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# Biodiversity Conservation and Integrated Conservation and Development Projects (ICDPs)

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B. Weeks

# Biodiversity Conservation and Integrated Conservation and Development Projects (ICDPs)

Madhu Rao

## OBJECTIVE

This exercise is based on two case studies of project sites in two fictitious countries, Talamanca and Somoza in Central America. Following is a detailed description of the site conditions and ICDP designs. The donor organization for both the ICDPs is the same. You are hired by this organization as an external consultant to review, analyze, and predict the potential success or failure of the ICDPs and advise the relevant management agencies at both sites on critical issues regarding sustainability that need to be considered prior to moving ahead with actual implementation.

## SITE 1

### Description

Sirena National Park (SNP) and the surrounding conservation areas on the Madrigal Peninsula in Talamanca represent the largest remaining lowland rainforest on the Pacific coast of Central America. Despite the fact that nearly 85% of the peninsula (170,000 hectares) is legally protected in some form, rapid land-use changes and forest clearing threaten the biological integrity of the entire area. Despite the existing regulations, the deforestation rate for the whole peninsula (as determined last year) was 4.7 per cent. The Sirena National park (42,000ha) contains over one-quarter of all the tree species known to exist in the country and an incredibly rich fauna. The Park is surrounded by three conservation areas that include a biological reserve (1400ha), a wildlife refuge (3200ha) and a large forest reserve known the Rio Dulce Forest Reserve (RDFR) (85,000ha). Given its size, the RDFR is of substantial ecological importance since Sirena National Park alone is not sufficiently large to protect many of the species inside its boundaries. The management authority for the park and surrounding areas including the Rio Dulce Forest Reserve is vested in a regional Government conservation authority. However, the agency lacks a clear mandate in terms of its authority to manage the area given conflicts with other Government agencies.

Large parts of the peninsula including the RDFR continue to be deforested. The regional Government conservation agency has lacked sufficient funds to enable effective

management. The legal status of the park is weak and the lack of Government funding and political will to support SNP translates to inadequate protection. Overall, the situation is extremely complex, constantly evolving with no comprehensive information available on the level of resource use within the park and buffer zone or the complete socio-economic, biological, and institutional context.

### **Social and Political Context/Land and Resource Tenure Issues**

The social and political context on the Madrigal Peninsula, particularly in and around Sirena Park, is complex and conflictive. Rapid land-use changes on the peninsula brought about by flawed land-tenure policies, road construction, and other infrastructure development, combined with greatly increased pressures due to the recent economic situation in the country, are placing serious pressures on the park. Opportunities for sustainable resource extraction, such as forestry or agriculture, are limited, since most of the peninsula is hilly and susceptible to rapid erosion once forests are cleared. There has been virtually no coordination of the many institutions involved in the Madrigal Peninsula, particularly in the SNP and the surrounding RDFR. Consequently, there is no clear understanding of the social and economic context for the constantly changing conditions at the site.

### **Threats**

The northern section of SNP is threatened largely from hunting and fishing and the southern portion is threatened by agricultural encroachment and mining. Little empirical information is available on resource use within Sirena Park. All extractive or consumptive use of resources within the park is illegal. Illegal activities within SNP do not appear to be large scale; the threats are from the aggregate of many small-scale activities, particularly mining and hunting. However, given the declining economic situation in the country, pressures on SNP, particularly hunting and mining, will intensify.

Indirect threats with potentially greater impact include:

- Deforestation and hunting in the surrounding Rio Dulce Forest Reserve that are impelled by socio-economic problems, particularly poverty
- Regional land-use change and development on the peninsula
- Lack of political will to manage the SNP and surrounding conservation areas including the RDFR

The more immediate threat to SNP is due to its small size because the survival of many of SNP's species depends upon an intact Rio Dulce Forest Reserve as a functioning buffer zone. Logging, clearing, and conflicts over land titles in the RDFR are serious and

urgent threats to the integrity of SNP. If logging and clearing continue in the RDFR, SNP will become an ecological island. Furthermore, current estimates indicate that at present rates of clearing, the Rio Dulce Forest Reserve will be substantially cleared over the next 5 years. There is growing real estate speculation and land subdivision for sale to foreigners in areas surrounding the SNP including the RDFR. Lack of coherent and consistent policies, especially regarding land and resource tenure and deforestation, are root causes underlying threats. Inappropriate forest policy and perverse incentives promote deforestation in the buffer zone area. The legal system is unable to respond to deforestation, one of the principle threats to SNP.

Tourism has become the country's second-greatest source of foreign income. While tourism to the SNP has increased significantly, most tourists do not come in contact with the communities near the SNP and within the RDFR. Instead, they go to a series of lodges on the north and eastern side of the peninsula and enter the park only for a day. Tourism may actually pose a threat to the biological integrity of the park.

