Ecological Questions 34 (2023) 1: 67–76 http://dx.doi.org/10.12775/EQ.2023.005

Collaborative governance of *Narsalis larvatus* (Wurmb, 1787) conservation in Barito Kuala Regency, Indonesia

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Received: 30 May 2022 / Accepted: 28 September 2022

Abstract. Natural resources and social conflict have a strong relationship. The current natural resource management problems have caused deforestation, resulting in unstable environmental ecosystems. Consequently, a movement towards mitigating natural resource management emerged because of the threat to the 'Bekantan' Proboscis Monkey habitat and population in South Kalimantan Province. Indonesian Proboscis Monkey Friends (SBI) Foundation is a non-profit organization aiming to protect Proboscis monkeys on Curiak Island. SBI adopts collaborative resource governance in building stakeholder capacity with shared motivation and principles for collective action. Therefore, this study aimed to describe the collaborative governance process conducted on Proboscis Monkey conservation in Curiak Island. The results showed that anyone, including non-government organizations, could initiate collaboration in the several programs such as conservation, buy back the land and rambai mangrove restoration. Various parties collaborations are proven to successfully increase the support for environmental conservation efforts, especially the habitat and endemic proboscis monkeys.

Key words: Collaborative Governance, Conservation, Bekantan Proboscis Monkeys, Curiak Island.

Introduction

Preserving and balancing Indonesia's living natural resources and ecosystems has been regulated in Law Number 5 of 1990 updated to Law Number 32 of 2009 concerning environmental management. However, natural resource management has been turbulent over the last few decades, with conflicts and controversies regarding ecological management and climate change (Leong et al., 2011). One challenge is the instability of deforestation and development activities that cause local extinction of protected rare wild animals and plants. According to the Central Statistics Agency (2020), South Kalimantan Province contributes to deforestation cases in Indonesia, a country experiencing unstable natural resource management. South Kalimantan's total deforestation rate decreased from 14,368.60 ha between 2016 and 2017 to 9,099.30 ha between 2018 and 2019.

The massive deforestation rate is caused by increased oil palm concessions and mining pits that rob Kalimantan's forest cover. The city's exponential growth would also disrupt the original ecosystem and its surroundings (Mumaw & Bekessy, 2017). Subsequently, concerns about the unstable deforestation and development are consistent with the massive decline in the Proboscis Monkey population on Borneo Island. Proboscis monkeys are endemic animals found on the Borneo Island (Fig. 3). The species with the Latin name *Nasalis larvatus* (Wurmb, 1787) or Indonesian called *bekantan* is also found in Sabah, Brunei, and Sarawak.

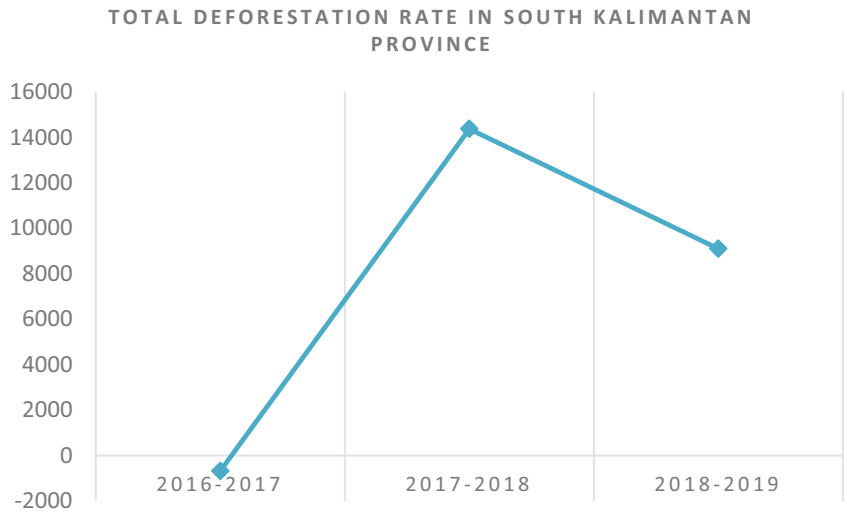

Figure 1. Total Deforestation Rate in South Kalimantan Province Source: Central Statistics Agency (2020)

From 1994 to 2020, the Proboscis Monkey population declined by 50% every decade. As showing Figure 2.

