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Fostering Sustainabel Livelihood of the Saga Indigenous Community through Conservation Partnership in Kelimutu National Park, Nusa Tenggara Timur

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Currently, the Kelimutu National Park (KNP) is developing a conservation partnership approach to improve the welfare of local communities while restoring degraded ecosystems. This approach provides access to the community so that it is expected to be able to increase participation and be able to live harmoniously with the KNP environment. Communities around KNP still depend on forests and forest land to find a source of livelihood. Also, partnership schemes can be a solution to overcome tenurial conflicts. This study aims to describe the efforts of conservation partnerships in increasing sustainable livelihood assets, including natural, human, physical, social and financial capital, so that they can be used to measure the success of implementing conservation partnerships. This study uses qualitative methods with in-depth interviews and observation as data collection techniques. The results show conservation partnership in KNP increases natural capital as KNP establishes traditional zones for traditional coffee agroforestry practices, human capital through eco-interpreter training, social capital by strengthening Saga indigenous groups, and financial capital which indirectly increases accessibility and infrastructure needed for rural development. economy and tourism. Nonetheless, further efforts are still needed to increase the effectiveness and success of this conservation partnership program.

Keywords: Sustainable livelihood assets, natural capital, human capital, social capital and financial capital.

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1. Introduction

The slogan "Forest for People" at the VIII World Forestry Congress in Jakarta provides political legitimacy for the Government and local communities to develop social forestry, which is defined as collaborative and participatory forest management. It was, however, a considerable amount of time before the Indonesian Government implemented collaborative forest management in conservation areas. The government has yet to completely integrate a participatory approach into the management of National Parks in the implementation of its policies (Sanudin & Awang, 2019). The determination of areas frequently does not involve indigenous/local communities, who possess historical and cultural access rights. Consequently, tenure conflicts may arise. It is imperative to consider transdisciplinary aspects and comprehend community phenomena in regional buffer areas when implementing national park management (Wiratno, 2018). The communities that surround NPs frequently reside in destitution and rely on forests as a source of income (Massiri et al., 2015).

The Indonesian government has recently issued Minister of Forestry Regulation no. P.19/Menhut-II/2004, which pertains to the collaborative management of nature reserve areas (KSA) and nature conservation areas (KPA). The Director General of Natural Resources and Ecosystem Conservation (Dirjen KSDAE) subsequently issued Regulation No.P.6/KSDAE/SET/Kum.1/6/2018 to regulate conservation partnerships in TN areas (Rukminda et al., 2020). The conservation partnership's objective is to achieve community independence and prosperity by enhancing the governance and function of conservation areas and preserving biodiversity (Prayitno, 2020). The effectiveness of conservation partnerships is evaluated not only by the independence and welfare of the community, but also by conservation indicators, as per (Raharjo et al. 2019).

Tenure conflicts and the welfare of local communities residing in the vicinity of conservation areas, such as the Kelimutur National Park in East Nusa Tenggara (NTT), can be resolved through conservation partnership schemes. Kelimutu National Park (KNP) is confronted with the issue of poverty in the surrounding villages and the absence of benefits that local communities derive from the park's existence (Nugraha & Siti, 2020). Kelimutu National Park's previous management continued to adhere to a preservationist paradigm, which resulted in a misalignment between the park's interests and the demands of local communities (Nistyantara, 2011). Since 1984, there have been tenurial conflicts between the indigenous people of Saga Village and KNP administrators. Tenure conflicts have arisen between the indigenous communities of Saga Village and the managers of Kelimutu National Park, as the previous management of the park was not in accordance with the requirements of local communities.

The Kelimutu National Park management has implemented numerous initiatives to incorporate the Saga indigenous community into management activities and implement the principles of co-management. Nevertheless, there are still individuals who are dissatisfied. A sustainable subsistence approach that employs natural, human, physical, social, and financial capital can be employed to evaluate the effectiveness of conservation partnerships in national parks. In order to address vulnerability and optimise the utilisation of natural resources in the vicinity of conservation areas, communities must implement sustainable subsistence strategies (Winarto & Sitepu, 2019). Livelihood assets are the resources and capabilities that individuals or households employ to establish sustainable livelihoods. Human capital, natural capital, social capital, physical capital, and financial capital are the five categories of subsistence assets that have been identified. A livelihood strategy is a compilation of activities and decisions that individuals or communities make to achieve their livelihood objectives, and each asset has the potential to produce numerous benefits.

The objective of this research is to elucidate the implementation of conservation partnerships in Kelimutu National Park by examining the efforts that have been made to enhance sustainable livelihood assets that are pertinent to the enhancement of the welfare of local communities. The expectation is that the interests of KNP managers and the requirements of the community can be reconciled through sustainable practices and collaborative management that involves local communities.

