



Tropentag
University of Bonn, October 5 - 7, 2011

2011

Conference on International Research on Food Security, Natural
Resource Management and Rural Development

Biodiversity conservation in the Ecuadorian Chocó: a situation analysis of threats and opportunities for a sustainable lowland rainforest ecosystem management in Esmeraldas and the surrounding provinces

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Introduction

The coastal lowlands of northwestern Ecuador harbor the Ecuadorian Chocó rainforests which form part of the Chocó-Darien corridor. This ecoregion stretches from Panama down to Ecuador and has been classified as one of the world's "hotspots" of biodiversity by Conservation International. Adjoining the Andes to the east and the Pacific Ocean to the west, the Chocó is home to an enormous diversity of fauna and flora with high rates of endemism. Also, the region harbors a rich ethnic diversity, with indigenous groups and Afro-Ecuadorian communities cultivating the land for centuries.

However, during the last decades the Ecuadorian Chocó has experienced the loss of more than 90% of its original forest cover. Today it is one of the most threatened ecoregions in the world, with countless species of flora and fauna being in peril of extinction.

As this region is typified by underdevelopment and poverty, the conservation of its rainforest ecosystems and biodiversity is closely related to the success of the efforts of improving people's living conditions in rural areas. In the focus of this work is therefore the interaction between human development and rainforest ecosystems. The research aims at recommending most promising ways to a sustainable forest management in the region, while fostering rural development. It includes an analysis of the current socio-economical and environmental situation, with a focus on the forces that drive deforestation and forest degradation. This investigation is the background for the comparison of six roughly sketched models of forest ecosystem management that are currently applied in the region. The ending of the analysis contains a discussion of suitable strategies for a sustainable lowland rainforest ecosystem management in northwestern Ecuador.

Key research questions for a bachelor research and thesis were: Which possibilities do exist to

conserve the remaining forest ecosystems while meeting the needs of present and future generations in the Chocó? Which of the forest management systems currently applied in this region have proven to be the most beneficial and ecologically sound for local people?

Material and Methods

Methods included field excursions to primary and secondary forests, oil palm plantations, protected areas, farmlands, rural communities, logging companies and sites of deforestation. Semi-structured interviews on environmental and socio-economic issues were conducted with people living in rural areas. 11 institutions were interviewed on the ecological, socio-economic and human rights situation in the Chocó. 10 interviews were conducted in Quito, and one in Puerto Quito. Subject related talks were conducted with different other stakeholders, including three conservation organizations and one timber company. During one day of research in the library of the Catholic University of Quito (PUCE) extracts from nine written works were collected.

Results and Discussion

Today the coastal forests of Ecuador belong to the most threatened ecosystems in South America (Walker 2004). From 2000 to 2005 Ecuador had the highest deforestation rate in Latin America (1.5%), with 60% of the national wood coming from Esmeraldas province (Checa Villafuerte 2008). In 2005, not more than about 2% of the original forest cover of the Ecuadorian Chocó had been left (CEPF 2005), and even this residue is threatened.

A typical form of timber extraction in the ecoregion is selective cutting of certain economically valuable tree species, to be followed by clear-cutting for the establishment of large-scale plantations, often comprising hundreds of hectares. The area occupied by large-scale monocultures has been expanding rapidly during the recent decades. Today, the establishment of oil palm plantations is a major driving force for deforestation in the Ecuadorian Chocó. Mangrove forests have been clear-cut in order to install shrimp farms.

Deforestation and forest degradation contribute to the climatic changes in many regions of western Ecuador. During the recent years droughts have increased in rural areas, endangering the existence of hundreds of thousands of people who directly depend on rain and fertile soils. According to various local people the droughts experienced after the year 2000 have been the worst in decades. Besides reducing the water and food supply for the rural population they caused a decline in the energy produced by the country's hydropower station. In all provinces of the Ecuadorian Chocó the dry season extended into the time frame of the rainy season.