### **Community Participation and Attitudes Towards SNP**

There are a large number of diverse communities resident within the RDFR and about 300 squatter families within the SNP. A tumultuous history of migration and land settlement in the peninsula has led to extremely strained relations between communities living in and around the SNP and the regional government conservation authority. The ICDP that is being planned is focused almost entirely within the RDFR on the assumption that the squatter communities within the SNP will be resettled outside the park in the near future. The resettlement process is currently stalled due to the lack of available land outside the reserve for resettlement. However, the agency has tried to engage both sets of communities (those within the SNP and RDFR) in dialogue to discuss the design of the ICDP described below. Given that most of the ICDP activities are focused in the RDFR, communities within the SNP are antagonistic toward the process. Previously, communities inside SNP who did not benefit from tourism increased hunting activities within the park.

### **ICDP Description**

The Government agency managing SNP, in collaboration with the large international donor that has hired you as a consultant, has designed an ICDP at the site. The primary goals of the project are:

- a) To provide grassroots-level sustainable economic alternatives for people in SNP's buffer zone, the RDFR. The assumption is that deforestation could be slowed by providing rural communities with economic alternatives.

- b) To provide basic amenities to communities, such as schools and hospitals, in order to reduce poverty among communities in the RDRF.

The key aspects of the ICDP are:

- Establishment of community forests as part of technical assistance in forestry to help farmers without title undertake natural forest management, such as sustainable logging in the buffer zone
- Cash incentives to maintain forest cover and as a substitute for the sale of trees to loggers while families develop a reliance on other sources of income
- Loans to allow local groups to undertake activities that promote forest conservation, such as ecotourism and development of non-timber forest products
- In terms of agriculture alone, over a ten-year period, the project plans to grow from focusing on improved production for subsistence, to production for regional sales, to production for national markets, and finally to production for international markets

## SITE 2

### Description

The Rio Nuevo Conservation and Management Area (RNCMA) in Somoza is a large 92,614 ha biologically rich area legally owned and managed by a Non-Governmental Organization (NGO). The area contains an exceptional variety of vegetation types including hardwood forest, savanna, and wetlands, as well as diverse aquatic habitats. The forests of the RNCMA are recognized as having the richest stock of mahogany (a highly valuable timber species) in Somoza. Approximately 60% of the area is considered a core area where extraction is illegal. The remaining 40% of the area is designated as a buffer zone that the NGO considers suitable for sustainable resource use within RNCMA's boundaries. The NGO has a clear mandate to manage the area.

The RNCMA currently faces only minor human pressure on its resources. Forest cover is still extensive in the region, and human population density is low. Several international organizations have contributed an impressive level of support to the NGO managing the RNCMA. This support includes comprehensive biological field inventories, surveys, and monitoring. Having secured the protection of RNCMA (at least in the short term), the NGO is now challenged to plan for future population growth and land shortages by developing land-use practices that reconcile economic development and biodiversity conservation. The RNCMA is not an island of protected forest in a degraded landscape, but rather forms part of the largest remaining tract of Central American forest. The NGO managing the park has collected extensive and thorough information on resource use within the park and have a thorough understanding of the economic context. The institutional context is simple with the NGO as the primary

manager of the conservation area.

Biodiversity protection in Somoza suffers from an absence of a unifying national conservation policy. Management priorities and regulations are variable between protected sites and the institutional framework for biodiversity conservation is diffuse. However, the Government has a pro-NGO policy in numerous governance activities such as identifying policy priorities, analyzing policy, and carrying out legal reform. The NGO enjoys strong political support from the central government and has successfully raised international funds for park management and administration.

### **Social and Political Context/Land and Resource Tenure Issues**

Tenure changes are no threat within the park. Adjacent lands are generally stable. There are three primary land-uses surrounding the park: Private, government, and community-owned lands. Large, privately owned lands and Government-owned forest reserves are still forested and act as buffers to the core area of the RNCMA. To the north of the Park, Mestizo communities practice subsistence agriculture and produce sugar cane; however, many youths have begun to seek employment in urban centers and farming is becoming less popular. There is clear information on land and resource tenure within the park and good overall studies in surrounding areas. All lands within the Park are owned by the NGO. The fact that the NGO has exclusive property rights over its land simplifies conflict management regarding land tenure or resource use within the RNCMA. Within its boundaries, the NGO has so far been able to expropriate squatters, remove poachers, stop industrial exploitation, etc.

### **Threats**

Currently, the area faces no single large-scale external threat. There are low levels of shifting cultivation and hunting in parts of the buffer zone adjoining community lands. No intensive resource extraction or agricultural activities are occurring in RNCMA or its buffer zone. In the future, population growth, agricultural intensification, and increased timber extraction threaten this ecosystem. A likely threat will be the increasing demand for its valuable hardwoods, although the NGO is attempting to thwart this through its sustainable logging program. Maintaining biologically sustainable timber harvest rates is likely to become more difficult in the future as timber resources are exhausted elsewhere and the wood becomes even more valuable. Population growth or uncontrolled immigration could also cause land-shortages in the future. Recognizing the threats, the NGO hopes to identify and promote economic activities that are compatible with biodiversity protection.

