Effects of regional-scale conservation planning at the local level: Chachi (Cayapa) and Afro-Ecuadorian communities' utilization of the endangered coastal forests of the Ecuadorian Chocó and their understanding of sustainable development and biodiversity conservation.

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Abstract

Conservation planning by international conservation organizations is targeting large areas (designated hotspots or ecoregions) of high biodiversity and at great threat, that cross political boundaries and share environmental and biological characteristics. The large-scale approach to biodiversity conservation has been recognized as necessary in order to ensure that large-scale ecological processes and viable populations of species are preserved and to conserve areas large enough to withstand disturbance and environmental change. The Chocó biogeographic region, which encompasses the moist and humid forests of north-western Ecuador and western Columbia, is recognized as being of very high priority for conservation because of its extremely high level of biodiversity and the many plant and animal species that are endemic to the region. The coastal forests of Ecuador are amongst the most threatened in South America with less than 10 % of the original forest remaining intact. The lowland forests of the Ecuadorian Chocó are inhabited by indigenous Chachi (Cayapa) and Afro-Ecuadorian and *mestizo* communities. The Chachi, and Afro-Ecuadorian communities have been present for a number of centuries, the Chachi having migrated from the Andes and the Afro-Ecuadorians from Colombia. The *mestizo* communities have colonized the area since the 1970s and large-scale deforestation in the region has occurred in only the last forty years. The high level of deforestation has led to a number of different conservation and sustainable development projects being implemented in the region including land purchasing for reserve creation, ecotourism and sustainable forestry schemes. Initiatives to combine the conservation efforts of NGOs and Ecuadorian governmental institutions have been developed. Plans for the region aim to co-ordinate groups involved in conservation at the regional and local level, to ensure that development activities are integrated with conservation efforts, and to educate local communities about the importance of conservation to the future of the region. The effects of a regional strategy for the management of ecosystems and natural resources are considered at the local level through the study of different communities' vision and utilization of the forest. The communities' views about conservation and sustainable development are explored, as well as the ways in which the regional strategy addresses their needs and the implications for the success of the strategy.

Introduction

Loss of biological diversity is one of the most serious environmental problems of the 21st century (Laurance 2001; Soulé & Sanjayan 1998) and is compounded by increasing human populations in many areas rich in biodiversity (Cincotta *et al.* 2000; Liu *et al.* 2003; McKee *et al.* 2004), which renders effective conservation strategies of critical importance. Such strategies can be broadly divided into direct investments in protection and those promoting sustainable land use. Investments in protected areas are vitally important and many conservationists argue that strict protected areas are the most effective, economically efficient way to achieve biodiversity conservation in the long-term (Bowles *et al.* 2001; Bruner *et al.* 2001; Ferraro & Kiss 2001; Redford & Richter 1999; Terborgh 1999). However, even if targets of protecting 10 % of the earth's land were to be met, this would still fail to protect half of the earth's biodiversity (Putz *et al.* 2001; Soulé & Sanjayan 1998). In addition, the creation of parks often results in the exclusion or removal of people and those living around parks often neither benefit from nor understand the need for them (McShane 2003; Pretty 2003). This can lead to problems of illegal invasions, hunting, logging and other extractive activities within park boundaries (Brandon 1998; Vanclay *et al.* 2001). Therefore, if parks alone cannot protect sufficient biodiversity, there is a need for additional conservation strategies to be employed

The limitations of strict protection and recognition of the need to address problems of poverty in many areas containing the highest concentrations of biodiversity, led to the introduction of initiatives aimed at promoting sustainable livelihoods to reduce the pressure

on natural habitats. Such integrated conservation and development projects (ICDPs) became widespread in the 1990s (Hughes & Flintan 2001). However, many evaluations of ICDPs have been negative and there have been criticisms that such indirect methods of conservation are costly and inefficient at best, that they are not sustainable in the long-term and that there are few documented successes (Hughes & Flintan 2001; Ferraro & Kiss 2002; Rhoades & Stallings 2001). Reviews of ICDPs have stressed the importance of taking account of local communities' development needs and views and of valuing local knowledge (Hughes & Flintan 2001; Janet 2002) although this is important for all types of conservation initiatives in order to achieve long-term success and avoid conflict.

The Ecuadorian Chocó is a region that has been subject to a number of internationally-funded conservation projects. The effects of such projects on the people and environment of the region and the extent to which local views were incorporated into the project planning were studied through interviews with stakeholder representatives including national and international non-governmental organizations (NGOs) active in the region, community members and leaders and community organizations.