The International Union for Conservation of Nature and Natural Resources (IUCN) and The Convention on International Trade In Endangered Species of Wild Fauna and Flora (CITIES) categorized Proboscis Monkeys as endangered animals included in the Red List with Endangered and Appendix I status (IUCN, 2001). Therefore, it is necessary to ensure the preservation and utilization of Proboscis Monkeys and their ecosystems. The Indonesia Ministry of Forestry issued a strategy for Proboscis Monkey conservation actions in 2013–2022 Number P56/Menhut/II/2013.

Indonesian Proboscis Monkey Friends (SBI) Foundation is a non-profit organization that assists the government in accommodating, rescuing, evacuating, rehabilitating, and conserving Proboscis Monkeys. A Bekantan Research Station was established on Curiak Island, Barito Kuala Regency, outside a conservation area. The station has multiple breeding and learning media to promote conservation behavior in the community. Furthermore, various strategies and concepts have been applied in conserving this biodiversity, including maintaining the zoning and main buffer of the Proboscis Monkey habitat.

The Regional Government is also expected to protect and improve natural habitats and balance connectivity between

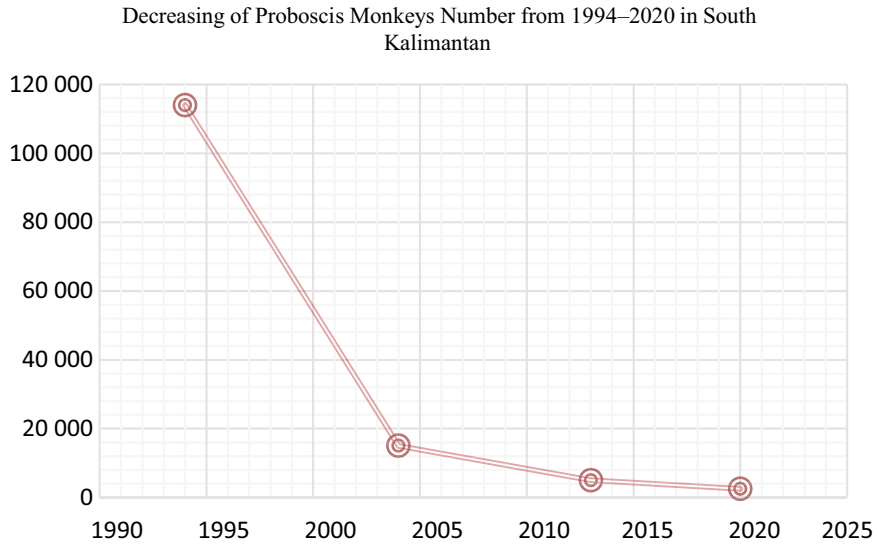

Figure 2. Number of Proboscis Monkeys Decreasing Per Decade Source: Indonesian Information Portal (2019)

Figure 3. Speciements of the Bekantan species *Nasalis larvatus* in the habitat
Source: Author observation

spaces (Standish et al., 2013; Utami et al., 2019). Policy reforms regarding this management should be followed by effective community development and involvement in decision-making. Additionally, the efforts should be complemented by the management of living natural resources and sustainable development (Pittman, 2019). Since practitioners and academics are involved, universities should remain competitive in building knowledge, design, and promoting effective governance (Fisher et al., 2020; Haubold, 2012).

The SBI Foundation is a formal professional community group promoting common national and international goals (Prideaux, 2014). It cooperates with the government, universities, media, and the community to save and protect wild animals. The Proboscis Monkey conservation analysis focuses on social dynamics and collaborative governance of SBI Foundation and its partners. Therefore, the social component processes relate to a collaboration that positively and negatively influences the implemented governance framework (Kossmann et al., 2016). This is because the problem of suitability of social ins titutions and ecological systems in natural resource conservation management is an ongoing challenge (Wyborn & Bixler, 2013). Governance aims to guide, regulate, and direct public activities through various systems, relationships, and non-state, private, and public actors, especially in addressing environmental challenges (Kininmonth et al., 2015; Avoyan, 2022; Purnaweni et al., 2022). Collaboration is a support system for implementing governance that emphasizes the agreement, collective action, and two-way communication by stakeholders (Jahro, 2018; Willmes & van Wessel, 2021). Furthermore, collaborative governance is used by stakeholders to solve social problems between stakeholders deliberately and profitably. This ensures decision-making and policy management are structured and produce the desired goals (Thomson & Perry, 2006; Emerson et al., 2012).

