Forests and the Biodiversity Convention

Independent Monitoring of the Implementation of the Expanded Programme of Work in Costa Rica

COECOCEIBA-AT

Global Forest Coalition

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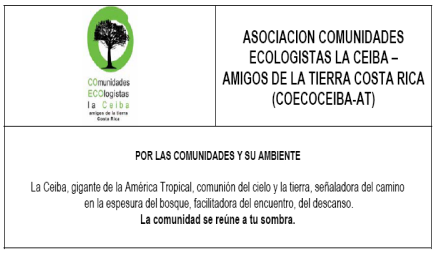

FOR THE COMMUNITIES AND THEIR ENVIRONMENT. La Ceiba, the giant of Tropical America, communion of sky and earth, pointing out the path in the thickness of the forest, facilitating encounters, facilitating rest. **The community meets in your shade**

Citation:

Country monitoring report on Costa Rica. (2008) 28 pages.
Independent monitoring of the implementation of the Expanded Work Programme on forest biodiversity of the Convention on Biological Diversity (CBD POW), 2002-2007.
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Cover:

Forest Costa Rica.

This report was made possible through the generous contribution of the Dutch Ministry of Foreign Affairs.

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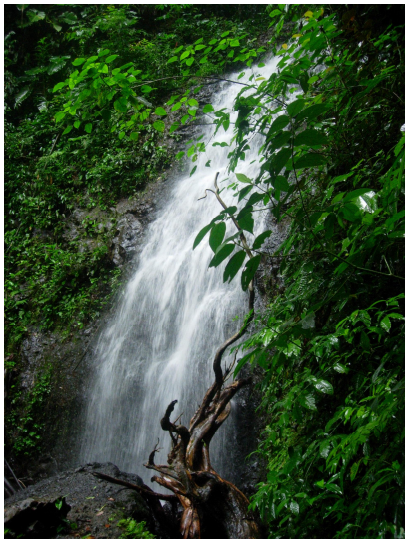
SUMMARY

According to the results obtained during monitoring to assess how the Government of Costa Rica has implemented the Expanded Programme of Work on Forest Biological Diversity of the Convention on Biological Diversity, it may be concluded that this Programme is not known by the country's social organizations due to the lack of policies aimed at informing and achieving participation in the formulation and application of environmental policies. The Costa Rican government takes on commitments at international level which it later leaves unfulfilled and never informs society about them. Likewise, and save for a few exceptions, it does not promote opportunities for joint discussion and construction with social organizations for the definition of the policies it takes to international fora, such as the Convention on Biological Diversity (CBD).

Our country ratified the CBD by Law No. 7416 of 28 July 1994. This ratification was consolidated with the adoption in 1998 of Biodiversity Law No. 7788 and the subsequent promulgation of the Standards of in situ Access to Biochemical and Genetic Elements and subsequently of ex situ elements. This constitutes one of the most complete legal frameworks on the matter on a global level.

Costa Rica is a developing country that has been characterized by its efforts towards biodiversity conservation. Initiatives are numerous and varied, both in the public and private sector in the search for solutions to the country's conservation problems, even though at times they come up against neo-liberal economic policies implemented by the same governments. In this way, various contradictions are generated that, for the most part, are defined by the supremacy of neo-liberal policies. Likewise, the institutions have scant budgets and are weak in relation to their possibilities of follow-up for an integrated approach to conservation actions and sustainable use of biological diversity, and for the application of legislation presently in force, which is very broad and diverse. Similarly, the National System of Conservation Areas (SINAC) also has limited resources for an appropriate follow-up of implementation (dissemination of its scope, consultation processes, representation at meetings and other CBD activities).



Consequently, forests and biodiversity are presently threatened by activities such as tourism on a large scale with a scant vision of development responding to national interests, and leading to the concentration of land tenure, mainly in coastal areas.

Furthermore the forestry contingency plan has enabled large companies (which helped to negotiate it) to produce timber involving a market concept, concentrating incentives such as Environmental Service Payment (ESP) for the establishment of monoculture plantations and opening up the exploitation of forest timber and that of other agro-ecosystems, following strict profitability and market criteria.
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Likewise, the use given to the national territory over the past decades has been based almost exclusively on increased agriculture and livestock production, promoting above all the exportation of products and fostering the development of crops produced in large scale systems with few owners and even by transnational capital and the hiring of temporary labour. This indicates a change in the agricultural model that does not respond to appropriate planning, placing in jeopardy the country's food sovereignty, and changing the distribution of land tenure and Costa Rican property. Furthermore, it contributes to environmental damage, caused by the great amount of agrochemicals present in the soil of the country with the well known consequences on surface and groundwater pollution.

The above mentioned aspects have had a negative impact on land tenure patterns: 70% of the territory is in the hands of 0.75% of the population – large land owners – and 1.12% in the hands of 83.4% of the population, who are small landowners. The Indigenous Peoples' territories, totalling 334,447 hectares (ha) (corresponding to 6.5% of the national territory), has 131,559 ha (39.3%) in the hands of non-Indigenous people, and therefore restoration of land has been minimum according to CONAI (National Commission for Indigenous Affairs). Furthermore, this problem is made more serious as Indigenous people who do not have lands are obliged to seek new horizons with the consequent cultural uprooting and in many cases, loss of identity because of the process of acculturation they are exposed to.

Regarding the forest cover, the study presented in 2006, prepared by the University of Alberta (Canada) and the Costa Rican Technological Institute (ITCR), funded by the National Foundation for Forest Financing (Fonafifo), shows that in 2005, the forest cover extended over 48% of the territory, not including mangroves, Paramos and forest plantations. This cover increased by 169,914 ha between 2000 and 2005 as a result of forest regeneration processes, while the loss of cover (in areas that had been forests in 2000) amounted to 23,689 ha. The rate of deforestation increased during the period 2000-2005, with respect to the period 1997-2000, and the rate of recovery increased by 12,000 per year in 1986-1997 to reach 33,000 between 2000 and 2005. The study also points out that forest restoration areas "are very vulnerable to further deforestation" and that of the areas covered by forests "barely 43% (1,050,015 ha) is under any degree of protection, while 57% (1,381,147 ha) is outside the various protection units." Furthermore, it assesses the impact of the ESP system on the protection of areas with forest cover "outside protected areas a total of 451,500 ha have been under conservation with the Environmental Service Payment (ESP) over the period 1997-2005, this area is equivalent to 18% of the national forest cover in 2005, or 32% of the cover outside protected areas.

