantan Natural Resources Conservation Agency (BKSDA).

According to Mr. Nurdin (local community), "The origin of the ponds began with local people (Banjar Tribe) who cleared mangrove forests to plant seasonal crops. We know that this land is protected by the Government, but we need land, so we just cleared it. The clearing of land or mangrove forests was around 1998 after there were no more forestry officers on duty in the forest. When it was no longer productive, the land was "sold" to immigrant communities (Bugis Tribe) which were then used as ponds."

Mr. Jawase (immigrant community/Bugis Tribe) said: "In the past, we were very afraid of BKSDA officers, if they came with the Police and TNI officers to enter the area, then we ran or hid so as not to be arrested. However, if only BKSDA officers came, then we dared to fight back as a group, we often threw wood at BKSDA officers so that they would immediately leave the area."

According to Mr. Ridwan (Head of SKW 2): "Since serving in 2016 as Head of SKW 2, one of the areas of which is SM Kuala Lupak, we have really felt the difficulties in managing this area due to tenurial conflicts in the form of pond utilization in the conservation area. The activity plans that were prepared could not be implemented properly, so that performance achievements were not optimal. The function of the conservation area was disrupted, such as the loss of endemic birds, soil abrasion and strong gusts of wind from the sea due to the felled mangrove plants."

Mr. Barkati (Head of SM Kuala Lupak Resort): "Our communication with village officials and the village community is very limited. If someone is close to us, then that person will be treated hostilely and shunned because they are considered to support BKSDA officials. Until 2017, the area of SM Kuala Lupak that was co-opted into a fishpond was 1,193 hectares of SM Kuala Lupak area of 3,307.96 hectares (36%). Law enforcement is met with resistance from the community and village officials. The installation of Announcement Planks is often damaged or even removed from the installation location. We hope that there is a solution from the Central Government (KLHK) so that this problem can be resolved and the function of the conservation area can return to being optimal."

The above in-depth interview excerpts with informants provide us with an overview that the tenurial conflict in the SM Kuala Lupak area was driven by political changes from the New Order to the Reform Order in 1998. At the beginning of the reform era, we know that the role of the government (both central and regional) in managing state forest areas became weak. This also happened in state forest areas on Java Island, especially Teak Forest which was encroached on a large scale. In the New Order era, traditional wisdom was neglected, the government thought that humans were separate from nature. This condition resulted in the theft of biological resources including tree felling[19]. This is in line with the opinion of Hidir[20], who said that humans cannot be separated from the environment, both as individuals and groups are a unity that cannot be separated from their environment.

Tenurial conflicts over the conversion of conservation areas into ponds have hampered the implementation of protection and maintenance programs in the Kuala Lupak SM area. The failure of the plans that have been prepared has resulted in a decrease in budget absorption and performance work from the South Kalimantan BKSDA. On the other hand, the existence of wild animals and germplasm has decreased or even disappeared, including protected animals such as Proboscis Monkeys (*Nasalis larvatus*) and other water birds. In damaged or polluted wetland environments, it will be very difficult to support the lives of water birds, including migratory birds to come back[21]. Land conversion from protected areas and conservation areas will threaten bird populations[22].

The condition of changing part of the SM Kuala Lupak conservation area into a pond is certainly very detrimental to many parties, including the pond farmers themselves. Unlicensed pond farmers cannot manage their ponds optimally, so that the pond results are also not optimal. Ecological losses (loss of germplasm and the threat of animal extinction), economic (suboptimal pond farmers' income) and institutional (BKSDA-KLHK) whose performance is declining are certainly conditions that are not desired by all. This is where a policy is needed that can be a win-win solution for all parties. In 2018, KLHK through the Director General of KSDAE issued a policy Director General Number 6 concerning Technical Instructions for Conservation Partnerships in Nature Reserve Areas and Nature Conservation Areas, in order to follow up on Ministerial Regulation of the Environment and Forestry Number 83 of 2016 concerning Social Forestry. Articles 26 and 27 explain that Conservation Partnerships in the context of Ecosystem Recovery can be implemented in ecosystems damaged by human actions. This policy has been implemented in SM Kuala Lupak, especially those that have been converted into ponds. In order to overcome the gap between policy and its implementation, it is necessary to strengthen the role of all parties involved in forest management, including the community[23]. The role of the community as the main actor in forest management must be involved in the decision-making process. This is in line with the opinion of Wiratno⁵, stating that in 10 (ten) new ways to manage conservation areas, the community is the subject or main actor in the conservation area management model. In others, support from local government policies will have a positive impact on production sustainability[24].