2. Method

This investigation employs a qualitative methodology. In addition to conducting in-depth interviews and observations, this research also analysed livelihood assets and the selection of community livelihood strategies to gain a more comprehensive understanding of the issues under investigation (Creswell, 2010). Secondary data was acquired from publications, documents, and other sources, while primary data was acquired through interviews and observations at the research location (Creswell, 2013). This data capture technique is employed in conjunction with data triangulation to facilitate a more comprehensive comprehension (Court, 2017). The investigation was conducted in Saga Village, Detusoko District, Ende Regency, East Nusa Tenggara Province, for a period of seven months—May to November 2022. The Saga indigenous people were selected due to their firsthand experience with the Kelimutu National Park (KNP). Additionally, they have executed a conservation cooperation agreement. In the north, Saga Village is bordered by Ndito Village, in the south by Wolomasi Village, in the east by Sokoria Village, and in the west by Roa Village and Sipijena Village.

Observation, interviews, documentation, and secondary data studies, including management plans, partnership documents, village monographs, maps, and literature supporting previous research, were all employed in this study (Bungin, 2008).

3. Result and Discussion

The conservation partnership programme of the Saga Indigenous Community Group (KMA Saga) in Kelimutu National Park (TNK) has a number of objectives. Initially, the objective of this programme is to empower local communities and to serve as a strategy for resolving tenure conflicts in conservation areas (Massiri et al., 2015). Previously, individuals frequently participated in demonstrations as a means of gaining recognition for their land use within KNP; however, there were no regulations in place to regulate this. This initiative features a conservation partnership programme that prioritises ecosystem sustainability while simultaneously satisfying the traditional requirements of local communities (Massiri et al., 2015).

The initial step is to allocate space for communities to satisfy their traditional requirements and to establish traditional zones within conservation areas. In addition to facilitating the utilisation of natural resources in traditional zones, this initiative prioritises community empowerment. The objective of this empowerment is to foster the independence and empowerment of community organisations. Facilitation and mentoring are crucial in the pursuit

of this objective. Several phases of activity are involved in the process of establishing a conservation partnership. The stages encompass the following: the identification of community dependency on forest resources in KNP, preparatory meetings to discuss the conservation partnership approach, the identification of representatives of the communities involved, the facilitation of mutual understanding and vision, negotiations, the drafting of cooperation agreements, the preparation of conservation partnership planning, and the signing of conservation partnership agreement documents.

This stage can be customised to accommodate field conditions and adhere to the technical guidelines outlined in formal regulations. The Kelimutu National Park Centre provides facilitation assistance in community empowerment activities on behalf of the Directorate General of KSDAE LHK. The objective of this empowerment is to enhance the independence and welfare of the community by enhancing the utilisation of resources, knowledge, skills, and awareness. A programme evaluation is conducted to guarantee that its impact is sustainable.

The Kelimutu National Park Office is involved in the conservation partnership programme by providing access to cultivated land, training to develop eco interpreters, ecosystem restoration, institutional formation of indigenous groups, infrastructure development, fund distribution, seed assistance, organic fertiliser development, and product development through coffee production houses. Despite the fact that these endeavours have been undertaken, their efficacy in enhancing existing assets still requires improvement. The effectiveness of a programme can also be influenced by sociopolitical conditions. KMA Saga has been the subject of numerous programmes and activities since 2018.

1) Strengthening Community Group

The indigenous community has benefited from the conservation partnership with the Saga Indigenous Community Group (KMA Saga) in the Kelimutu National Park (TNK). The group has been dedicated to the development of the KNP area since September 2018, with a focus on enhancing the function of encroachment sites through ecosystem restoration and community empowerment initiatives. During this process, the management of the KNP area socialised and internalised the Director General of KSDAE Regulation No. 6 of 2018 concerning Technical Guidelines for Conservation Partnerships to KMA Saga. KMA Saga executed a cooperation agreement with the KMA area administration on October 9, 2018, in order to contribute to the development of the KNP area. KMA Saga institutional strengthening is implemented through capacity development and management training.



Figure 1. Monitoring and Evaluation Activities for Community Empowerment Activities at the SPTN Region II Office, Detusoko District in 2022

Training on the development and administration of ecotourism, training to enhance the capacity of eco-interpreters in trekking routes and tourist areas, and training on the production of souvenirs are among the capacity development activities that are implemented. The Saga indigenous community is believed to benefit from the implementation of this conservation partnership. The public's comprehension of conservation partnerships was still limited at the outset of the process, necessitating extensive outreach to establish effective communication.