Large-scale conservation planning and methods of priority setting

Many areas of the natural world are severely threatened by human activities, but with limited funding available for conservation, there is a pressing need for conservation priorities to be set in as informed and systematic a manner as possible in order to protect the most endangered regions (Myers *et al.* 2001). Many international conservation NGOs are directing planning

efforts at the scale of large areas containing similar biological and environmental features that may cross country borders (Myers *et al.* 2000; Olson and Dinerstein 1998; Stattersfield *et al.* 1998). Large-scale planning is important to ensure that large-scale ecological and biological processes are maintained, to sustain viable populations of species, particularly large mammals, and to ensure that areas are able to survive environmental changes and disturbances such as climate change and the el Niño phenomenon (Groves *et al.* 2000).

Norman Myers (1988) first brought to attention the need to identify conservation priorities by coining the term "hot-spots" to describe ten areas with very high numbers of plant species, high levels of endemism and high rates of habitat loss. Conservation International has built on Myers' approach and identified twenty-five biodiversity hotspots (Mittermeier *et al.* 1999). Species endemism was considered to be the most important criterion for determining hotspots, rather than species diversity because endemic species have proven to be the first to disappear as a result of human activities and are by definition reliant on their ecosystem's survival, although reliable data on endemism is hard to obtain (Myers *et al.* 2000). Other international organizations have used different methods to identify areas of priority. These include WWF's ecoregions, which use a representation approach to ensure that all major habitat types are protected in terrestrial, marine and freshwater ecosystems (Olson & Dinerstein 1998), and Birdlife International's Endemic Bird Areas, which are based on numbers of restricted-range bird species (Stattersfield *et al.* 1998).

The Chocó Biogeographic Region

The coastal forests of western Ecuador considered in this study form part of the Chocó biogeographic region, which has been assigned a high conservation priority by all major international level priority setting methods. The Chocó is a region of lowland tropical forest that extends along the coast of Colombia from the border with Panama to the dry forests of Ecuador and is bounded by the Pacific ocean and the 900 m altitude mark (Davis *et al.* 1997), (Map 1). The Chocó has been grouped with the Darién region of Panama to form WWF's Chocó-Darién moist forest ecoregion (Olson & Dinerstein 1998) and also with the dry forests of southwestern Ecuador and northern Peru to form Conservation International's Chocó-Darién-Western Ecuador hotspot (Mast *et al.* 1999).

The forests of the Chocó region are amongst the most species rich on earth and they also contain very high levels of endemism (Brumfield & Capparella 1997; Davis *et al.* 1997; Galeano *et al.* 1998; Gentry 1986; Mast *et al.* 1999; Stattersfield *et al.* 1998), with 25 % of plant species, 25 % of mammals, 60 % of amphibians and 10 % of birds endemic to the region (CEPF 2001; Conservation International 2004). The Chocó was separated from the Amazon five million years ago by the uplift of the Andes, and as a result are much more similar to Central American forests than they are to those of the Amazon (Galeano *et al.* 1998; Gentry 1982; Parker & Carr 1992). The Chocó forests contains some of the wettest forests in the world and the only forests in South America classified as pluvial forest with over 8,000 mm rainfall per year. These lowland forests contain many features that are usually only found in higher elevation cloud forests, which include very large numbers and a high diversity of non-

woody epiphytes (plants which are supported by other plants) and high densities of small trees (Davis *et al.* 1997).

Although the Ecuadorian and Colombian Chocó have been grouped into one conservation unit by many conservation NGOs, Myers included them as separate regions in his original ten hotspots (Myers 1988). Whilst acknowledging the floristic similarity between the two regions, Myers placed the Ecuadorian Chocó in the top three hotspots on earth because they were under much greater threat and had many species not found in Colombia (Myers 1988). The Ecuadorian Chocó may contain more greatly threatened plant species than any other area in South America (Gentry 1977) as 20 % of the plant species are endemic (Dodson & Gentry 1991) but less than 10 % of the original primary forest remains intact (CEPF 2001; Davis *et al.* 1991, Dodson & Gentry 1991). In addition, only 0.3 % of the Ecuadorian Chocó is protected, compared with 5.7 % of the Colombian Chocó (Sierra *et al.* 2002), and therefore, there is a strong case for the Ecuadorian Chocó being very great need of conservation action.