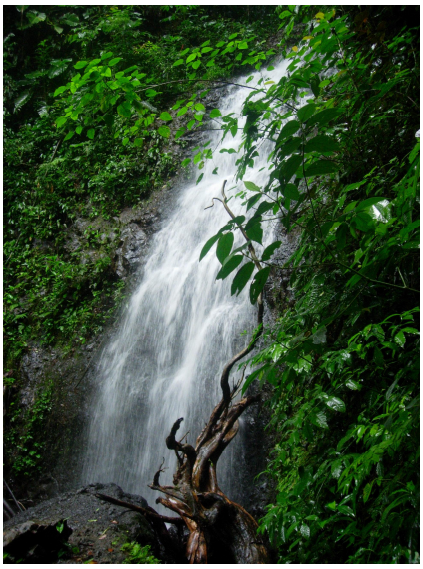
In this way, since the past decade, Costa Rica has been recovering cover through secondary forest regeneration. This restoration is due to a combination of factors, among which mention may be made of the decline in international markets for meat (which for some decades promoted development of extensive cattle-raising) and the positive and optic impact of environmental service payment (ESP) on the part of peasant, ecologist and Indigenous organizations. However, these areas are usually very vulnerable to changes in use and their consolidation "to improve connectivity of the landscape, habitat quality and production of environmental services" and to contribute to the restoration and conservation of endangered species, require a coherent strategy with appropriate policies on a country level.

It is also important to observe the changes in cover in the biological corridors and other priority conservation areas planned by the country. These have been designed to join considerable masses of forest and guarantee the genetic flow of flora and fauna. In their majority they are part of the Great Meso-American Corridor, an international effort to maintain biological connectivity between South America and North America (Chassot et al, 2006). SINAC and other institutions have been working on a proposal for land use planning

which has identified and catalogued, according to their priority, the main areas of connectivity among the country's Protected Wildlife Areas (ASP) (SINAC, 2007). Unfortunately, the market vision behind this Meso-American project sees these areas as major genetic banks that in many cases should not be inhabited by local populations as they generate pressure on them. .

There are presently a total of 165 sites included in the ASP under seven different management categories covering a total of 12,886 Km^2 (1.288.565 hectares, corresponding to 25.2 % of the national territory), where 44% of the territory is in private hands, especially in categories such as protection zones, forest reserves, wildlife refuges and wetlands. Of this land, 90.45% has already been paid. The remaining 9.15% will take the country no less than 23 years at the present rate of payment. The creation of protected areas has been an important effort by the Government, however many of the areas do not have sufficient funding to achieve appropriate control and monitoring of their resources.

The present development model, based on free trade has an important negative impact on the environment and this will be further increased with the recent adoption of the Free Trade Treaty among the United States, Central America and the Dominican Republic (TLCEUCARD).



This because the environmental chapter of the FTT sets aside the application of international agreements, (Kyoto Protocol, the Convention on Biological Diversity and the Cartagena Protocol), excluding the definition of environmental legislation because it discards any legislation regulating or controlling the exploitation of a resource (Biodiversity Law, Mining Code, Forestry Law, Hydrocarbon Law, Water Law for example). Likewise, it favours trends and activities to privatize the environment and knowledge (bio-prospecting, patents, model to protect obtaining from plants in the style of UPOV 91, and the ratification of international treaties on intellectual property such as the Budapest Treaty on micro-organism deposits). .Finally, it fosters large scale investment in activities based on the exploitation of natural resources, such increased demand for major works in the field of mining, oil and monoculture plantations, all activities that have been noted in various documents as underlying causes of deforestation and loss of forest resources (Rojas, 2006). Likewise the ESP is recognized as a "market-based mechanism" (article 17-4, item 1c) loosing its strategic nature as a tool to encourage conservation based on a priority zonation according to the country's social and environmental interests.

It is evident that the social, ecologist and institutional sectors need to be integrated regarding matters related with biological diversity, in addition to implementing effective actions to solve the different problem situations and fully use appropriate scientific and traditional knowledge. . This is accompanied by a lack of enforcement of appropriate policies and legislation and the lack political will to place environmental issues before neoliberal polices. The country's efforts in conservation and sustainable use are generally developed within the framework of the CBD, but not necessarily in a conscious and comprehensive way, particularly regarding its programmes of work. Knowledge of the CBD in general is not very widespread, due to an absence of human resources and funding for the CBD focal point to enable it to efficiently carry out follow-up of all actions generated within the framework of the Convention. It is important to reiterate the need for these policies and laws to be formulated in participative processes together with the Costa Rican social movement.

Some of these trends can potentially be reverted and in general the country has the tools to face the situation. There are some important programmes with great potential for change, as in the case of the National Strategy Against Illegal Logging (Estrategia Nacional Contra la Tala Ilegal - ECTI) and the National Strategy Against Forest Fires. The local governments could come closer and coordinate actions regarding environmental issues. There are periodic analyses of the state of the country as for example the State of the Nation Regarding Sustainable Human Development, that provides some interesting elements. There are also some proposals for legal reforms prepared by ecologist organizations (for example to the Forestry Law) addressing some of the limitations we have noted. Finally, the country has legislation regarding citizen participation in the building up and preparation of national policies, which is not implemented. There are many more proposals arising from the work of social sectors such as the ecologist, peasant and indigenous sectors among others, that range from ecological restoration of tropical forests, artisanal use of fallen timber in forests, organic agriculture, community rural tourism, community forest and biodiversity management and the recovery of food sovereignty, and many more that favour sustainable use of biodiversity. However, very often these proposals are ignored by the government of the day.

INTRODUCTION

The report on the independent monitoring process for the implementation of the Expanded Programme of Work on Forest Biological Diversity (PoWFBD) Costa Rica case, is presented here below. The work was carried out during the last months of 2007.

Our country ratified the CBD by Law No. 7416 of 28 July 1994. This ratification was consolidated with the adoption in 1998 of Biodiversity Law No. 7788 and the subsequent promulgation of the Standards of in situ Access to Biochemical and Genetic Elements and subsequently of ex situ elements. This constitutes one of the most complete legal frameworks on the matter on a global level.