Collaborative governance is used to overcome modern social problems and address policy issues in land use, economic development, and natural resource management (Liu & Xu, 2018; Bianchi et al., 2021). The emergence of collaborative governance as a reaction to managerial limitations and approaches to overcoming complex problems are difficult to solve. Therefore, they should be handled by bringing resources from other stakeholders to produce an active and strategic inclusion movement in encouraging and achieving common goals (Qi, 2019; Holbrook, 2020; Bianchi et al., 2021).

Collaboration drives ecological change and builds social capital, such as public participation and deliberation. It also creates ideas that generate new knowledge and legal decision-making regarding future wildlife and ecosystems (Westerink et al., 2017; Woolaston, 2018; Arantes et al., 2020; Baudoin & Gittins, 2021). In some cases in Europe, partnerships are becoming an effective collaborative effort to achieve sustainable results, such as improving forest management and climate change, and conserving endangered species in the Mediterranean and Atlantic seas (Johansson, 2018; Authier et al., 2017).

The preferred collaborative conservation governance offers practical benefits based on results and effectiveness. Good resource development and stakeholder capacity building assist in managing complex problems and conservation conflicts in the socio-ecological dynamics (Clement et al., 2020; Fisher et al., 2020). Therefore, the

complexities, uncertainties, and environmental changes are overcome through a collaborative approach by complementing natural, social, institutional, human, and financial capital (Dressel, 2020; Cheok et al., 2020). The transition to dynamic and collaborative conservation governance should also be followed by positional networks (Berdej & Armitage, 2016).

The success of conservation is obtained from the managers' participation in building and maintaining the agreed-upon shared values (Subatin & Pramusinto, 2019). Therefore, an increase in species recovery is followed by trust and effective socio-ecological management (Redpath et al., 2017; Fischman et al., 2021). This is achieved when the community is involved in managing protected areas and conserving natural resources (López-Rodríguez et al., 2020; Djosetro & Behagel, 2020).

Stakeholder interests in supporting policy directions are needed for good collaborative governance (Tang & Tang, 2014). This is because prohibiting illegal hunting to conserve wildlife is not enough to increase the sustainability of natural resource conservation. Therefore, collaborative governance requires transparency in reforming the system and policy framework, and improving knowledge, infrastructure, and technology for an effective ex-situ conservation strategy (Nelson et al., 2013; Johansson, 2018; Mestanza-Ramón et al., 2020). Communication and coordination networks and stakeholders' commitment should also be re-optimized to overcome instability in the collaborative governance structure and reorganization (Flye et al., 2021). Moreover, the fairness of regional governance, authority division, and actors' responsibility should be developed properly to ensure collaboration is coordinated to create benefits and innovations appropriate to environmental and wildlife needs (Ullah & Kim, 2020; Malekpour et al., 2021).

Collaboration drives ecological change, builds high social capital, and allows the emergence of ideas that generate new knowledge and regulatory outputs regarding ecosystem conditions. Therefore, governmental and non-governmental organizations often use collaborative governance approaches to increase public participation in dealing with state and ecological decentralization (Westerink et al., 2017; Arantes et al., 2020; Baudoin & Gittins, 2021).

2. Methods

This study aimed to examine how the collaborative governance by SBI Foundation increases the Proboscis Monkey population and public environmental awareness. The use of this concept is introduced by the fact that