The Ecuadorian Chocó

The vast majority of the remaining forest of the Ecuadorian Chocó is found in Esmeraldas province, which borders Colombia (Map 2). Esmeraldas province covers 15,216 km² and is inhabited by Afro-Ecuadorians, mixed race colonists (*mestizos*) and indigenous groups (Awá and Chachi (Cayapa) and has a total population of 430,000 inhabitants (INEC 1996). Esmeraldas was relatively isolated from the rest of the country until 1970s when road

construction opened access to area for logging and agriculture, and Ecuador's main oil port and refinery were built near Esmeraldas city. By the 1980s, Esmeraldas province became Ecuador's main source of timber and is now responsible for the production of over 70 % of Ecuador's domestic timber (Sierra 2001). The pattern of deforestation in Esmeraldas differs from much of the rest of Latin America, where commercial logging is not perceived as a major factor driving deforestation, because in Esmeraldas at least 70 % of deforestation is caused by commercial logging and is not followed by conversion to agriculture (Sierra & Stallings 1998). The logging companies have driven a pattern of deforestation whereby they have financed the building of a road network and encouraged the use of chainsaws by local communities, from whom they buy timber at very low prices (Rival & Walker 2004). Plantations, particularly of African oil palm and eucalyptus are another major cause of deforestation, particularly in the north of Esmeraldas, where a 50,000 ha area of land has been designated an agricultural zone, and much of the area has been converted to oil palm plantations. Sierra and Stallings (1998) predicted that if the rate of deforestation in the region remained at levels occurring in the mid-1990s, the forests would have been completely destroyed in thirty years.

The protected areas in Esmeraldas province include the Mache Chindul Ecological Reserve in the south, Cayapas-Mataje Ecological Reserve (mangrove) and the Awá Indigenous Reserve in the north and Cotacachi-Cayapas Ecological Reserve (RECC) (Map 2). However, not only is the total area protected in Esmeraldas low, but there is no protection of a number of important habitat types, particularly moist and wet forest below 300 m altitude (CEPF 2001). The largest protected area is the RECC, which was the first nationally protected

area in mainland Ecuador and covers 2,040 km^2 but only 800 km^2 of this is below 900 m altitude (Neill 2004). Most of the remaining lowland forest in Esmeraldas is found to the north and west of the RECC in an area that forms a buffer zone to the RECC (Map 2) and is inhabited by Chachi and Afro-Ecuadorian communities and *mestizo* colonists. This area has received attention from a number of international NGOs aiming to both protect the remaining forest and to improve the livelihoods of the communities in the area, who are amongst the poorest and most marginal in Ecuador (Rival & Walker 2004).

Inhabitants of the RECC Buffer Zone

The RECC buffer zone area is inhabited by Afro-Ecuadorians, Chachi and *mestizos*. *Mestizos* are colonists of mixed race origin and they have been present in the region for less than 40 years, having arrived following road construction providing access to the area from rural regions of Ecuador and Colombia (Sierra & Stallings 1998). Their numbers have rapidly increased as they have obtained land from the government or by the purchase of land rights from Chachi and Afro-Ecuadorians (Sierra 1999). Whereas Afro-Ecuadorian and Chachi communities lived in the region for many years without causing significant damage to forests, *mestizo* colonists have converted much of their land to agriculture (CEPF 2001).

Afro-Ecuadorians have been present in Esmeraldas province since the 16th century having arrived from escaping slave ships and later escaping from plantations, gold panning and mining operations and coming across the border from Colombia (Martinez-Labarga 1999). In 1998, Ecuador ratified ILO convention 169 on Indigenous and Tribal Peoples and

adopted a new constitution. This afforded Afro-Ecuadorian communities equal status to those of indigenous communities in Ecuador in terms of granting both groups land rights. Community land cannot be sold or divided, therefore this should protect communal land from being sold to oil palm and logging companies but law enforcement in the region is very poor. Afro-Ecuadorians live in small communities along the rivers of the RECC buffer zone but have strong family and trade links with towns and cities in the Ecuadorian Chocó and a number are very mobile, often using their upstream communities as retreats (Rival and Walker 2004). Communities are members of the north of Esmeraldas Afro-Ecuadorian organization Unión de Organizaciones Negras del Norte de Esmeraldas (UONNE). The folklore of Afro-Ecuadorians sees the land as the owner of them and everything, and the recognition of the need to care for the land is important (UNEP/CBD 2003).