Nevertheless, according to the results obtained during monitoring to assess how the Government of Costa Rica has implemented the Expanded Programme of Work on Forest Biological Diversity of the Convention on Biological Diversity, it may be concluded that this Programme is not known by the country's social organizations due to the lack of policies aimed at informing and achieving participation in the formulation and application of environmental policies. The Costa Rican government takes on commitments at international level which it later leaves unfulfilled and never informs society about them. Likewise, and save for a few exceptions, it never promotes opportunities for joint discussion and building up with social organizations for the definition of the policies it takes to international fora, such as the Convention on Biological Diversity (CBD).

The interest of the participants in the independent monitoring process of the PoWFBD in Costa Rica was deficient and the contributions made have led to further questions on the issue. Thirty-four members were consulted, coming from diverse public sectors, such as four state universities (UCR, TEC, UNA, UNED,), 14 environmentally-related institutions (IUCN, MINAE, INISEFOR, CATIE, OET, CCT, SINAC, ICE, ESPH, JASEC, Paz con la Naturaleza, FUNDECOR, Red de Biodiversidad, FONAFIFO); 4 ecological organizations (FECON, Uno por la Vida, AESO, COECOCEIBA); 10 peasant organizations (COPROALDE, Mesa Nacional Campesina, UNAG, AUPA, Comité Cívico de Cañas, Esparza, MAOCO, ASCOMAFOR, MAG, Confraternidad Guanacasteca) and 2 indigenous bodies (Ngobegue Cultural Association and the National Indigenous Board). **(SEE ANNEX 1)**

1. ENVIRONMENTAL, GEOPHYSICAL AND SOCIO-ECONOMIC ASPECTS

Costa Rica is located in the centre of the Central American isthmus between latitudes 8° 02' 26" and 11° 13' 12" North and longitudes 82° 33' 48" and 85° 57' 57" West and covers an area of 51,100 km^2. The territorial division of Cost Rica comprises seven provinces divided into 81 cantons and these in turn into 463 districts.

The relief of Costa Rica is uneven. There are lowlands ranging from 0 to 800 metres; midlands going from 800 to 1,500 metros, and highlands up to 3,819 metres. It has a high Central Valley. The mountain system is divided into 3 ranges, Guanacaste, Volcánica Central and Talamanca. Costa Rica has an extensive network of waterways that flow towards the Pacific watershed (53% of the national area) or the Atlantic watershed (46% of the national territory).

The climate is tropical, characterized in general by high temperatures and abundant rainfall during most of the year. The influence of the Caribbean Sea and the Pacific Ocean in the East and West and the small size of our country contributes to a lack of major annual oscillations in the climate such as those observed over large continental masses. The most important annual variation in the climate corresponds to rainfall and this is mainly due to the interaction developed between different wind systems affecting us and the topography. In general there is a dry season going from December to April and a rainy season, going from May to November. The rains determine the division of Costa Rica into 5 regions: the North Pacific, the Central Pacific, the South Pacific, the Central Valley and the Atlantic Sector.

The administration of Costa Rican biological wealth corresponds to the Ministry of the Environment and Energy (MINAE), and within this Ministry, specifically to the National System of Conservation Areas (SINAC), responsible for the conservation and sustainable promotion of the country's biodiversity. SINAC has 11 conservation areas throughout the whole country and a Higher Directorate for technical support.

2. CHARACTERIZATION OF THE FORESTS FOUND IN THE COUNTRY.

Our country has a very many ecosystems, it is exceedingly diverse with marine, soft water, coastal and terrestrial ecosystems. The present classification establishes a system based on

Holdridge's life zones. In each of the 12 life zones existing in the country a series of altitudinal belts are distributed, a value varying in accordance with local conditions.

To locate the ecosystems present in Costa Rica a very simple classification is used, the first group corresponding to forest ecosystems:

Tropical dry forest: This is located in the lower parts of Guanacaste and the Tempisque Valley, temperatures varying above 24°C and rainfall at between 1000 to 2000 mm. This ecosystem is manifest as a deciduous and semi-deciduous lowland forest. It is located between at altitudes of between 0 and 600 m.asl. The canopy rises up 15 to 25 m and the understory between 10 and 15 m. The trees have thin, twisted trunks, low crowns, there are many thorny shrubs and scant grass, but cactuses and some ferns are abundant.

Another ecosystem is the deciduous or semi-deciduous forest or seasonal forest at medium altitudes that range from 600 to 1700 m.asl, located in the Valle del General. The canopy is between 20 and 25 m high, the understory rises some 10 to 20 m, the trees are perennial, with both a shrubby and a herbaceous stratum. The forest contains various palm and rattan trees and a few epiphytes. Ecosystems such as woody savannahs and some thorny shrub-lands are present and the seasonal lagoons from the rainy season are important, mainly as a refuge for fauna and migratory birds.

Fauna is represented by: monkeys, pumas (*Felis concolor*), coyotes (*Canis latrans*), deer (*Odocoileus virginianus*), white-nosed coati (*Nasua narica*), iguanas, boas, rattlesnakes (*Lachesis sp*.), magpies (*Calocitta formosa*), trogons (*Trogon sp.*), manakins (*Chiroxiphia sp.*), blue and four-mirror moths. Another frequent ecosystem is that of the gallery forests containing species such as *Bombacopsis quinata*, *Anacardium excelsum*, jobo (*Spondias monbin*) and the white Guanacaste. These are mainly used as biological corridors by various bands of Congo and White-faced monkeys and by sahinos and tepezcuintles during the dry season.

Lowland evergreen forest: at an altitude of less than 500 m.asl, having temperatures of over 24° C and an annual rainfall of 2000 mm. The canopy is very high, rising to between 40 and 45 m, with rounded crowns. Shoots and the saplings are spread out and stand out from the under-canopy at some 30 or 40 m, with many palm trees, lianas and epiphytes. The herbaceous stratum shows scant vegetation except for some ferns.

Among the representative flora of the area, mention may be made of the monkey pot (*Lecythis ampla*), the sura (*Terminalia oblonga*), laurel (*Cordia alliodora*), ceiba, (Ceiba pentandra), Cristobal (*Platymiscium sp*.), espabel (*Anacardium excelsum)* and nazareno (*Peltogyne purpurea*).

