

Communities Take the Lead and Businesses Safeguard Ecology¹:

Exploration of the community-led model for the sustainable use of biodiversity²

Abstract: Many countries and regions, especially developing nations, are currently facing biodiversity loss challenges. Protected areas, hotspot regions, or typical natural systems with significant ecological value often face conflicts between conservation and development, urgently requiring the establishment of a sustainable business model that balances ecological protection and economic growth to address the dual dilemma of ecological endangerment and hindered development. Based on community-centred exploratory practices of sustainable business models in developing countries, this paper systematically reviews four cases of business models on biodiversity sustainable use—including India’s organic agricultural enterprises, Mexico’s collective lobster brand, Brazil’s oyster farming, and Peru’s ecotourism—providing beneficial references for exploring community-led biodiversity protection and sustainable development models.

¹ Case provided: Policy Research Project Group of the "Governance System for Harmonious Coexistence between Humans and Nature" of the International Cooperation Council

² Bonine K, Sanin N, Wallsten E, et al. Evaluation of Community-Focused Enterprises that Support Sustainable Livelihoods in Partnership with Indigenous Peoples and Local Communities [R]. Conservation Strategy Fund, 2020.

Keywords: Developing countries; community-led; sustainable business; sustainable use of biodiversity conservation

I. Background

Many countries and regions, especially developing nations, are currently facing the challenges of biodiversity loss and green transformation of economy. Protected areas, hotspot regions, or typical natural systems with important ecological value generally face conflicts between protection and development. Due to human activities or traditional extensive livelihood models, the ecosystem continues to degrade, which not only compresses the habitats of organisms, but also limits community development. It is urgent to build a sustainable business model that balances ecological protection and economic development to solve the dual dilemma of ecological endangerment and hindered development.

II. Main Methods

(1) Balancing Ecology and Livelihoods With Community-Led Sustainable Production Models

The Nilgiri Biosphere Reserve, in northern India, is a typical representative of the tropical forest biome. It faces problems, such as conflicts between humans and animals, economic poverty, and

cultural decline. Due to limited economic development and high dependence on natural resources, the local community is seeing immense pressure on the ecosystem. Against this background, the Aadhimalai, a community-owned enterprise that supports local livelihoods, was established in 2013. By advocating for environmentally sustainable farming and organic agriculture practices, it aims to prevent damage to the natural resources that Indigenous Peoples rely on for survival. At the same time, through the unified procurement and sales of agricultural products by enterprises, it has effectively improved the livelihoods of over 1,600 local community members.



Figure 1. Agricultural producers in Aadhimalai fields

Source: Aadhimalai Producer Company Limited.

The Mandira Extractive Reserve, in São Paulo State, Brazil, is a globally important nature conservation area recognized by the IUCN. Due to overfishing linked to the traditional oyster farming livelihood of local villagers, there has been a sharp decline in the oyster

population and an imbalance in the ecosystem, which has seriously impacted the economic income and ecological environment of the area. In order to promote the sustainable development of the oyster industry, local oyster buyers joined forces with public welfare and research institutions to establish the Cooperostra Cooperative in 1997. By establishing standardized oyster farms and reducing the catch of wild oysters, the cooperative not only provided self-recovery space for regional ecosystems, but it also used scientific aquaculture technology to control the growth cycle of oysters, allowing them to reproduce at a more mature stage. This improved oyster production and product quality, as well as replenished the oyster population in mangroves. In addition, by connecting with local consumers and restaurants, it expanded stable sales channels and increased revenue for community members.



Figure 2. Oysters of the Cooperostra Cooperative
Source: United Nations Development Programme.

(2) Enhancing the Market Competitiveness of Products With Collective Brands and Certification Systems

In the Sian Ka'an and Banco Chinchorro Biosphere Reserves, on the Yucatan Peninsula in Mexico, traditional individual fishing methods have damaged the population and marine ecosystem of Caribbean spiny lobsters, and fishermen's income has been greatly affected by market fluctuations. To this end, six local fishermen's cooperatives established a social enterprise, Integradora de Pescadores de Quintana, and created the Chakay lobster brand. The water area of the protected zone has been divided into exclusive operating plots and allocated to individual fishermen, while artificial shelters have been set up as lobster habitats and fishing areas, minimizing overfishing of wild lobsters from a technical perspective. They also implemented an eco-label certification and defined standards for sustainable fishing and traceability, ensuring that each batch of products can be traced throughout the entire production process. This effort has avoided internal vicious competition and simultaneously increased product prices and market recognition. At present, the 180 fishermen participating in the collaboration can steadily harvest about 160 tons of Caribbean lobsters per year. The long-term implementation of this sustainable fishing system has directly promoted significant growth of lobster

populations in the two major protected areas, achieving a mutually beneficial development of fishery resource protection and community livelihood improvement.