3.2 Model Of Community Empowerment

We have known that changes in the landscape from conservation areas to pond areas have resulted in various losses, from socio-cultural, economic, and ecological aspects. Prolonged tenure conflicts in this conservation area cannot be resolved with a legal approach alone, there needs to be a socio-cultural and socio-economic approach as well as dynamic politics (policies)[5]. Based on Perdirjen KSDAE Number 6 on Technical Guidelines for Conservation Partnerships in Nature Reserve Areas and Nature Conservation Areas, the South Kalimantan BKSDA will immediately implement it at the site level in SM Kuala Lupak. The implementation of the above policy is a model for community empowerment in mangrove forest areas that have been degraded into ponds and then returned to being mangrove forests.

According to Mr. Ridwan (Head of SKW 2): "The process of implementing Perdirjen KSDAE Number 6 of 2018 concerning Conservation Partnerships in order to find solutions to tenurial conflicts in the form of ponds in the area, so we started with the formation of a joint work team from the Balai KSDA Team and the SKW 2 Office Team. The division of tasks and responsibilities greatly helps in accelerating implementation in the field. Based on the direction of the Head of the South Kalimantan BKSDA, the activity began by looking for key figures of unlicensed fish farmers to open communication and build mutual respect for the conditions of each party (Embrace stage/ *tahap Perangkulan*). There were 2 (two) key figures who were invited to communicate informally, namely Mr. Jawase (Kuala Lupak Village) and Mr. H. Nurdin (Sungai Telan Besar Village). After mutual respect and mutual trust were built, it was agreed to form a Fish Farmer Group (Conservation Partnership/ *Kemitraan Konservasi*) in each village. Then communication was also built with other parties, such as BPDASRH Barito, BPSKL Kalimantan Region and PT. Adaro Indonesia to support field implementation. The planning stage was made jointly between the South Kalimantan BKSDA (SKW 2) with the management and representatives of the Conservation Partnership members with guidance from BPSKL (Planning stage/ *tahap Perencanaan*). The implementation stage (*tahap Pelaksanaan*) in the field with the planting of *Rhizophora*, *Avicennia*, and *Baccaurea* in each pond was guided by the Barito BPDASRH technical team. Support for seedlings and plant wages up to stage 2 maintenance was funded by PT. Adaro Indonesia in the IPPKH DAS Rehab scheme. The establishment of communication through the Conservation Partnership scheme has changed the relationship between unlicensed farmers and local village officials with BKSDA officials, namely harmonious and mutually beneficial.

Mr. Jawase (Head of the Suka Maju Conservation Partnership, Kuala Lupak Village): "We are very happy with the Conservation Partnership activity, because we are trying not to be afraid anymore in the area and we are ready to protect the area from being disturbed or new ponds are opened. We plant according to the BKSDA's direction in each pond, namely planting 1,100 mangrove trees in the pond, and the fish or crab results are our right. We thank the Indonesian government (BKSDA South Kalimantan) for providing business access for 10 years and productive economic support."

Mr. Zulkifli Noor (Regional Secretary of Barito Kuala Regency): "Based on the results of our monitoring of community empowerment activities in SM Kuala Lupak, Tabunganen District, carried out by the South Kalimantan BKSDA together with related parties, it is very positive. The

prolonged tenurial conflict from 1998 to 2018 can be resolved well and mutually beneficial. The related agencies under the Barito Kuala Regional Government are ready to support and complement the community empowerment activities that have been carried out by the South Kalimantan BKSDA.