The Chachi are also known as Cayapa after the Cayapas river catchment many inhabit and they comprise twenty-nine communities (*centros*) of approximately 8,000 people in the Ecuadorian Chocó (Encalada *et al.* 1999). According to folklore, the Chachi migrated from the western Amazon lowlands to the Andean region near to the town of Ibarra but later fled to the coastal lowlands following the arrival of the Incas (CODENPE 2004; Rickards *et al.* 1999). The Chachi in the RECC buffer zone live along the rivers and they are largely riverine people (Rival & Walker 2004; Rudel 2000). The native language of the Chachi is Chapalaa´achi and although many also speak at least some Spanish, the language barrier may be a contributing factor to their being little integration into local markets, particularly compared with Afro-Ecuadorians. Chachi social organization is centered around communities with a chief who ensures that Chachi traditional Law is upheld, including the prohibition of

marriage with Afro-Ecuadorians to ensure the Chachi identity is maintained (Rival & Walker 2004) and communities are members of the Chachi organization Federación de Centros Chachis de Esmeraldas (FECCHE). Shaman play an important role in Chachi communities as they have knowledge of medicinal plants, nature and spirits they believe inhabit the forest and rivers (CODENPE 2004). Chachi oral traditions are closely tied to their environment and nature is revered as a living force with all living things and also stones, rivers and mountains possessing spirits (CODENPE 2004).

Chachi and Afro-Ecuadorian communities have many similarities in their living conditions. They both use rivers as the only means of travel from their communities to markets, they both live without electricity or running water, there is only primary education available in the communities and there is a lack of healthcare resources so people rely on traditional medicine or have to go to distant medical centers in downstream towns.

Communities' Resource Use in the RECC Buffer Zone

Afro-Ecuadorian and Chachi communities lived in the RECC buffer zone for hundreds of years with relatively little effect on the forest as they utilized only a small proportion of land and the vast majority of the deforestation has taken place in only the last 40 years since the arrival of logging companies and *mestizos* (Sierra 1999; Sierra & Stallings 1998). Afro-Ecuadorians carry out small-scale agriculture (coffee, plantain, a variety of fruits and cocoa) as well as fishing and hunting mainly for subsistence but a number of communities are also involved in forestry (Encalada *et al.* 1999). Women carry out craftwork producing

instruments such as maracas, which are sold in the downstream town of Borbón via intermediaries (Zuleta 1998; Zuleta & Villacrés 1999).

Chachi communities are largely reliant upon fishing, subsistence agriculture (maize, banana, yucca and fruit) and hunting, although some sell coffee and cocoa, which was introduced into the area by colonists. Plants are also cultivated for use in rituals or for weaving into traditional clothes and an important role of women is in weaving baskets for sale. Traditional methods of cultivation practiced by Chachi communities maintain tree cover to protect small plants from the sun and only 3 % of their land is utilized for agricultural purposes (Medina 1992). Fishing and hunting (for species including monkeys, armadillos, toucans and parrots) are carried out with an awareness of the need to preserve the species and are only carried out to provide for subsistence needs (CODENPE 2004). Logging for commercial purposes has been carried out by Chachi communities only in the last few decades following the arrival of the timber industry in the region. However, timber has been traditionally harvested on a much smaller scale for the construction of canoes, cooking utensils, toys and musical instruments (CODENPE 2004).

Logging has affected both communities by reducing the number of animals available for hunting and there has been a serious reduction in the number of fish available in recent years (Medina 1992, Rival & Walker 2004). Fishing has been the main activity of both communities and this is carried out with harpoons and nets but the decline in fish populations has led to the use of dynamite by both communities and this has a detrimental effect on all animals in the rivers. The decrease in animals available for consumption has led to the need

for people from a number of communities to buy marine fish from the downstream town of Borbón at a high cost and communities have been reliant upon selling timber in order to buy food that they used to be able to obtain for free. The small-scale agriculture practiced by both communities has problems with infestations and diseases affecting many crops (Obando & Tipaz 1998; Zuleta 1998; Zuleta & Villacrés 1999).

Logging in the Ecuadorian Chocó

The sale of timber comprises the sole or predominant source of income for the vast majority of Chachi and Afro-Ecuadorian communities (Rival & Walker 2004). Local people are responsible for 77 % of the timber extracted and it is carried out by Chachi, Afro-Ecuadorians and *mestizos* in groups of ten or less using chainsaws and logs are sold either by prearrangement with buyers or without prior agreement (Sierra & Stallings 1998). The remaining 23 % of timber extraction is carried out by external companies who form agreements with communities and individual forest owners in order to obtain timber rights.