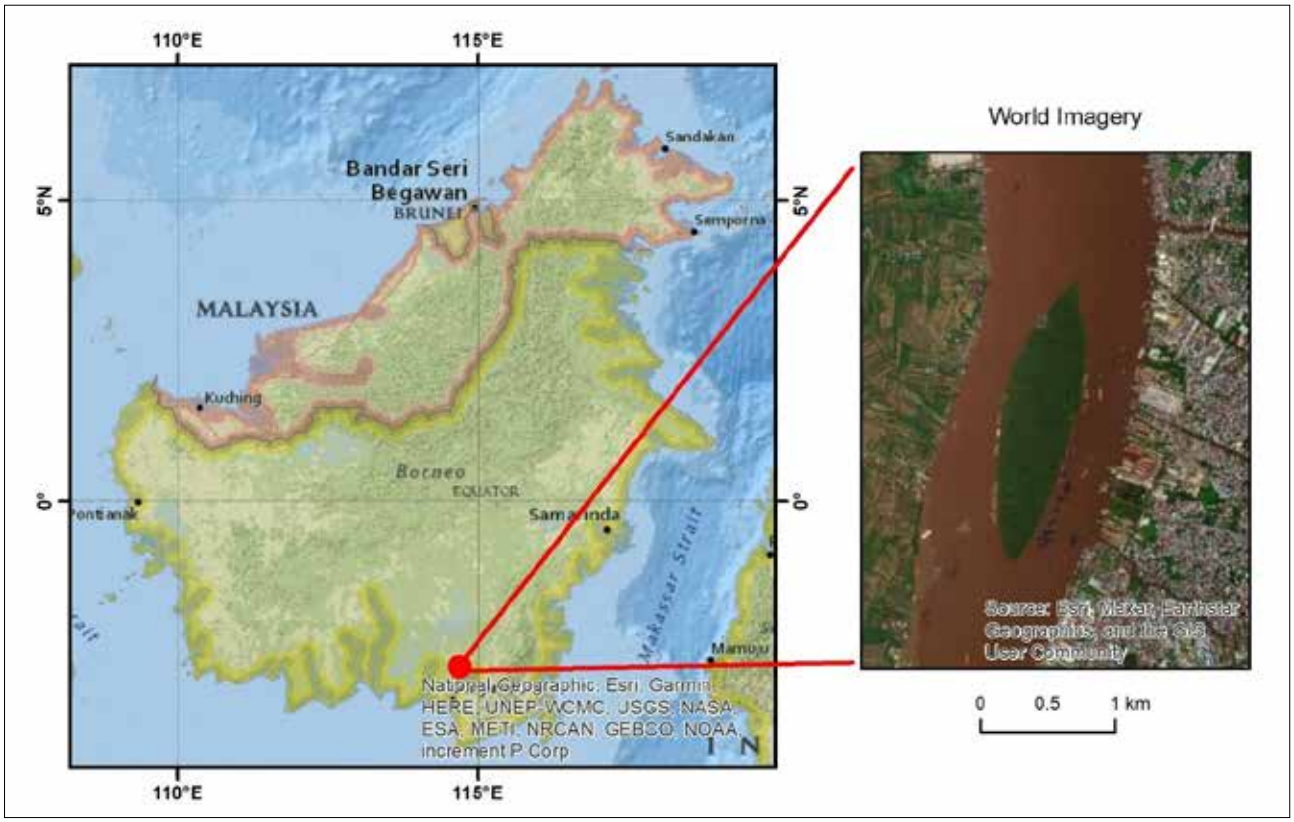

Figure 4. The location of the Curiak Island on Barito River, Borneo, Indonesia

several previous studies have explained the importance of collaborative frameworks in overcoming the challenges of environmental management, including proboscis monkey conservation. A qualitative case study approach was used (Creswell, 2007; Yin, 2003) to describe the social phenomena in the management of Proboscis Monkey conservation on Curiak Island in Barito Kuala Regency, Borneo, Indonesia as visualized in Figure 4. Curiak Island is administratively located in the Anjir Muara District. The island is a habitat for Proboscis Monkeys, which are gradually being threatened by logging of mangrove trees.

The data were collected through structured interviews, observation, and a literature review of several reputable journals. Nine informants from various parties were interviewed for nine months, focusing more on non-governmental organizations as the main actors of this collaboration. Furthermore, interviews were conducted with informants from the Barito Kuala Regency Government, including the heads of Anjir Muara District and Environmental Conservation Division of the Barito Kuala Regency Environmental Service. Other interviewees were the Head of Section Tourism Development Department of Youth, Sports, Culture and Tourism, Lambung Mangkurat University, the media, SBI members, Tourism Awareness Group, and Environmentally Aware Fisherman Group. Secondary data were obtained by analyzing documents or government reports related to Proboscis Monkey conservation efforts.

The data were analyzed descriptively following the concept presented by Emerson et al. (2012) for validation and field facts. The analysis prioritized 'how' and 'why' questions into shared principles, motivation, and institutional capacity. From the results of the analysis, the researcher tries to interpret each phenomenon studied and explains it objectively.