Nevertheless, the Saga indigenous people exert a significant influence on the effective administration of the KNP area. Coffee administration is one of the activities that are currently in progress in the KMA Saga conservation partnership. KMA Saga's coffee administration activities have been supported by KMA management since 2018. In addition to converting coffee into beverages, they also produce mementos, including bracelets and key chains, from their own coffee beans. This conservation partnership has the potential to enhance the administration of the KNP area and the welfare of the Saga indigenous community, despite the fact that there are still numerous activities that have not yet been completed.

2) Providing Access to Cultivated Land with Traditional Cultivation

In the context of managing the Kelimutu National Park area, it is the belief of Sanudin and Awang (2019) that granting rights and access to communities in the management and utilisation of forest areas will increase community awareness, income, and welfare. The majority of the community garden in Saga Village is planted with coffee plants, which serves as an encroachment location. The majority of the residents of Saga Village are heavily reliant on the garden, and this encroachment activity was present prior to the establishment of the National Park.

Nevertheless, the community and the management have frequently engaged in conflict throughout the existence of Kelimutu National Park management. It was disclosed in an interview with the Chairman of KMA Saga that there was tension between the community and the management following the establishment of pillar 84. The community protested

and even conducted demonstrations and verbal agreements with the local Regent. The community requested that the extant coffee plantations continue to be harvested, regardless of the absence of an official letter. In this context, it is anticipated that partnership cooperation will fortify the community and avert future conflicts.

The classification of the Kelimutu National Park area has been revised, resulting in the allocation of a Traditional Zone that covers an area of 54.37 hectares, or approximately 1.02% of the total area. This offers the community substantial advantages in terms of community activities within the area and internal relations with National Park managers. The partnership, as per the Ndona Resort Coordinator, facilitates public access to areas that were previously inaccessible with ease. This has alleviated tensions between management officials and the community. The Saga Indigenous Community Group is granted access to land within the Kelimutu National Park area to conduct traditional cultivation activities as part of the conservation partnership. The partnership location encompasses a total area of 21.37 hectares, which is divided between the National Park area and the outside area (Saga Village area). The community's activities on this property are restricted to its utilisation without the expansion of the land.



Figure 2. Interview with the Chairman of KMA Saga

Training in the post-harvest management of local superior commodities (coffee), honey bee cultivation, control and management of kirinyuh organic fertiliser, the creation of edeweis demonstration plots, the performance of traditional rituals at cultural sites within the area, and zoning revision activities in conflict-prone areas are among the activities that have been implemented as part of the traditional cultivation programme in the Kelimutu National Park area. Nevertheless, the KMA Saga partnership has implemented numerous development initiatives; the sole ongoing initiative is the post-harvest management of the local superior commodity (coffee). The anticipated outcomes have not been realised in other activities, such as the cultivation of honey bees.

3) Management of Alternative Tourist Attractions

As a village that continues to preserve regional culture, Saga Traditional Village has significant potential (Achmad et al., 2017). This potential can be utilised as capital to develop tourist attractions. Additionally, the Saga traditional village is distinguished from numerous other traditional villages in Ende Regency by its terraced settlement pattern. The settlement pattern's distinctiveness and the beauty of the vistas that can be observed from above were both depicted in the narrative of one of the KMA Saga members. In addition to facilitating the accessibility of traditional cultivation in the region, the conservation partnership is also promoting the development of a variety of alternative activities, including ecotourism.



Figure 3. Interview with KMA Saga members

Maintenance of the Ratebeke-Lake Kelimutu trekking route, arrangement/maintenance of the Murumera waterfall, development of edelweiss demonstration plots, granting permits for eco interpreter services, and development of civet coffee as a tourist attraction are all included in the alternative tourist attraction development programme. Nevertheless, there are numerous challenges associated with the creation of alternative tourist attractions. The TNK Centre is making an effort to realise this potential, but it frequently encounters impediments in the field, as stated by Detusoko, the Head of SPTN Region II. The Chairman of KMA Saga identified the issue of landowners in the vicinity of the Murumera waterfall as one of the obstacles. In spite of the fact that the Lio traditional community is the landowner and the Lio people are merely cultivators, these cultivators do not permit the conduct of tourism activities in the region.

The development of tree houses and bridges in the vicinity of cascades also encounters comparable challenges. Despite the emergence of the development concept, it was challenging to resolve the licencing and revenue sharing issues. The chairman of KMA Saga acknowledged the challenge of opening tickets and determining a distribution of results that is equitable for all parties. In conclusion, the Saga Traditional Village's alternative tourism potential is confronted with numerous challenges, particularly in the areas of land proprietorship and profit sharing. Nevertheless, local communities continue to benefit from efforts to establish

conservation partnerships and traditional cultivation activities.