Until the arrival of commercial logging companies 40 years ago, logging was carried out by local communities on a very small-scale, harvesting only a few of the most valuable species and taking trees near to water courses that were easy to extract. The arrival of commercial logging companies greatly increased the rate of logging as the use of chainsaws by communities became widespread and the demand for timber in local markets fuelled a large increase in forestry. However, difficulties in accessing markets leads communities to

sell timber to intermediaries at very low prices (only $12 per cubic metre), and communities also give companies rights to log their forests in return for only $6 per tree (Jara 2001).

Logging by communities in the last forty years has been carried out without preplanning, consideration of the effects on forests, determination of annual harvests or the relative proportion of different species harvested and with many insecurities regarding market access and prices (Zuleta 1998). The inequalities and unsustainable practices caused great concern to conservation NGOs in Ecuador and led to a number of initiatives aiming to improve the standard of forestry for both the people and forests, which are described below.

Conservation Initiatives in the Chocó

The identification of the Ecuadorian Chocó as an international priority region for conservation in the 1990s led to a number of ICDPs and conservation projects being established in the region. The largest, longest running and most ambitious was the USAID funded Sustainable Uses of Biological Resources (SUBIR) project which ran from 1991-2002. The aim of the project was to "identify, test and develop economically, ecologically and socially sustainable resource management models in selected conservation units and their buffer zones in order to preserve biodiversity and improve the economic well-being of communities through their participation in the management of renewable natural resources" (Rival & Walker 2004). The SUBIR project was divided into three phases and during the first phase, it was active in five regions of Ecuador and was overseen by a consortium of CARE Ecuador, the Nature Conservancy (TNC) and the Wildlife Conservation Society (WCS) who were responsible for

institutional strengthening, protected area management and biological monitoring respectively. The project was extremely ambitious in its aims and scale and worked with a large number of stakeholders including government agencies, national NGOs and many community groups, which proved to be too large to be able to implement the project effectively (Rival & Walker 2004). In 1994, an evaluation determined that the consortium model was not effective and created confusion and tensions due to differences in agendas between consortium members (Rival & Walker 2004; Stallings 2001).

Following reorganization, the SUBIR project split to focus on two areas, which were the RECC buffer zone and Yasuní national park. In the RECC buffer zone the project aimed to set up sustainable forestry and agroforestry schemes with a number of communities and to assist with community development and to help communities to obtain property rights to their land. The work of SUBIR in the RECC buffer zone was carried out by a coalition of international and national NGOs. The forestry was run by the Ecuadorian Jatun Sacha Foundation, biological monitoring of the forestry set up by the WCS and run by Ecociencia, an Ecuadorian foundation and community development was organized by CARE Ecuador.

The largest private protected area in the region is the Awacachi Corridor which links together the RECC with the Awá Ethnic reserve to the north (Map 2). The Awacachi Project is run by Fauna and Flora International (FFI) and its local partner Niños Y Tierra Unidos Por el Medio Ambiente (NYTUA). Seven and a half million dollars has been invested in the purchase of over 10,000 ha of forest from *mestizo* land owners, who often did not live on their land, and from some Afro-Ecuadorian communities although only one community moved

from their land and they did so by choice. The land purchased is close to oil palm plantations and commercial forestry operations and was at great threat of being sold to companies had it not been purchased by the NGOs. The corridor requires protection and as invasion is a risk in the region, local guards have been hired and received training (Peréz 2003). The importance of educating communities about the role of the corridor and the need for community development was recognized early on and now that the reserves have been joined, the project is focusing on a range of community development and empowerment initiatives.

The Critical Ecosystem Partnership Fund (CEPF) is a joint initiative of Conservation International, the Global Environment Facility, the Government of Japan, the MacArthur Foundation and the World Bank, which has identified the Chocó as one of its priority regions. The CEPF aims to involve civil society in biodiversity conservation in the world's hotspots, and to cultivate and support alliances between different levels and types of organizations engaged in conservation (CEPF 2001). The CEPF works on large areas because it perceives that they are necessary to maintain viable populations and ecological processes. In regions where habitats have become fragmented and reserves too small to maintain biodiversity in the long-term, the aim is to join together remaining habitat to form a conservation corridor (CEPF 2001).

