

# **Biodiversity Conservation under an ICDP with a Non-Profit National Park Agency and Labor Market**

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## **1 Background**

Integrated conservation development projects (ICDPs) are considered a key instrument in sustainable national park management and biodiversity conservation. ICDPs aim to realize biodiversity conservation and social development by transferring money to a local community and incorporate local people into biodiversity management to create incentives for them to conserve biodiversity.

However, the effectiveness of ICDPs is controversial among previous literature, researchers said that there is hardly any connection between the conservation and local development needs because local people will treat the money from the project as a new income resource instead of a reason to conserve biodiversity.

## **2 Research Purpose and Assumptions**

Although previous economic researches derive conditions for ICDPs to succeed in biodiversity conservation, they do not consider the participation and decision-making of local people. Besides, the literature assumes that a national park is for-profit, it maximizes its profit as the difference between the revenue from tourism or the sale of hunting licenses and the cost.

The purpose of this paper is to explore the effects of ICDPs by taking into consideration the inclusion of local people in national park management. In the theoretical model, we define a community-based ICDP as hiring local people through the local labor market, with the supposition that the national park agency is a non-profit organization devoting to raising and maintaining the biodiversity level subject to the budget constraint instead of for-profit one.

In the operation of the park, ecotourism is conducted for gaining revenue, but ecotourism has a negative impact on biodiversity level. The revenue is divided into payments for local people and investment for increasing biodiversity level. As for local people, they determine their supply of labor to engage in work in the park and agricultural production. Here, the agricultural production is positively or negatively influenced by the biodiversity, i.e., biodiversity has positive or negative externality.

## **3 Conclusions**

After examining the effect of increasing local labor on biodiversity level, we find that implementing community-based ICDPs may reduce biodiversity level in a national park. Specifically, ICDPs can increase biodiversity level only when the marginal bio-growth of biodiversity and the effect of the management scheme on biodiversity satisfy a condition, where the effects of management scheme refers to the effects of investment and tourism on biodiversity. If a community-based ICDP increases biodiversity level, a non-profit park always generates a higher biodiversity level than a for-profit one.

Moreover, we investigate the effect of community-based ICDPs on social welfare, which is defined as the sum of social benefits of biodiversity and utility of local people. We verify that the effect of the ICDP on social welfare is ambiguous, because of the externality of biodiversity. Accordingly, we conclude that the effects of community-based ICDPs are ambiguous, we must implement these projects with caution.