Based on the statements of informants, we can summarize 3 (three) stages of community empowerment as follows:

A. Embrace Stage

The embracing stage means that the South Kalimantan BKSDA conducts an inventory of key community figures who are suspected of being “involved and influential” in illegal pond activities; conducts informal communication (in ponds, at community leaders’ homes and having coffee together) to foster mutual respect for the rights of each party until mutual respect, mutual trust and the desire of the parties to benefit each other are built. The informal agreement with the figures in the two villages was then followed up by the formation of a group of pond farmers whose members are divided according to the river (there are 9 rivers). The final stage of embracing community figures is the preparation and proposal of the Cooperation Agreement (PKS) for Conservation Partnership for Ecosystem Restoration.



Fig. 2. Conservation Partnership Agreement

Embracing also means that the South Kalimantan BKSDA identifies parties that can be involved in the Conservation Partnership activities that have been agreed upon with the community. The parties that we embrace include: Barito Kuala Regency Government (supporting administration and policies); BPDASHL Barito (supporting the appointment of IPPKH DAS Rehab in SM Kuala Lupak); BPSKL Kalimantan Region (supporting the socialization of Social Forestry policies); and PT. Adaro Indonesia (supporting the planting of Ecosystem Recovery through IPPKH DAS Rehab funds). BPSKL's role in socializing the conservation partnership program will be very helpful in increasing knowledge and understanding of the activities carried out. Knowledge and skills of farmers in managing of peatlands will significantly impact the sustainability of community livelihoods[25]. PT Adaro Indonesia's support for ecosystem recovery activities plays a very important role in supporting the success of community empowerment. This is very relevant to the opinion Bahri et al[11] and Said et al[12] related with CSR support. The embracing stage is a respect for local community leaders, who stated that respect for human rights

through a non-litigation approach and prioritizing dialogue while encouraging the development of a local creative economy based on resources in the conservation area[5]. The role of communication can influence the success of an activity[10].



Fig. 3. Pond Before Rehabilitation (2018)

B. Planning Stage

After establishing togetherness between the farmers and the South Kalimantan BKSDA through the Conservation Partnership Agreement for Ecosystem Recovery, then with the assistance of the Kalimantan Social Forestry and Environmental Partnership Center (BPSKL) team, a 10 (ten) year work plan was prepared, with the scope of activities: 1) Ecosystem recovery (planting and maintenance); 2) Securing the ecosystem recovery area and protecting wildlife; 3) Developing community capacity; 4) Normalizing river bodies.

The preparation of the work plan in early 2019 involved all members of the farmer group based on the needs and natural conditions as well as policies in the Ministry of Environment and Forestry, especially KSDAE. One of the main activities carried out is the restoration of the ecosystem in the land that has been ponded by implementing a silvofishery system. This is in accordance with the experience of Mr. Bakeri who said that: "If there are mangrove plants in the

pond, the fish yield will not decrease, but if there are no plants, then starting in the third year it will continue to decrease". This empirical evidence in the field is an example in making plant designs in ponds. The design made is in the middle planted with Anchor Mangroves (*Rhizophora racemosa*), and the outer part is left for fish farming, this is what is meant by the silvofishery system. Community involvement since the preparation of the activity plan[13][16].