Within the Chocó, the CEPF has focused on an area designated the Chocó-Manabí Corridor that was delineated following stakeholder consultations. The CEPF is investing $5 million in the area and has a ten year plan, which was agreed upon by a meeting of a wide range of conservation organizations active in Colombia and Ecuador, that aims to coordinate

and consolidate large and small-scale conservation activities within the corridor (CEPF 2001). Actions that the CEPF hopes to achieve in the Corridor include the strengthening of local capacity for promoting conservation, improvement of the management of protected areas and assisting communities living near to protected area with sustainable development options. The CEPF is working with the Ecuadorian government, large and small national and international conservation and development organizations and is overseeing the effects on the region with the aim of influencing development activities to give greater weight to conservation. The CEPF corridor project will be working from the international level down to the local level and has identified the importance of participation at all stages of conservation projects.

Community Involvement in Conservation Initiatives

The SUBIR project undertook a wide range of activities in the RECC buffer zone, which included land titling, forestry, agroforestry, animal husbandry and biological monitoring of the forest. The wide range of activities included in the SUBIR project aimed to ensure that communities could diversify their sources of income and did not have to rely on forestry for an income, so that pressure on forests could decrease. The project not only provided communities with the means and instruction to carry out forestry and agricultural activities but also trained community members to become paralegals and parabiologists so that they could take an active role in land titling and biological monitoring. However, decisions made during the planning stages about the types of activities to implement were not carried out with community involvement and this led to problems, which could have been overcome had

communities' views been included from the start and had they been seen as partners in the project rather than recipients of aid (Rival & Walker 2004).

The sustainable forestry activities of the SUBIR project were planned and implemented by Jatun Sacha, and were carried out only after community boundaries had been delineated, mapped and communities had gained title to their land. Detailed community forest management plans were drafted with the assistance of community members and involved a pre-logging inventory of the forests, and an evaluation of the volume of timber and size of trees that could be cut per year. Plans were elaborated for logging in twenty-year or thirty-year cycles with the area that could be logged each year specified (Obando & Tipaz 1998; Zuleta 1998). Community participation in the preparation of the plans was enthusiastic and many individuals were anxious to learn from the foresters and many were also keen to ensure that specific areas of forest were protected as reserves.

The training aspect of SUBIR was a very important component and included the use of equipment including compasses, biological monitoring of forests and all aspects of forestry such as minimum logging diameters and identification of an increased number of commercial tree species. Training courses were run on forestry, agroforestry, agriculture, carpentry, crafts and commercialization (Zuleta 1998). The learning was a reciprocal process whereby SUBIR's foresters and biologists gained an understanding of the traditional forest knowledge and methods of logging in order to adapt or improve them to attain sustainable forestry standards. The SUBIR staff also had to take into account difficulties caused by lack of

community organization, the poor level of education and the relatively small amount of land on which communities had agreed for SUBIR to carry out forestry (Zuleta 1998).

In order to ensure that communities could effectively implement management plans and with the aim of helping them to become self-sufficient in the long-term, a forestry commission was set up in communities with management plans whereby a president and administrator of forestry would be appointed to oversee groups who would carry out the timber harvesting (Obando & Tipaz 1998; Zuleta 1998; Zuleta & Villacrés 1999). As well as aiming to ensure that forestry in the RECC buffer zone would be carried out sustainably, SUBIR also addressed the problem of the low prices and market access problems faced by communities by setting up a community forestry network, the Red Forestal Comunitaria (RFC), through which communities could sell their timber only if they adhered to standards set out in their community forestry plan. The RFC's connections and size enabled much fairer prices to be granted to communities using it, whose profits increased by 60 % (Tolisano 2000).

The forestry standards set out in SUBIR's forestry plans were drawn up with a long term goal of achieving Forest Stewardship Council (FSC) certification, and therefore included components to take account of the ecological and social requirements of certification. Social requirements ensured that all community members could benefit from the exploitation of community timber resources. Ecological requirements set out in community management plans aimed to ensure sustainability of forestry with the minimum damage to forests and species, paying special attention to areas with endemic or endangered species.

Effects of Conservation Initiatives on Communities in the RECC Buffer Zone

The SUBIR project ended abruptly as it had been hoped that further funding would be found and therefore, community management plans were only implemented in a handful of communities and these had not yet reached the point of self-sustainability. The removal of outside assistance and equipment and the pressing need of communities for food and basic services have led some to return to unsustainable forestry practices, although the community forestry network continues to be used by a few communities.