Medium altitude evergreen forest: to be found at altitudes of between 400 to 1600 m.asl in the Cordilleras of Guanacaste, Volcánica Central Tilarán, Talamanca and in some coastal zones. The canopy reaches between 15 and 25 m and is very dense. The understory has great density of palms, ferns, moss and epiphytes as does the tree stratum where many dwarf palms and tree-like ferns are present. The herbaceous stratum is clean, with heliconia, calathea and some broad-leafed grasses.

It possesses almost 80% of the country's species of flora, in addition to extraordinary insects and birds and a variety of ferns and epiphytes, mainly orchids, wild avocados (*Persea sp., Ocotea sp*) (that are closely related to the presence of trogons and quetzals), custard apples (*Anonna reticulata*), chapernos (*Lonchocarpus spp*), guabas (*Ingas spp*.), fig trees (*Ficus spp*), trumpet trees (*Cecropia spp*), that are an important refuge and food centre for sloths.

The fauna associated with these humid rainforests is abundant, mainly large felines such as the jaguar (*Pantera onca*), the ocelot (*Leopardos pardalis*) and the puma, as well as Baird's tapir (*Tapirus bairdii*), the white-lipped peccary (*Tayassu pecari*), monkeys, a diversity of lizards, insects and a wide variety of birds including various tanagers (*Chlorospingus spp.)*, the silver-beaked tanager (*Ramphocelus sp*), vireos, toucans, parrots (*Amazona sp*p.) and parakeets. Snakes are abundant, particularly pitvipers (*Bothriechis lateralis)* and Fer de Lance (*Bothrops asper)*.

Highland evergreen forest: located at 1500 to 2000 m.asl. The canopy is high, at between 20 and 30 metres and enormous trees stand out at up to 50 metres high with a compact crown. The understory is dense at between 10 and 20 metres, with many bamboo canes and tree-like ferns, shrubs from 1 to 5 metres and a very dense herbaceous stratum with ferns, heliconias, monster fruit (*Monstera deliciosa*) spiny-tailed iguanas (*Ctenosaura spp*.), moss, selaginellas, promoting the formation of a very humid soil with a thick mantle.

This forest is characterized by a strong presence of oak or pure oak groves (*Quercus spp.*) green buttonwood (*Pocodacarpus erectus*), escalonia (*Escallonia poasana*), magnolia, *Drymis granadensis*, *Agnus acuminata*, wild avocados (*Octea spp*), the autograph tree (*Clusia rosea*), sweet cedar (*Cedrela tonduzii*), yos (*Sapium glandulosum)*, ferns and bamboo in association with altitudes, known as mixed forests.

Cloud forest: located on the slopes of the cordilleras in the Caribbean region, some high parts of Osa and Coco Island, the most important example being Monteverde. These forests are located at between 1400 and 2000 m.asl with an abundance of epiphytes, orchids, bromeliads, lianas, moss and mushrooms, in addition to species such as sweet cedar, yos, fig trees (*Ficus spp*.), trumpet trees (*Cecropia spp*.), very abundant wild avocados, the autograph tree, monster fruit, garrobilos, palm trees and tree-like ferns. The fauna includes ocelots (*Leopardos pardalis*), Baird's tapir (Tapirus bairdii), squirrels, trogons, quetzals, the silver beaked tanager (*Ramphocelus spp*), a diversity of humming birds and other tanagers (*Tharaupis spp*.)

Dwarf forest: this forest possesses very severe climatic conditions, very windy, with high ultra-violate radiation and abundant rainfall. It is characterized by shrubby associations no higher than 10 metres, with rough, tough red leafs and the forest appears as isolated patches or islands between the mountains, the soils have scant vegetation with moss, ferns and some grasses.

Rainy sub-alpine Paramo: at over 3200 m.asl, with sharp changes in temperature, mulched mossy savannahs with grasses and bushes of maidenhair, chusquea bamboo, tabaconcillo, gallitos, myrtles. Fauna associated to these places includes pumas, rabbits, coyotes, thrushes (*Turdus spp*), and humming birds.

Marine-coastal ecosystems: all the wetlands are included, mangroves, corral reefs. At present there are 11 Ramsar sites or wetlands of international importance (Ramsar convention on wetlands) (SINAC-MINAE, 2003). Mangroves cover close to 1%, distributed along both coasts but mainly in the Gulf of Nicoya and the Terraba sierpe region. They are of great commercial importance to the neighbouring communities.

3. LAND TENURE REGIME AND FOREST MANAGEMENT IN THE COUNTRY.

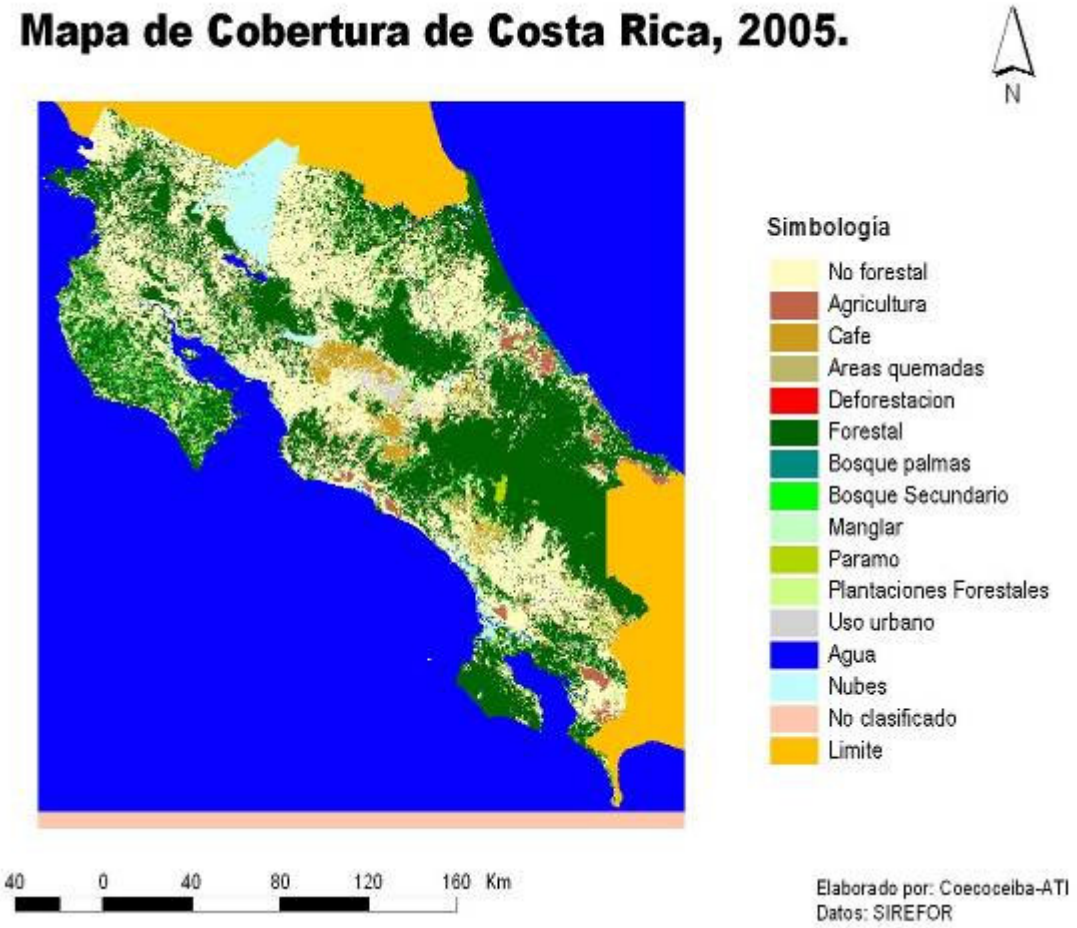
The use given to the national territory has been determined by the economic policies of the past 5 decades, lacking appropriate planning and based almost exclusively on increased agriculture and livestock production as only guide.