3. Results and Discussion

Barito Kuala Regency has much potential for living natural resources, such as Proboscis monkeys. The Proboscis Monkey is an endemic animal in South Kalimantan with an important role in the ecology of mangroves and wetland ecosystems. However, forest destruction, illegal logging, and habitat conversion have reduced food sources and shelter for these monkeys. This decreased the number of Proboscis Monkeys in South Kalimantan by 50% every decade. The basic principle of collaboration is based on policy or program following that conveyed by Emerson et al. (2012) and Bianchi et al. (2021). In rebuilding public awareness of wild animals and their ecosystems, the collaboration starts when SBI Foundation collaborates with the Barito Kuala Regency Government, Lambung Mangkurat University, the media, and the community in reusing the Proboscis Monkey habitat and wetland ecosystem on the Curiak Island, Anjir Muara District, Barito Kuala Regency. They established common principles, shared motivation, and the capacity to take action.

3.1. Common Principles on Proboscis Monkey Conservation in Curiak Island, Barito Kuala Regency

A common principle on Proboscis Monkey conservation in Curiak Island, Barito Kuala Regency, was first established by disclosing stakeholder interests based on the stakeholders' functions and priorities for joining a collaboration (Mikwamba et al., 2021). The SBI Foundation did identification and observation the stakeholders' vision, mission, and goals. This selection was made by evaluating the similarities in the vision, mission, and goals of the SBI Foundation. It aimed to develop conservation and outside areas as study centers and recreational facilities related to Proboscis Monkeys and their habitat.

Several stakeholders stated that their participation in this collaboration supports the vision, mission, and goals of the SBI Foundation. The Environmental Service of Barito Kuala Regency and Anjir Muara District also revealed that their participation is based on their interests to increase tree planting areas and public environmental and socio-economic awareness.

"Besides being used by SBI to improve Proboscis Monkey habitat, we also hope that Curiak Island helps Anjir Muara District improve community welfare." (Interview with Mr. Jaya Hidayatullah, Head of Anjir Muara District, 30 August 2021).

The University of Lambung Mangkurat collaborates with the SBI Foundation to realize the vision as a leading university in wetlands through cooperation in conserving Proboscis Monkey habitat in Curiak Island, Barito Kuala Regency. The discussion of these interests mapped the important roles and stakeholders' influence. The Focus Group Discussion (FGD) conducted by the stakeholders also conveys information, criticism, and suggestions for future conservation activities. This discussions are conducted by the SBI Foundation to ensure that the project implementation and future communication achieve a sustainable future design (Clement et al., 2020).

The SBI Foundation, the Government of Barito Kuala Regency, and Lambung Mangkurat University agreed to set similar collaboration goals and objectives through three main programs for conserving Proboscis monkeys in Curiak Island Barito Kuala Regency. The description of the programs is elaborated in Table 1, as follows:

Table 1. Programs/Activities of Indonesian Proboscis Monkey Friends (SBI) Foundation

No	Programs/ Activities	Purposes
1.	Proboscis Monkey Conservation	Protecting Proboscis Monkeys (rescue, rehabilitation, and release). Facilitating and Developing biodiversity (Construction of facilities, study, and research centers) Saving wetland and river water ecosystems.
2.	Buy Back The Land	Acquisition and repurchase of land, which is a Proboscis Monkey habitat. Global warming mitigation efforts.
3.	Rambai (*Baccaurea Motleyana)* Mangrove Restoration	Proboscis Monkey's main food source. Restoration of Proboscis Monkey habitat and wetland ecosystems. Establish Proboscis Monkey habitat zoning.

Source: Indonesian Proboscis Monkey Friends (SBI) Foundation.

The establishment of this program is also based on community welfare. This implies conservation ensures the protection of Proboscis Monkeys and their habitats and increases knowledge of human resources and socio-economics in the Curiak Island area, Barito Kuala Regency.

3.2. Shared Motivation on Proboscis Monkey Conservation in Curiak Island, Barito Kuala Regency

Shared motivation is built along with stakeholders' trust in line with the positive benefits of the Proboscis Monkey conservation program and the restoration of the Rambai mangrove on Curiak Island. The SBI Foundation took approximately six years to educate the community. However, the community's participation in managing the Rambai mangrove nursery and restoring the forest area gave tangible results in the conservation and socio-economics of the community. This proves that building communication between stakeholders could overcome differences. Moreover, time, trust, and interdependence influence the good collaborative governance process (Ansell & Gash, 2008).