The SUBIR project was able to achieve an increased valuation of forests by communities by educating them about biodiversity and forestry, and by helping communities to gain land tenure which gives them security and a long-term interest in protecting their natural resources. The project's focus on the value of forests has also helped to change local views about the RECC as communities have gained a better understanding of its values and some have directly benefited from revenue from tourists visiting the RECC (Tolisano 2000) who stay in a lodge built as part of the SUBIR project.

The SUBIR project has been criticized for failing to take into account local needs and opinions (Janet 2002; Tolisano 2000) and this view was shared among a number of community members who felt the goal of SUBIR was to achieve biodiversity conservation rather than to help them. The lack of services that should be provided by government is the greatest concern to communities, namely health and education and these needs were not

properly addressed by the SUBIR project. The project had a set of objectives that it was bound by and it did not have the flexibility that would have been required to satisfy communities.

Had communities been involved at the planning stage, issues that are central to communities could have been integrated into the activities of SUBIR. For example, it would have been apparent that a major problem requiring assistance in the area that has been exacerbated by commercial logging and the resulting increasing population has been a great reduction in the amount of fish and crustaceans in the rivers. These animals play a vital role in the diets of Chachi and Afro-Ecuadorians, many of whom have had to buy fish from Borbón and so have logged their forests to gain the money to do so. Therefore, the lack of edible aquatic animals is of serious concern to communities and is driving increased logging but was never directly addressed by the SUBIR project. Another illustration is that some communities were not in favor of the community management plans leading to them logging in their primary forest as they wanted to leave such areas for hunting.

Although there are a number of issues over which communities felt that they were not being listened to, the work of community capacity building by SUBIR is important for the future. The strengthening or creation of community groups is important in order for communities' views to be heard at the regional, national and international level. Community empowerment is particularly important in the Ecuadorian Chocó, where community land is under threat from commercial companies and communities have had little bargaining power and hence had to sell timber and agricultural products at very low prices.

The main activity of the Awacachi Project to date has been land purchase to create the Awacachi Corridor but development assistance has also been provided to communities living near to the Corridor. Communities living near a disused railway line but far 17 km from the nearest road have been provided with an alternative transport mechanism in the form of a motorized truck that runs on the railway track using hydroelectric-powered batteries. This makes it much easier for the community to transport their goods to the coastal town of San Lorenzo. There are also plans to establish alternative, sustainable income projects including ecotourism and a butterfly farm.

Regional Conservation Planning: the Corridor Approach

Large-scale conservation planning in the Chocó aims to coordinate and help direct the local, national and international organizations and conservation projects in the region to enable them to work synergistically. Regional planning can prevent duplication or conflicting efforts and thus facilitate the most efficient use of financial resources possible. The first phase of the SUBIR project suffered from a lack of consensus between project partners and plans for protected areas overlapped with that of government initiatives funded by the Global Environment Facility (Rival & Walker 2004). Therefore, had an overseeing body been in place, such problems of duplication could have been avoided. However, large-scale planning that crosses country borders can cause complications, as it has to deal with differences between countries. The CEPF Chocó-Manabí Corridor aims to address political and regional differences between Colombia and Ecuador. In Colombia, there are a number of large

development projects within the corridor that are of environmental concern including the construction of canals and hydroelectric dams (CEPF 2001). The presence of armed groups in Colombia that cause social conflict also affects conservation action in the region. Such differences within a conservation unit can impede efforts to combine initiatives at the regional scale.

The corridor approach to conservation planning has been applied at a range of scales throughout the world and it enables a priority area to be selected within which protection and improved land management can be implemented where appropriate. This method of conservation planning enables gaps in current reserves (e.g. unprotected habitats) to be identified so that new reserves are selected based on the best available scientific information and can connect protected areas (Margules & Pressey 2000). Corridors providing connectivity between protected areas can help to maintain viable populations of species and therefore conserve biodiversity (Rosenberg *et al.* 1997; Tewksbury *et al.* 2002).