Likewise, the use given to the national territory over the past decades has been based almost exclusively on increased agriculture and livestock production, promoting above all the exportation of products and fostering the development of crops produced by large scale systems with few owners and even by transnational capital and the hiring of temporary labour. This indicates a change in the agricultural model that does not respond to appropriate planning and that places in jeopardy the country's food sovereignty, and changes the distribution of land tenure and Costa Rican property. Furthermore, it contributes to environmental damage, caused by the great amount of agrochemicals present in the soil of the country with the well known consequences on surface and groundwater contamination.

The above mentioned aspects have had an impact on land tenure patterns: 70% of the territory is in the hands of 0.75% of the population – large land owners – and 1.12% in the hands of 83.4% of the population, who are small landowners.

In Costa Rica the figure of communal property is not really developed as the government promoted individual land ownership through laws such as that of the Heads of Families (N ° 29) of 1934, that of Possession Information (N ° 139) of 1941, that of Waste Land (N ° 500) of 1949 and the Land and Settler Institute Law (N ° 2825) of 1961, which allow any peasant to take over a farm or plot, through deforestation thus showing that they were "improving" the land. These legal facilities resulted in a greater proportion of the land being in private hands than in communal hands.

Only the territories of Indigenous reserves are community property, and decisions concerning them are taken by the Associations for Indigenous Development. The use they generally give to these lands is primarily forest protection, to a lesser extent subsistence agriculture areas (fallow) and grazing. In the country, historically 8 Indigenous peoples have been identified, distributed in 22 territories defined legally and administratively, for a total 334,447 hectares (ha) (corresponding to 6.5% of the national territory), of which 131,559 ha (39.3%) are in the hands of non-Indigenous people, and therefore restoration of land has been minimum according to CONAI (National Commission for Indigenous Affairs). Furthermore, this problem is made more serious as Indigenous people who do not have lands are obliged to seek new horizons with the consequent cultural uprooting and in many cases, loss of identity because of the process of acculturation they are exposed to.



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The study also points out that forest restoration areas "are very vulnerable to further deforestation" and that of the areas covered by forests "barely 43% (1, 050,015 ha) is under any degree of protection, while 57% (1, 381,147 ha) is outside the various protection units." Furthermore, it assesses the impact of the ESP system on the protection of areas with forest cover "outside protected areas a total of 451,500 ha, have been under conservation with the Environmental Service Payment (ESP) over the period 1997-2005, this area is equivalent to 18% of the national forest cover in 2005, or 32% of the cover outside protected areas.

There are presently a total of 165 sites under different management categories included the ESP system. The total area covered by the system is 12,886 Km^2 (1.288.565 hectares, corresponding to 25.2 % of the national territory), where 44% of the territory is in private

hands, especially in categories such as protection zones, forest reserves, wildlife refuges and wetlands. Of this land, 90.45% has already been paid. The remaining 9.15% will take the country no less than 23 years at the present rate of payment. The creation of protected areas has been an important effort by the Government, however many of the areas do not have sufficient resources to achieve appropriate control and monitoring of their resources.

There are other forest lands that belong to the State under the administration of the Agrarian Development Institute (IDA). These areas are forests with peasant settlements that protect springs supplying nearby communities, but there is no information on the area covered by these forests.

Regarding land tenure problems, the type of land tenure governing forests, forest plantations and trees outside forests, varies from legitimate property rights, duly recorded in the Public Property Record, which enables the owners to request the State Forestry Administration (AFE) permission to fell the trees in the forest, reforest or enjoy payment for environmental services. Many forests come under the regime of tenure by a duly registered letter of sale (a sales document which indicates the description of the land that is sold and the years it has remained in the property). The State does not allow these owners to use the trees due to the lack of a document indicating its record in the Public Property Register. The other category is that granted to a holder by the Institute for Agrarian Development, who is the beneficiary of a peasant settlement and this enables them to request AFE for the use of trees, which can be granted but with restrictions, for example that of access to Environmental Service Payment.

Likewise, in the Terrestrial Maritime Zone (TMZ), which is part of the national heritage and comprises 200 metres inland from the line of the highest regular tide, situations that are both legitimate and anomalous are to be found on both coasts with respect to land tenure. This is a result of an inappropriate enforcement of the legal framework and a lack of systematized knowledge. The legal figure of private property does not exist in the TMZ, however, because of scant enforcement of the current legislation, concessions are made and territories are "sold" without legitimate documentation, making it possible to invest and also to undertake commercial transactions on this land. (State of the Nation, 2007)

Based on the above, it may be affirmed that occupation is chaotic, both in the public zone and in the restricted zone. The municipalities have not achieved orderly management. These organizations, responsible for local development, have been permeated by the economic interests of large and small tourist entrepreneurs, preventing this zone from becoming an instrument for local development. Coastal Regulating Plans are the instrument defined by the Urban Planning Law (art. 15) to undertake land use planning, however many of these have not been approved by the Municipalities and therefore have not been implemented. Furthermore criticism exists alleging that some of these coastal regulating plans have not followed the appropriate procedure when being prepared.