The SBI Foundation still faces many obstacles in the field, especially the passive logging of the Rambai mangrove forest and the use of fish bombs in rivers by some irresponsible people. Therefore, the stakeholders should have mutual understanding and respect in building a common understanding. In creating this understanding, the SBI Foundation and the Barito Kuala Regency Government established an Environmental Awareness Group and a Tourism Awareness Group. The groups collaborate in educating and reporting violations around conservation areas to provide a deterrent effect and curb illegal activities that threaten the regeneration of Proboscis Monkeys and the Rambai mangrove forest on Curiak Island, Barito Kuala Regency. In this case, the managers' intervention in protecting the conservation area is key to testing the collaboration's effectiveness (Mawa et al., 2020).

Stakeholders acknowledge the performance and results of the SBI Foundation in conserving Proboscis Monkeys. The work area and SBI's seriousness in overcoming the existing problems could bring this collaboration more sustainable and better development. This is because mutual understanding leads stakeholders to demonstrate their credibility in the collaboration and the program being implemented (Mikwamba et al., 2021).

The success of the SBI Foundation in increasing the Proboscis Monkey populations on Curiak Island, Barito Kuala Regency is followed by other stakeholders' commitment. The census data shows that the Proboscis Monkeys have increased by 100% from 2016 to 2021 and the detailed is presented in Table 2.

Table 2. Proboscis Monkey Population Increases on Curiak Island (2016–2021)

No.	Year	Total
1.	2016	14
2.	2020	27
3.	2021	30

Source: Indonesian Proboscis Monkey Friends (SBI) Foundation.

The Proboscis Monkeys and Rambai mangrove trees planted as a green belt area supporting the monkeys' habitat on Curiak Island, Barito Kuala Regency, increased from 2.7 hectares to 3.9 hectares. This was followed by an increase in capture fisheries in Anjir Muara District from 59 tons in 2019 to 66 tons in 2020. The success results from the shared motivation because the actors' trust and commitment to Proboscis Monkey conservation is essential in the collaboration process. The trust and commitment could affect the actors' participation and understanding in identifying the risks and opportunities of collaborative governance (Ansell et al., 2020). Furthermore, the actors' perceptions is reflected in the legitimacy, transparency, accountability, inclusiveness, connectivity, and resilience in collaboration (Achieng et al., 2020).

3.3. Capacity to Take Joint Action on Proboscis Monkey Conservation in Curiak Island, Barito Kuala Regency

The capacity to take collective action in collaboration is needed to improve the quality of the common goals (Emerson et al., 2012). It should also have clear procedures and institutional agreements as a legal umbrella that protects the rights of stakeholders. Moreover, biodiversity conservation management often experiences conflicting

objectives that intersect with community livelihoods and tourism (Nyaupane et al., 2020).

The friendly cooperation between the SBI Foundation and the Barito Kuala Regency Government during the Proboscis Monkey conservation on Curiak Island, Barito Kuala Regency, has not been ratified as a formal collaboration law. However, the Barito Kuala Regency Government, Anjir Muara District, and the Youth, Sports, Culture, and Tourism Office inaugurated Barito Kuala Regent's Decree No. 188.45/167/KUM/2021 regarding Tourism Villages, the Decree of the Youth, Sports, Culture and Tourism Office of Barito Kuala Regency regarding Tourism Awareness Groups (POKDARWIS) Enchantment of Batola Equivalent No. 556/91/Disporbudpar, Pokdarwis Muara Konoco Lestari No. Lestari 556/92/Disporbidpar, and the Pokdarwis of the Rambai Lestari Mangrove Park with Decree No. 556/93/Disporbudpar. Anjir Muara District and the Barito Kuala Regency Youth, Sports, Culture, and Tourism Office are the extensions of the Regional Government in preserving and developing the potential of living natural resources in Curiak Island. Additionally, the Barito Kuala District Environmental Service aims to increase tree planting areas and public environmental awareness through socialization by providing online aspiration and complain services.

The SBI Foundation has an official cooperation agreement with Lambung Mangkurat University under Number 558/UN8.1.28/PKS/SBI/IV/2018 regarding the Implementation of Cooperation in Education, Research, and Community Service in the Framework of Preserving Proboscis Monkeys in South Kalimantan Province. This partnership has produced more than 20 studies in microbiology, Proboscis Monkey ecology, and wetland ecosystems. Moreover, the partnership is implemented with the programs described in below.