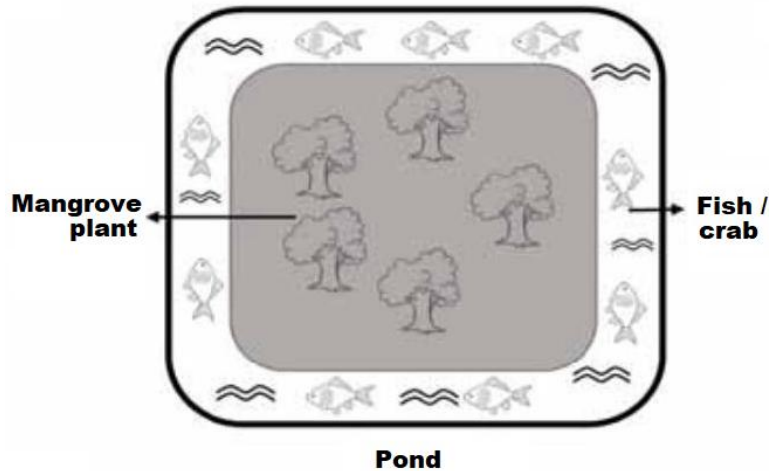


Fig. 4. Pond Design



Fig. 5. Participatory Work Plan Development

C. Implementation Stage

The realization of the 2020 activity plan is planting an area of 414 hectares divided into 2 (two) Kemkon groups, namely Conservation Partnership of Suka Maju covering an area of 128 hectares in Sungai Bakau with the type of Jangkar Mangrove plant, and Conservation Partnership of Mandiri Bersama covering an area of 286 hectares in Sungai Bahaur consisting of the type of Jangkar Mangrove 141 hectares and the type of Rambai on the coast covering an area of 145 hectares. The number of members of the Suka Maju Conservation Partnership group involved in planting was 91 people, and the Mandiri Bersama Conservation Partnership was 90 people. The

number of plants per hectare was 1,100 trees. Procurement of seedlings from the community with a value of IDR 1,250 per stem and a planting and maintenance contract (P0) of IDR 3,500,000 per hectare. Maintenance of the first year plants (P1) in 2021 by farmers amounted to IDR 600,000 per hectare.

Community empowerment for the Suka Maju Conservation Partnership and the Mandiri Bersama Conservation Partnership in 2020, each amounting to 50 (fifty) million rupiah for mangrove planting and crab seed procurement. In 2021, community empowerment activities amounted to 30 (thirty) million rupiah, for expanding mangrove planting and adding crab seeds. Provision of revolving productive economic assistance for each river. Based on the results of the farmer group's calculations, the total profit with 2 (two) times of sowing crab seeds and a survival percentage of 70% is IDR 3,700,000 per hectare/year. It would be more profitable if it was in an area of 3 (three) hectares, because the maintenance costs are not much different.

In addition to activities directly related to productive economy, members of the farmer group (farmers) are also involved in security activities in the ecosystem recovery location. In 2020, 6 (six) Forest Area Security Patrols were carried out with Forest Police Partners (Forest Police Partner Community/MMP). In 2021, similar activities were carried out 4 (four) times. Plant maintenance activities are carried out every year from 2021 to 2023. Maintenance activities include planting dead plants and fertilizing. At the end of the study, we received information that future mangrove plant maintenance would involve thinning plants so that plants are healthy and reduce dangerous animals (such as snakes) hiding among the mangrove plants.



Fig. 5. Mangrove Plants



Fig. 6. Distribution of Crab Seeds

Some of the benefits obtained from the success of the Embrace, Planning and Implementation (P3) Community Empowerment Model implemented at SM Kuala Lupak include:

- a. Socio-economic aspects: opening up job opportunities for providing seedlings, planting and maintaining plants; the existence of productive economic assistance support from various parties, both from the South Kalimantan BKSDA including counselling from the Barito Kuala Regency
- b. Socio-cultural aspects: positive interactions between farmers through established farmer groups; maintaining mutual concern between farmers; building understanding between communities to protect conservation areas
- c. Ecological aspects: planting of 414 hectares of degraded land with a growth percentage of 90% (based on the report of PT. Adaro Indonesia, 2021); acceleration of ecosystem recovery; and protection of the area from human disturbance

The impacts obtained by the parties involved include:

- a. Establishing good communication between the South Kalimantan BKSDA and fish farmers and village/sub-district officials
- b. Resolved tenure conflict
- c. Accelerating ecosystem recovery in degraded areas due to excessive shrimp farming
- d. Protected and maintained conservation areas
- e. The community (especially fish farmers) is motivated to maintain plants because of a sense of security and sustainability in working in fish ponds (legal certainty).
- f. Changing the stigma that BKSDA is a common enemy to a common friend/partner/all parties.

4 Conclusion

The community empowerment model in the Kuala Lupak nature reserve area includes embracing, planning and implementation (P3). The embrace includes involving relevant parties and forming forest farmer groups. Planning is prepared in a participatory manner between area managers and fish farmers. Implementation of the plans prepared includes planting mangrove and *Baccaurea* species, and productive business through developing crab seeds. The implementation of the P3 model community empowerment process has resolved tenurial conflicts, optimized conservation functions, and communication with local communities and village officials is running well.

Acknowledgement.

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