Figure 3. Caribbean spiny lobster

Source: Biodiversity Slow Food Foundation.

(3) Expanding Sustainable Income Channels by Integrating Traditional Knowledge With Emerging Industries

A Peruvian rainforest adventure company and the Ese Eja Indigenous community have jointly operated the Posada Amazonas lodge for over 20 years. The core focus is on long-term operation of the rainforest ecological experience, achieving sustainable ecotourism and expanding revenue channels. In terms of business, relying on the land resources protected by the Indigenous community, and their traditional knowledge of the rainforest, the partnership has developed unique experiential services, such as forest hiking,

community cultural interaction, wildlife observation, and river navigation, successfully attracting tourists and researchers from around the world, and expanding community development space. In terms of hardware construction, the lodge was built using local materials and equipped with eco-friendly water and energy systems. Additionally, ecological protection principles were implemented throughout the entire process, from design to implementation. In terms of personnel, 30 members were directly recruited from the community to participate in the work, and a systematic training plan was developed for all positions, such as hotel operation, daily management, and international reception, to help community members master professional skills to adapt to tourism service needs, directly increasing the income of community members. At the same time, ownership of the project has gradually shifted to the community, allowing the community to have higher leadership and revenue distribution rights in the development of ecotourism.



Figure 4. Posada Amazonas lodge

Source: landedtravel.com.

III. Insights

(1) Supporting Community-Led Business Model to Promote Sustainable Use of Biodiversity

The community-led business operation model is a key support for incentivizing community participation in sustainable use of biodiversity and achieving green transformation. Compared to externally led business solutions, communities are familiar with local resources and ecological conditions, and they are able to fully utilize local knowledge and experience. Grasping core decision-making power and participating in fair distribution of benefits highly bind the interests of community members to the business model. Thereby, they can actively participate in production optimization, resource protection, and other aspects.

Taking the community as the main body, systematically integrating the scattered production capacity of the community through corporate operations is not simply transforming traditional production methods but deeply integrating community participation into the entire process, from production to commercialization. Relying on the traditional understanding and utilization experience

of local resources in the community to optimize the efficiency and stability of production processes, and enhance the specialized production level of traditional livelihoods; Through standardized enterprise operations, market access channels have been established to address the pain points of production and sales disconnect and weak bargaining power in traditional livelihoods; to promote the improvement of commercialization level, and; ultimately to achieve the coordination and unity of community income increase and ecological protection.

(2) Expanding Community Ecological Product Certification to Promote Product Market Recognition and Commercial Brand Establishment

The sustainable use of local biological resources to produce community products requires high market recognition in order to increase product premiums and obtain better commercial value, forming a circular driving force for sustainable utilization. Multiple global community product cases attach great importance to the sustainability certification of their products, including eco-labelling, sustainable fishing certification, fair trade certification, etc. These certifications regulate the protection, sustainable use, and excellent quality control of resources in the production and trading of

community products. On the other hand, it also enables community products to receive open and transparent brand reviews, ensuring high premiums and stable commercial channels, and achieving market recognition and support for sustainability.

In addition, sustainability-related certifications often require support and assistance from governments, professional institutions, and commercial organizations in technical guidance, knowledge enhancement, and market cultivation, thereby establishing mutual respect, collaborative trust, equality, and mutual benefit among various stakeholders, gradually resolving initial operational risks and cognitive differences, and ultimately achieving stable operation of business models and sustainable development of communities.

(3) Improving the Operational Mechanism of Community Commerce to Maintain Long-Term Development Resilience

In successful business models for environmental sustainability, it is often necessary to rely on price premiums (such as the added value of eco-certified products) or cost-saving strategies (such as resource recycling to reduce energy consumption) to achieve survival and profitability. Therefore, it is necessary to fully consider commercial risks in operation, as well as government subsidies, financial means, and market channels, and to establish a stable

funding guarantee mechanism.

For example, the lobster collective brand case in Mexico's biological reserves needs to be vigilant against external interference (such as illegal fishing and price cutting by intermediaries), and a more stable mechanism for coordinating interests needs to be established. In the oyster farming cooperatives in Brazil's São Paulo Nature Reserve, it is necessary to strengthen administrative and commercial management capabilities, expand distribution channels, and cope with internal challenges, such as financial debt. The operation of agricultural enterprises in protected areas in India faces risks, such as limited human resources and market fluctuations, suggesting the need to establish a risk-sharing mechanism to prevent enterprises from bearing all pressures alone.