Forest Management in Costa Rica

Management of forests in Costa Rica arose from the problem of forest destruction. In 1969, clear-cutting was allowed, to give way to cattle-raising. As a result, the levels of deforestation were among the highest in the world. Between 50 and 90 percent of the forest cover was removed. As a response to this problem, management plans were incorporated and by the nineties, measures aimed at promoting the protection of natural forest were stepped up with the creation of the Endorsements guaranteeing replacement of the resource and fostering of reforestation and forest management.

Regarding the use of timber from natural forests and plantations, this involves various stages that may be summarized as: logging and use, forestry treatment and diagnosis. In Costa Rica only forests that have a management plan duly approved by SNAC can be used. Among other things, this body analyzes the eventual environmental impact

Item e) of Article 3º of the Forestry Law, defines the Forestry Management Plan as follows: "*It is a set of technical standards that regulate actions to be taken in a forest or forest plantation, in a plot or part of it, with the purpose of using, conserving and developing existing tree vegetation or that intended to be established, in accordance with the principles of rational use of renewable natural resources, guaranteeing the resource's sustainability."*

From the definition of Article 3 of the Forestry Law it may be inferred that plans exist for forest management and for plantation management. It is worth noting that they are different plans, that is to say a forest cannot be managed with the same criteria as a plantation.

According to National Forestry Office Statistics, in 2005, 1,018,596 m^3 of round wood was processed, of which 666,643 m^3 came from forest plantations, 300,458 m^3 from land used for Agriculture and Livestock without forests, and 51,468 m^3 from forests. It may be deduced that the trend is an increasing use of planted timber, although most of it is used in making pallets for packaging agriculture and livestock products for export, (410,000 m^3), that is 60% of the timber from forest plantations. (Barrantes, et al)

However it may be affirmed that timber from the forests of Costa Rica is produced by using high impact and high investment systems, involving severe degradation, perhaps due to the fact that very little information exists both regarding the dynamics regulating tropical forest ecosystems and regarding the forest species currently being exploited. Studies on which the technical aspects of management plans can use as a base are currently scant and only cover the short term and a reduced scale. (COECOCEIBA-AT, 2003).

4. FOREST AND FOREST PEOPLES BEFORE AND AFTER THE POWFBD

In Costa Rica, forest peoples may be defined as forest owners, small and medium sized farmers, peasants, Indigenous people and fisher-folk who all in some way live off the forest they find around their communities.

A good part (some 50%) of the forests and other agro-ecosystems containing exploitable timber resources until the nineties remained in the hands of small and medium-sized farm owners. However, the benefits from the exploitation of these resources have not managed to become part of the local development process. This is reflected by the fact that the areas where forest resources have been intensely exploited are among the poorest areas in the country (COECOCEIBA-AT, 2003)

The sector of small and medium sized peasant owners maintain have in their hands between 30 and 40 percent of forest areas or areas that maintain a good quality and quantity of forest resources. Their lives develop close to the forest and their economy is relatively austere and is able to incorporate forest resources as a limited complement. The use these owners make respects harmony with the rhythms and the natural biodiversity of this resource. (idem)

Within this group of forest peoples, it is worth noting the communities of peasant settlements under the guardianship of the Agrarian Development Institute (IDA). This body has made a practice of leaving zones of wetlands, zones of strong slopes, zones of aquifer recharge or springs, as reserve areas when planning the establishment of peasant settlements in the farms acquired for this purpose. Although most of these areas are patches of forest of less than 50 hectares, they still maintain a goodly representation of what was the exuberant biological wealth that once covered the whole region. Furthermore, they have a strong potential on integrating productive, educational and recreational activities in the settlements and other communities in the region.

Historically, these areas have belonged to IDA, However, forestry law 7575 accredits their entitlement to MINAE. Nevertheless, due to their dispersion over the territory, their relatively reduced size and their close links with peasant communities in the settlements where they are located, they are areas with a strong community character, where the peasant communities themselves are called on to take responsibilities and receive the benefits of their management and protection. Therefore these forests have been called community or communal forests. (Baltodano, 2006)

There are important experiences to be noted in the North Zone where there is at least one organization grouping a set of various bodies responsible for caring for the forest areas of the reserves, such as the Association for Conservation and Forest Management (Ascomafor). These experiences indicate that there is great potential in the integration of forests, including some national parks, into the daily tasks and economy of peasant communities. However, greater clarity and security is required from the agreements between communities and the State, the protocols for administration of the reserves need to be improved, better knowledge (inventories, maps, uses) of communal forests and national and local tourist projects need to be developed.

Additionally, systematization and documentation of experiences of peasant forest restoration exist, where the small and/or medium sized owner rehabilitates areas of forest by means of natural regeneration, assisted by the sowing of valuable species in terms of timber production or biodiversity conservation.

Likewise, it is undeniable that the Indigenous people have well conserved their natural resources. It has been estimated that a little over 70% of these territories show forest cover that includes a mixture of primary and secondary forests and coffee agro-forestry systems or other shade crops where a dense forest cover is maintained. Indigenous agro-forestry systems imitate forests in a precise way. Their culture and their cosmo-vision have played an essential role in maintaining this situation. Undoubtedly Indigenous people maintain a close union with forests. However many Indigenous communities are also facing the surrounding development processes. .In some cases it is urgent for them to fill basic needs or improve their conditions on the basis of the incorporation of benefits of modern life. At the same time, they face new ways of using their resources, including timber of course. (State of the Nation, 2007)

Since the signing of the Convention on Biological Diversity by Costa Rica, making it a law of the Republic, it has been recognized that the interaction between fishing and peasant

communities or Indigenous People with biological diversity arises from traditional knowledge, a historical and collective right that they have. This recognition is also made by the biodiversity law. In this way, the historical contribution they have made regarding sustainable use, conservation and improvement of biodiversity is recognized.

In turn, these rights must respond to the cultural situation of the communities (forest peoples). In fact, the biodiversity law maintains that they are the ones who will undertake the process to define the nature, requisites and scope of their rights with regard to traditional knowledge.

However, these rights are being relegated by the present development model based on free trade and national policies, such as for example a bill that is being passed by the Legislative Assembly on permits for the concession of administration rights for basic services in protected areas (co-management), which may interfere with community forest management processes.