Figure 4. Interview with Ndona Resort Coordinator

4) Management and Development of Alternative Tourism Attractions

The development of tourism in Kelimutu National Park is crucial in light of the growing demand and interest in tourist visits. The Lio people's exotic culture and stunning natural potential have the potential to be the primary tourist attraction. KNP management has developed a management vision that emphasises ecotourism and local culture in order to enhance community welfare and maximise this potential. Furthermore, a Management Plan for the Kelimutu National Park has been developed through multi-stakeholder discussions and considerations. One of the objectives of this plan is to empower buffer communities and promote ecotourism with cultural themes.



Figure 5. Interview with the Head of Saga Village

Cultural and traditional tourism development programmes for local communities are implemented through a variety of activities in conservation collaboration with KMA Saga. Some of these activities involve the following: the development of a demonstration plot for a traditional timber plantation, the identification and inventorying of cultural sites, local wisdom and customs, and the creation of cultural tourism interpretation routes.

Additionally, the Saga traditional village is being structured. The objective of this activity is to ensure that the nearby community is able to directly experience the impact of Kelimutu National Park. In this scenario, it is also crucial to provide travellers with satisfactory information by providing training and provision in the areas of tourism, services, language, skills, and knowledge. The Saga indigenous people's customs and culture continue to be highly prevalent in the daily lives of the region, while the Lio Tribe's traditions and customs add a vibrant element. In conservation collaboration with KMA Saga, Balai KNP continues to engage in a series of traditional ceremonies and celebrations for indigenous communities.

The KNP's active involvement is evident in the annual Saga traditional village planning activities. Additionally, KNP participated in the traditional Pati Ka ceremony in the Kelimutu National Park region in collaboration with traditional communities. It is anticipated that the management of Kelimutu National Park will be able to offer substantial advantages to local communities and maintain the preservation of nature and existing local knowledge by promoting culture-based ecotourism and active participation in traditional activities.

5) Development of Alternative Livelhoods

The KMA Saga alternative livelihood development programme is designed to enhance the prosperity of the community and decrease its reliance on the Kelimutu National Park. This programme encompasses the following activities: (a) Agroforestry cultivation of coffee and other superior commodities: The development of coffee plantations and other commodities is conducted through an agroforestry approach. The objective is to enhance agricultural productivity and diversify livelihoods. (b) Honey bee cultivation: The community engages in honey bee cultivation as an alternative source of income. This activity provides them with the necessary training and support to establish a honey bee cultivation enterprise. (c) Post-harvest management of local superior commodities: Kelimutu National Park offers support and assistance in the post-harvest management of local superior commodities, which includes the processing and marketing of these products. (d) Establishing memento management businesses: The community is encouraged to establish souvenir management businesses that are based on local potential, such as the processing of coffee beans into visually appealing souvenir products.

At the outset, the primary objective of the development of this alternative subsistence was to enhance coffee processing and agroforestry. Nevertheless, coffee crop failures in recent years have resulted in a decline in crop production, rendering them unable to satisfy the demand. This results in individuals transitioning to horticultural commodities as their primary source of income. TNK is partnering with KMA Saga to assist the community in the processing of the coffee they produce. This collaboration aims to ensure that the coffee is processed into completed products with a higher economic value, despite the limited quantity. TNK provided KMA Saga with apparatus for the production of coffee souvenirs and ground coffee in 2020, and in 2022, financial support was provided for the

construction of a coffee production house. It is anticipated that this initiative will enable the community to establish its own coffee production, which will encompass ground coffee, coffee beans, and coffee themed mementos. In this manner, the local economy can continue to develop through sustainable alternative occupations, while community dependence on Kelimutu National Park can be reduced.

6) Regional Ecosystem Protection, Security, and Restoration

The TNK Centre, in partnership with KMA Saga and the Community Forestry Partners (MMP), implements a variety of initiatives to safeguard and secure the Kelimutu National Park (KNP). Activities that are implemented include: (a) Security patrols: In order to safeguard the KNP region from unlawful activities, including poaching, hunting for protected animals, and environmental degradation, routine patrols are implemented. (b) Forest and land fire management: TNK takes measures to prevent and control forest and land fires by monitoring, extinguishing, and enforcing regulations that prohibit burning. (c) Counselling and outreach: Conduct outreach and outreach activities to communities in the vicinity of KNP to educate them on the significance of environmental protection, conservation, and the regulations that are in effect in the KNP area.