At the ecoregional level, an example of the corridor approach has been applied in Central America and Mexico. Regional strategies for conservation and development in Central America in the early 1990s provided a basis that led to the development of the MesoAmerican Biological Corridor (MBC), endorsed by each country's president in 1997, which aims to coordinate and implement conservation and sustainable development in over half of Southern Mexico and Central America (Godoy Hererra 2003). Land in the MBC is divided into four land-use zones ranging from strict protection to multiple land use. Execution of the plans of the MBC requires many different stakeholders to work together for a common

goal (Miller *et al*. 2001). This is an important challenge that must be addressed if the MBC is to make a significant impact on reducing habitat loss within its margins. Miller *et al.* (2001) highlight other important issues for the MBC, many of which are significant to the SUBIR project, namely the importance of securing land tenure for local people, coordinating policies and legal frameworks, and reconciling the interests of and making available relevant information to different parties. The acquisition of land tenure for communities was one of the most important achievements of the SUBIR project and the project was also influential in the drawing up of new laws and norms for forestry in Ecuador. However, large projects with wide-ranging aims such as that of SUBIR, particularly in the first phase, must reconcile the different agendas of groups involved. This will be an important matter for the Chocó-Manabí Corridor, which not only includes a larger area of Ecuador than did SUBIR but also includes Colombia and a wider range of habitats including dry forests and mangroves.

The large-scale approach to conservation has a scientific foundation and driving force and it may be the best way to ensure the long-term survival of habitats and species. Planning over large areas may be financially prudent for international donors as it can provide economies of scale. However, large areas that cross political boundaries can have a wide variety of threats that require different solutions, have different sets of legislation and are home to different cultures who utilize the land in different ways. The effectiveness of large-scale conservation projects on the ground depend upon their capacity for coordination, bringing together different interest groups, addressing local needs and the flexibility to work with different regional and national governments. Therefore, the large-scale approach has to take account of a demanding set of issues which may limit its success in the field.

Implications for Conservation in the Chocó

The lessons of the SUBIR project show that although communities' experiences of ICDPs may make them skeptical about the ability of external organizations to provide them with lasting economic benefits, conservation initiatives are able to increase local peoples' knowledge of natural resources and valuation of biodiversity. Knowledge sharing between partners in ICDPs is important, particularly for projects involving forestry (Klooster 2002). Strict protection of as much land as possible in biodiversity hotspots may continue to be the goal of many conservationists but the Awacachi Project provides an example of the need to address poverty in buffer zones of parks. The CEPF regional strategy recognizes that local knowledge, culture and traditions should be acknowledged and supported and that local communities are central partners in conservation. However, poor communities are not likely to sacrifice short-term economic benefits for long-term conservation unless their basic needs are being fulfilled (Sierra 1999). The CEPF Chocó-Manabí Corridor project is aiming to secure long-term funding for the area and is addressing the development needs of communities by supporting international initiatives and local NGOs on a range of initiatives including ecotourism and agroforestry (CEPF 2001). The success of such projects will be crucial to the future of forests in the Ecuadorian Chocó.

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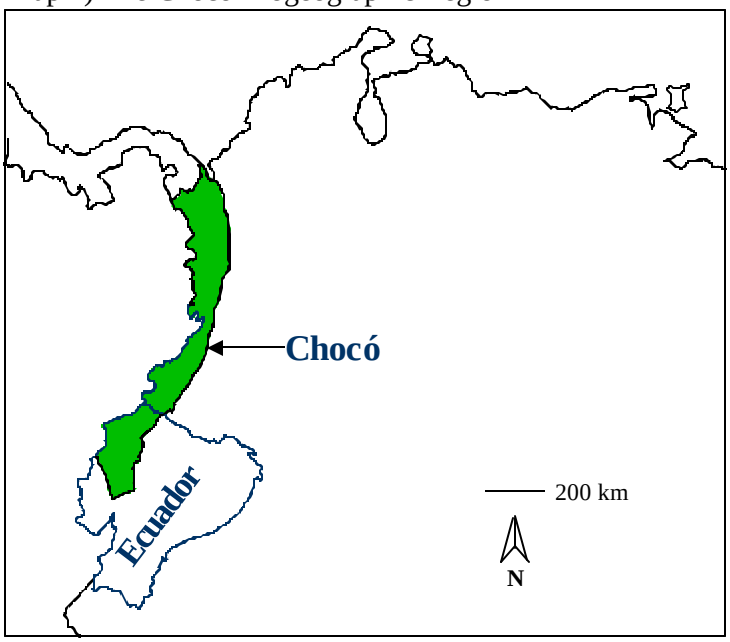
Map1) The Chocó Biogeographic Region



Map 2) Esmeraldas Province, Ecuador