Table 3. Lambung Mangkurat University Programs/Activities and SBI Foundation

No.	Year	Programs / Activities
1.	2019	Summer Course: University of New Castle-Australia.
2.	2019	Earth Day Commemoration: Discussion on Conservation, Clean Garbage in the River, Planting Rambai Mangroves in the Curiak Island Area, Barito Kuala Regency.
3.	2020	Research Webinar, Ecological Restoration of Impacted Ecosystem: Encouraging Results from the Field.
4.	2020	Community Empowerment: Environmentally Concerned Fishermen Group (KNPL).
5.	2021	Conservation of Flora and Fauna and Postgraduate Forestry Sciences, Lambung Mangkurat University (ULM).
6.	2021	Borneo Global Camp 2021, Together with Muhammadiyah University of Banjarmasin (UMB).

Source: Indonesian Proboscis Monkeys Friends (SBI) Foundation.

Community participation in this collaboration is seen from the Pokdarwis and Pokdarling, the Environmental Care Fisherman Group involved in the Proboscis Monkey conservation program, and the manager of the Rambai mangrove area on Curiak Island, Barito Kuala Regency. The members of this Pokdarling have the duty to breed and observe regular checks and maintenance of the Rambai mangrove forest. The SBI has invited the local community to participate and formed the Indonesian Proboscis Monkey Volunteer Community (RBI) for scientists and the younger generation. The RBI was established to assist the SBI in educational outreach activities to the general public, especially the younger generation and community whose lives are directly adjacent to the Proboscis Monkey habitat. Therefore, practitioners are expected to utilize their resources and expertise to build capacity and develop social study through program evaluation (Robinson et al., 2020). This is because local participation is a major stakeholder in creating and fulfilling the objectives of biodiversity conservation and protected areas, especially territorial knowledge and environmental concerns (Vázquez-Villa et al., 2020).

The SBI founder is a leader seeking to minimize instability and regeneration in collaboration by increasing the actors' awareness to create an adequate generation. Therefore, the SBI foundation provides direct education on Proboscis Monkey conservation and seeks to create public awareness and concern through publications. The Foundation had at least 436 articles in online media between 2015 and 2021, as shown in Table 4.

Table 4. Number of Publications on Proboscis Monkey Conservation in Online Media (2015–2021)

No.	Year	Number of Publications in Online Media
1.	2015	34
2.	2016	38
3.	2017	25
4.	2018	23
5.	2019	91
6.	2020	136
7.	2021	89

Source: Indonesian Proboscis Monkeys Friends (SBI) Foundation.

The Proboscis Monkey conservation funding is obtained from maximizing the potential and attractiveness of Curiak Island as a monkey habitat. Other funding sources are merchandise sales and open donations by the SBI Foundation, RBI, and the surrounding community. Moreover, their conservation activities are supported by the Corporate

Social Responsibility funds by PT. Pertamina for rescue and release, and as cage and feed for Proboscis Monkeys outside and inside the rehabilitation center.

4. Conclusion

Collaborative governance in Proboscis Monkey conservation on Curiak Island, Barito Kuala Regency invites the community, government, universities, and the media to maintain and preserve the remaining biodiversity. The shared principles and motivations increase the Proboscis monkey population, while the actors' understanding and role in this conservation help maintain the monkeys' ecosystem and habitat. However, this collaboration faces challenges in the role of local governments and the SBI Foundation in building a legal umbrella and collaboration network. Another challenge is the ineffective learning and the adaptation process that cannot attract interest and support from various parties.

Interim results showed an annual increase in Proboscis Monkeys population and an additional 1.2 hectares of conservation land in the Curiak Island area. This potential should be developed by strengthening communication strategies and increasing commitment to shared principles. Furthermore, stakeholders' interaction and association could increase networking and positively impact other resource flows. Therefore, stakeholders should develop targets and focus on goals to ensure the planning and management of Proboscis Monkey conservation change the socio-economic environment around Curiak Island, Barito Kuala Regency.

The community, the government, and other forums should be involved in rule-making, monitoring, conflict resolution, fundraising, and allocation. This would orient the community's livelihood in line with environmental conservation and help assess the actors' resilience in adapting to change while achieving goals.

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