The massive expansion of the Kirinyuh weed (Chromolaena odorata) is presently one of the most significant threats to the KNP ecosystem. Kirinyuh weed is an invasive plant that has the potential to harm the ecosystem and impede the development of native plants. Consequently, the Kirinyuh weed posed (a) threat to the KNP ecosystem restoration programme, prompting the implementation of numerous activities, such as: a. Control of foreign plant species: Integrated control methods, including cutting, pruning, or the use of environmentally safe herbicides, are employed to prevent the spread of Kirinyuh weed.(b) Rehabilitation through the sowing of local superior plant species: The replanting of local superior plant species, which play a significant role in the KNP ecosystem, is conducted. This is implemented to rectify the disruptions to biodiversity and ecosystem functions that resulted from the Kirinyuh weed's proliferation. (c) Structuring and rescuing spring areas: Efforts were made to structure and rescue spring areas that were impacted by the Kirinyuh vegetation. The objective is to preserve the heath of the aquatic ecosystem and the availability of clean water. (d) Procurement of Kirinyuh organic fertiliser: The Kirinyuh weeds that are collected can be processed into organic fertiliser, which is then used to enhance soil fertility and promote the growth of local superior plants. (e) Procurement of environmentally friendly stoves derived from Kirinyuh raw materials: The development of environmentally friendly stoves that utilise Kirinyuh vegetation as fuel is currently in progress. This is a sustainable management initiative that has the potential to decrease the consumption of fossil fuels.

It is anticipated that this ecosystem restoration programme will address the issue of the Kirinyuh vegetation and facilitate the restoration of the KNP ecosystem as a full system.

7) Monitoring And Evaluation

It is crucial to conduct systematic and measurable monitoring and evaluation in conservation partnership programmes to observe the accomplishments and transformations that result from the activities that are implemented. Therefore, it is imperative to collect data that delineates the initial conditions of the KNP area prior to the commencement of activities in order to use it as a reference for evaluating the desired changes through the conservation partnership programme. Managers can compile data on the program's accomplishments and compare it to the initial conditions once the conservation partnership has been finalised after five years. It is crucial to observe the changes that have transpired and the extent to which the KMA Saga conservation partnership has achieved its intended objectives. Nevertheless, the Chair of SPTN Region II Detusoko Kelimutu National Park Office stated that the progress of the work was still deficient, as it had only reached 40% of the target slated for completion in August 2022, during the community empowerment evaluation and monitoring activities conducted on November 4, 2022. Inaccurate Administrative issues are frequently encountered, which can result in challenges for the community. It can be challenging to collect data and account for activities that have been conducted due to incompetence in administrative matters. Consequently, the community requires intensified administrative support and assistance to surmount these challenges. This approach enables the more precise and efficient execution of programme evaluation and data acquisition.

4. Conclusion

This research has determined that the implementation of conservation partnerships in Kelimutu National Park has endeavoured to restore the ecosystem by enhancing the access of local communities to natural capital, human capital, social capital, and financial capital. The Kelimutu National Park establishes a traditional zone that offers local communities access to cultivated land for traditional coffee agroforestry cultivation, in terms of natural capital. Training local workers in the development of ecointerpreters is the method by which human capital capacity is enhanced. Its objective is to equip communities with the requisite knowledge and abilities to interpret and manage nature, thereby enabling them to serve as tourist guides. The institutions of indigenous community organisations are fortified to facilitate communication and collaboration among communities, thereby fostering the development of social capital. It is anticipated that this will result in a greater level of community engagement and participation in conservation initiatives.

Nevertheless, Kelimutu National Park tends to distribute funds for programme objectives that are

not directly enjoyed by the community and to distribute physical assistance in terms of financial capital. This tangible assistance encompasses the development of Murumera waterfall ecotourism, as well as the arrangement and maintenance of trekking routes. Nevertheless, Kelimutu National Park remains committed to facilitating community access by constructing traditional village infrastructure, offering seedling assistance, fostering the development of organic fertiliser, and collaborating with coffee production houses to promote the production of coffee products.

Kelimutu National Park makes an ongoing effort to enhance these programmes and guarantee that the community and environmental conservation in the Kelimutu National Park area receive greater benefits, despite the fact that some conservation partnership programmes may be ineffective or do not provide significant improvements to existing assets.

5. Author Contributions

The contribution of the first author is as a compiler and formulator of scientific methodology and assists in collecting data in the field, while the contribution of the second and third authors is to assist the first author in analyzing field data and assisting in revising the writing of scientific articles, the fourth contribution is to assist in revising the editing of scientific articles.

6. Completing Interests

The authors have declared that there are no competing interests.

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