The NGO works to control illegal logging of valuable timbers by (1) restricting resource access by patrolling the area and confiscating any illegally harvested materials, and

(2) substituting illegal resource use with planned, low-impact resource uses. The NGO ensures that commercial hunting in the area is prohibited through strict patrolling.

### **Community Participation and Attitudes Towards RNCMA**

There are no resident communities within the core area of the park although communities resident in the buffer zone occasionally hunt in the core area. NGO relations with surrounding communities are by and large neutral or positive. Clear and effectively enforced land-tenure rules have ensured stability in land-use by surrounding communities. Communities have been actively engaged in the design of ICDP activities relevant to them right from the very beginning. While most communities do not depend on the park resources for their subsistence or livelihood, there are at least 2 villages with a total population of about 150 people (30 families) who are extremely poor. Fifty per cent of the families depend on hunting and shifting cultivation in the buffer areas to meet their daily needs and the remaining are employed as laborers in coffee plantations outside the park boundaries. However, population growth within communities resident in the buffer zone is quite high.

### **ICDP Description**

Given the potential for population growth, land shortages and increased demand for timber in the future, the NGO seeks to achieve sustainable development as one of its primary long-term goals. In this context, the NGO hopes to conserve the area through developing models of sustainable resource use in the buffer areas surrounding the park. The NGO has been funded by the donor organization which has hired you as a consultant to design an Integrated Conservation and Development Project (ICDP). The primary goals of the ICDP are:

- a) To conserve the core area of the park and protect it from degradation.
- b) To provide employment for growing populations in the buffer areas surrounding the park and help eliminate poverty in two villages.
- c) To help fund management costs of the area.

The ICDP involves buffer zone and outreach activities in 2 categories:

- Extractive activities promoted within the park boundaries aimed at testing models of sustainable resource use, generating employment opportunities, eliminating poverty, and producing sufficient cash returns for the NGO to pay for perpetual care of the area
- Outreach activities beyond park boundaries designed to educate the public regarding the importance of conservation and to build positive relations between the Park



and neighboring communities

#### *Non-timber forest products*

The NGO has identified several non-timber forest products (NTFPs) from the area of potential commercial value, including chicle, essential oils, honey, etc. Ideally, the sustainable harvest of these products is expected to eliminate poverty by helping meet the income needs of poor communities in the buffer zone. Chicle extraction was a major industry in the country during the late 1800s through the mid 1900s, after which time production levels fell due to overexploitation, problems in production quality, and market collapse. The NGO is attempting to resuscitate chicle extraction in the Park since there is an abundant population of sapodilla trees and has entered into a trial business arrangement. However, there is incomplete and outdated information on the abundance and distribution of sapodilla trees. The NGO plans to implement pilot projects in small plots of land within the Park.

#### *Forestry*

Timber harvesting is an integral part of the history of RNCMA. The NGO is currently developing a major program (as part of the ICDP) designed to sustainably harvest timber. A complete mapped inventory exists of the valuable hardwoods in the park. The NGO hopes that the program will contribute to local industry and employment, achieve economic viability, minimize impacts on biodiversity, and help support other management activities on site. Recognizing that establishing ecologically and economically sustainable resource use is an imposing challenge, the NGO is committed to a cautious and experimental approach.

The NGO:

- recruits technical input from expert biologists and foresters
- delineates preservation zones on fragile habitat
- budgets considerable investment into future research and monitoring
- aims at low-level extraction rates

In addition to the above activities, the ICDP aims to implement long-term biological monitoring of the core area as well as increase patrolling and enforcement in border areas that are vulnerable to encroachment.

You are invited as an external consultant to review, analyze, and predict the potential success or failure of the ICDPs at each of the sites.

### **ASSIGNMENT**

1. What are the factors concerning **site characteristics** (for example threats) that you would consider as affecting the suitability of ICDPs? For each of these characteristics,

compare and contrast the two sites.

2. You are aware of critical **design criteria** for ICDPs that determine their potential success or failure. Analyze the ICDP descriptions that have been provided to you for each of the sites and predict the relative success or failure of the two projects on the basis of specific design criteria.

3. At Site 2, a key aspect of the ICDP involves two activities that are based on the **sustainable use** of resources within the park: (1) the development of sustainable extraction of non-timber forest products such as chicle to help eliminate poverty in two villages in the buffer area of the park, and (2) the implementation of pilot projects in sustainable forestry primarily to generate income to support park management costs.

What are the critical factors that the NGO needs to carefully consider in developing its strategy of sustainable use of non-timber forest products as the means to help eliminate poverty in the two villages?

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