The loss of biodiversity due to illegal hunting, deforestation and habitat fragmentation can be considered enormous, as residents have been reporting a reduction in the populations of game, fish, birds, snakes, amphibians and various other forms of wildlife (Buitrón 2001; Mendoza 2005; pers.

comm. in 2009 and 2010). This is especially dramatic, as the disappearance of snakes, frogs and other predators deprives the ecosystems of natural regulation mechanisms. Consequentially the prey populations are growing, and pests such as certain rodents, insects and snails will increasingly often cause calamities by destroying crops and transmitting diseases.

Another threat to the ecosystems is the spread of invasive species. In 2009 a newly introduced snail species occurred in the region, devastating thousands of hectares of rice and other crops.

Corruption in all political and economical levels contributes to the large economic inequality within the population and to the lack of law implementation that is common in Esmeraldas. In Ecuador recent human rights violations have been repeatedly linked to the activities of the forestry, agribusiness and mineral extraction industry. These powerful economic groups often influence politicians and hire armed groups to violently gain land access (invasiones), creating lawless areas. This has resulted in the displacement of rural people in the past. Additionally, there are reports of frequent violence near the Colombian border due to the activities of paramilitary and other criminal groups. Another major problem is the economic exploitation of workforces, as agribusiness and forestry companies often lack any responsibilities towards employees.

In 2008, 35.1% of the Ecuadorian population was living below the poverty line (CIA World Factbook 2009). While some urban centers are more developed, rural areas often lack basic needs such as the access to clean water, medical supply, secondary education and social welfare (Villacrés 2001). The chronic poverty in Esmeraldas continues to be a key driving force for uncontrolled deforestation.

Despite the destructive trends of the past, recent developments indicate a change in the peoples' paradigms: more and more residents recognize the forest ecosystem services and abandon unsustainable logging. Hunter and gatherer communities such as Playa del Oro actively work towards biodiversity conservation instead of eradicating the remaining wildlife. The El Pambilar forest has been repatriated. Artisan and fisherman communities and their grassroot organizations have managed to halt mangrove destruction in many zones of the coast. The residents of the community Progreso de Canandé struggle desperately to protect their 250 ha primary forest. The biologist Raul Nieto bought 250 ha of primary forest near Cristobal Colón, Quinindé, using the wilderness reserve for eco-tourism and research. The conservation of the La Perla forest amidst a landscape covered by oil palm plantations has only been realized through the decade-long efforts of Suzanne Shepard. The foundations Jocotoco and Jatun Sacha have each saved thousands of hectares of wildlife sanctuary. At Cristobal Colon, the Ecomadera company promotes reduced impact logging, the establishment of mixed tree plantations and the empowerment of local people as forest managers and guardians. A highly promising approach as well is the governmental Socio Bosque program, which remunerates rural communities for the conservation of their private forests.

Conclusions and Outlook

Current trends in socio-economic and environmental developments in the Ecuadorian Chocó indicate that in the long run an increasing number of very poor people will be living in more and more degraded ecosystems, suffering from a lack of basic livelihoods. The huge and extremely poor rural population will face certain wealthy and powerful (economic) groups that have gained major control over natural resources. However, this marginalized ecoregion still hosts significant potential for a development that benefits man and nature alike. To prevent the collapse of the Ecuadorian Chocó governmental and non-governmental bodies alike need to enforce a series of immediate measures. These include the establishment of an efficient forest monitoring network, governmental aids for sustainable small-scale farming and agro-forestry, afforestation and reforestation, the application of reduced impact logging and a stronger support for protected areas. Other programs need to focus on the promotion of family planning and contraception to reduce population growth.

The expansion of oil palm monocultures must be stopped. All illegally established oil palm plantations should be transformed into farmlands and forests as soon as possible, to redistribute them to the Afro-Ecuadorian, indigenous and mestizo communities from whom they were stolen. Urgent action also needs to be taken against illegally established shrimp pools in protected areas: these ponds need to be removed. The land has to be redistributed to the local ancestral population and reforested to provide for the basic ecosystem functions and services. Completing the balancing act between biodiversity conservation and development in Ecuador must be the government's major goal, for the benefit of the present and future generations. Communities need to receive much more support, e.g. for their efforts in regard of conservation. Both public and private bodies have to advance the implementation of the splendid Socio Bosque initiative. The establishment of the CEPF conservation corridor must be actively encouraged and financially and technically assisted.

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