5. MANAGEMENT PRACTICES AND FORESTRY REGULATIONS BEFORE AND AFTER POWFBD

The development of Costa Rican environmental legislation has increased over the past decade. For example, the entry into force of the Biodiversity Law, the Soil Conservation Law, the new laws on forestry issues and wildlife and a great number of regulations and technical standards.

Precisely, one of the common denominators of this evolution has been to establish limits to the right to ownership and to free economic initiatives. This expansive development, as it has been called by some, has taken place at a time when there is a trend towards deregulation and simplification of formalities and requisites and in the midst of a no less relevant opening up of markets, negotiations for free trade treaties, and investment attraction. Both currents lead us to an environment that on occasions is confused and complicated and why not, even contradictory.

Summing up, there is a trend towards the issuing of restrictive legal environmental standards regarding economic activities, while on the other hand, there is a trend aimed at deregulating and facilitating entrepreneurial activities and investment.

Table1. Main forest regulations before the beginning of the Adoption of the Convention on Biological Diversity

Type	Number	Year	Name
Convention	5605	74	Convention on International Trade in Endangered Species of Wildlife Fauna and Flora
	7228	91	Vienna Convention for the Protection of the Ozone Layer.
	7223	91	Montreal Protocol on Substances that Deplete the Ozone Layer.
	7224	91	Ramsar Convention on Wetlands of International Importance .Especially as Waterfowl Habitat
	7316	92	International Labour Organization Convention 169 concerning Indigenous and Tribal People.
	7414	94	United Nations Framework Convention on Climate Change
	7433	94	Convention for the Conservation of Biodiversity and Protection of Priority Wildlife Areas
	7498	94	Adoption of the Protocol for the Convention for the Constitution of the Central American Commission on Environment and Development
Laws	276	1946	Water Law, reformed by laws nos. 2332 of 9 April l959, 5046 of 16 August 1972, and 5516 of 2 May 1974
	1917	55	Organic Law of the Costa Rican Tourism Institute
	5251	73	Creation of the National Commission for Indigenous Affairs (CONAI)
	6172	77	Indigenous Law.
	2790	1961	***Law for the Conservation of Wild Fauna***
	6084		Creation of the National Park Service
	6289	78	Law of the National Seed Office
	6794	82	National Park Service Law
	6797	1982	Mining Code
	7317	1992	Law for the Conservation of Wildlife
	7416	94	Adoption of the Convention on Biological Diversity and its annexes i and ii

Table 2. Main forest regulations after the start of the Adoption of the Convention on Biological Diversity

Type	Number	Year	Name
Convention	7513	95	Central American Convention on Climate Change
	7520	95	Central American Agreement on Transboundary Movement of Hazardous Waste
	7627	96	International Convention on Civil Liability for Oil Pollution Damage and its Protocols
	7572	96	Regional Convention on Management and Conservation of Natural Forest Ecosystems and the Development of Forest Plantations
	28222	99	Central American Regulation on Sanitary and Phyto-sanitary Measures and Procedures
	7906	99	Inter-American Convention for the Protection and Conservation of Sea Turtles
	8443	05	Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer
	8538	06	Stockholm Convention on Persistent Organic Pollutants
	8537	06	Cartagena Protocol on Biosafety
	8586	07	Convention on the Conservation of Migratory Species of Wild Animals
Laws	7169	90	Law for the Promotion of Scientific and Technological Development
	7399	94	Hydrocarbon Law
	7447	94	Law Regulating Rational Energy Use
	7554	95	Organic Environmental Law. Contains provisions on organic agriculture pollution and environmental impact assessments .
	7575	96	Forestry Law
	7779	98	Soil Use, Management and Conservation Law
	7788	98	Biodiversity Law. Resulting from the signing of the Convention on Biological Diversity. Established the figure of the National Commission for Biodiversity Management, responsible for access to genetic resources in the country. Together with INAC formulates and follows-up on national policies regarding this issue such as those appearing in the National Strategy for Biodiversity Conservation and Sustainable Use
	8325	02	Law for the Protection, Conservation and Rehabilitation of Sea Turtles

Source: Legislative Information System, 2005.

6. MARKET-BASED CONSERVATION MECHANISMS AND THE IMPLEMENTATION OF THE POWFBD

A conservation mechanism developed by the State is the Environmental Service Payment (ESP). It is a novel and unique system having great potential as a tool to struggle against poverty in rural zones and in forest restoration processes. However it does have some shortfalls.

Environmental Service Payment (ESP) is a system of financial incentives, under the responsibility of the National Forestry Financing Fund (FONAFIFO) for all owners and holders of forests and forest plantations for the environmental services these provide. The budget to cover ESP comes from the 3.5% tax on fuel according to Law 8114 for Tax Simplification and Efficiency. This has helped in the conservation of primary and secondary forests and has somewhat served to put into order conservation efforts on private land. Over the past few years, FONAFIFO has made a significant effort to provide a gender balance and to include Indigenous Territories in an equitable way within the opportunities to access ESP.

In conformity with Forestry Law No. 7575, Costa Rica recognizes environmental services, such as the mitigation of greenhouse effect gases, the protection of water for urban, rural or hydroelectric use, the protection of biodiversity for its conservation and sustainable, scientific and pharmaceutical use, the protection of ecosystems and forms of life and also of natural scenic beauty for tourist and scientific purposes

However, one of the structural problems of the ESP programme is the somewhat forced mixing of recognition of environmental services provided by an ecosystem and the funding of logging activities (Lobo, 2006). It has been pointed out that the name of ESP regarding reforestation attempts to provide an image that is not quite true, and that it is monoculture plantations that have been financed and not forests. Furthermore, the allocation of resources should be improved, for example by including forest restoration as a way of guaranteeing long-lasting and high quality environmental services. However the greatest problem for the system and for FONAFIFO is undoubtedly that of obtaining resources, also long-lasting and of a good quality.

Table 3. Distribution of the hectares and trees contracted under Environmental Service Payment, per year and per modality between 1997 and 2006.

Year	Modality of ESP						Number of Contracts
	Forest Protection	Forest Management	Reforestation	Established Plantations	Total ha	Agro-forestry Systems (trees)	
1997	88,830	9,325	4,629		102,784		1,200
1998	47,804	7,620	4,173	319	59,916		597
1999	55,776	5,125	3,156	724	64,781		622
2000	26,583		2,457		29,040		271
2001	20,629	3,997	3,281		27,907		287
2002	21,819	1,999	1,086		24,904		279
2003	65,405		3,155	205	68,765	97,381	672
2004	71,081		1,557		72,638	412,558	760
2005	53,493		3,602		57,095	513,684	755
2006	19,972		4,866		24,838	380,398	619
Total	471,392	28,066	31,962	1,248	532,668	1,404,021	6,062

Source: www.fonafifo.com

Between 1997 and 2006, 532,668 hectares received incentives, of which 88% were allocated to forest protection, 6% to reforestation, followed by 5% for Forest Management. Likewise, there are other sources of funding, such as Environmental Service Certificates (ESC), that

consist of attracting funds from companies and institutions benefitting from environmental services, as payment to forest owners for conserving them.

Furthermore, these Environmental Service Certificates attract economic resources from the private sector, from institutions and other governments for protection and reforestation. The mechanism consists of signing financial agreements that are complemented with funds from FONAFIFO programmes, in order to pay environmental services in a specific given area. Presently agreements have been signed with national private hydroelectric companies and with the Norwegian Government, the Global Environmental Facility and with KFW (a German Bank).

One of the major obstacles to enjoying this incentive is the requirement of land ownership to access ESP, making it hard for small landholders to receive any payment, such as in the case of landholders in peasant communities (IDA, JAPDEVA) and community lands that could provide environmental services of more marginal benefit that lands with deeds. In general areas with more frequent change in use and illegal timber extraction are found on land that is not registered (it cannot be benefitted from legally) and many of them are localized in priority areas such as biological corridors, protected areas and strategically important watersheds for water production.

There is also an offer of projects for "C02 absorption through forestation/reforestation activities within the Clean Development Mechanism." The intention here is to absorb **CO2** through these activities. Some of these activities are at the negotiation stage and others are merely ideas for projects. All the projects were developed for a renewable 20 year period and there are a total of 8 projects. However it does have some deficiencies as it has favoured accelerated expansion of monoculture plantations that are threatening to cause severe environmental damage, including loss of biodiversity, land concentration in a few hands and corporative production control.

There are some very interesting experiences in which peasant communities make a responsible use of State owned forests. These experiences indicate that there is great potential to integrate forests and even some national parks, into peasant communities' daily tasks and economy. There are also experiences of peasant forest restoration, in which small and medium-sized owners restore forest areas through natural regeneration, assisted by sowing valuable species in terms of timber production for biodiversity conservation.

Furthermore, work is being carried out to explore alternative ways of producing forest timber, for example in the Osa peninsula after long efforts, a special permit has been negotiated for peasant and artisan extraction of fallen timber, enabling the communities to be sustainable and have supportive economies.

7. THE ROLE OF INTERNATIONAL ORGANIZATIONS IN THE IMPLEMENTATION OF POWFBD

The role of international organizations in the application of the Programme mainly consists of financial support.

Between 1992 and 2005, GEF has funded a total of 12 projects amounting to close on US$ 32 million. Eight of these projects are finished and four are on-going. All the focal areas are represented in this group, likewise all the GEF implementing agencies (World Bank, UNDP and UNEP) and the IDB. The assessment considered the Small Donations Programme that has been implemented in Costa Rica since 1993 and has financed some 354 projects for US$ 5 million.

Among the projects terminated are: Tejona Wind Energy, Development of biodiversity resources, Conservation of Biodiversity and Sustainable Development in the Osa and La Amistad Conservation Areas, Eco-markets, Biodiversity conservation in the Talamana-Caribbean Biological Corridor, Biodiversity Conservation in cacao agro-forestry.

Table 4. List of on-going projects and projects under negotiation with SINAC (2006)

Title	Organization/amount of the organization / responsible person in SINAC / period	State
Site Conservation Plan for the Bi-national Site of La Amistad	The Nature Conservancy (TNC)-1 million US$- Conservation Area La Amistad Pacific (ACLAP)-5 years	On-going since 1 August 2002
Strengthening of Monitoring Activities according to the Integrated Management Plan for La Amistad International Park	Conservation International (CI)-160000 US$-ACLAP- 2 years.	On-going since January 2005.
Integrated Ecosystem Management in the Bi-national watershed of Río Sixaola (RS-X1017)	GEF-IDB- Commission comprising: Ana Luisa Leiva, Lesbia Sevilla, Mario Rojas, José Joaquín Chacón, Edwin Cyrus, Ronald Vargas, Rubén Muñoz-3.5 millions US$-4 years	Under negotiation probable start in 2007.
Management and Land Use Plan for the conservation and restoration of the Rio Barranca Watershed.	MIDEPLAN Pre-investment Fund – Conservation Area Central Pacific and Central Volcanic Cordillera ¢ 90 000 000 Colons-1 year.	Implemented 2007
Forest conservation by small farmers through sustainable forest management	FAO-Office for the Control of Illegal Logging/SINAC)- US$ 221,450 -2 years	In advanced negotiation. Possible start in 2007
Improvement of management and conservation practices for ACMIC	GEF-UNDP - Conservation Area Marina Isla del Coco (ACMIC).US$ 975,000 - 4 years	On-going since 2004
Protection of Biodiversity in the Conservation Area Marina Isla del Coco (ACMIC)	French Environmental Fund ACMIC - € 1 065 000 – 4 years	On-going since 2004
Removing Barriers for the consolidation of Costa Rican Protected Areas, administered by SINAC	GEF-UNDP-SINAC Higher Board of Directors - US$ 4,800,000.-5 years	In advanced negotiation. Possible start end 2007.
PDF-B Project Removing Barriers for the consolidation of Costa Rican Protected Areas, administered by SINAC	GEF-UNDP-SINAC Higher Board of Directors -US$ 335 000.00-1 year and 7 months	On-going since August 2005.
Programme for Tourism in Protected Wildlife Areas	IDB – Country team coordinated by Lesbia Sevilla (SINAC) - US$ 20,000,000 - 5 years	Under negotiation. Possible start 2008.
Shared management of the National Wildlife Refuge Barra del Colorado	Tortuguero Conservation Area – Administration of the National Wildlife Refuge Barra del Colorado- US$ 330,000 - 2 years	On-going since 2007.
Ecological Management of the Territory as an	AECI – with resources from the Costa Rican Conversion of	On-going since February 2007.

approach to Conservation for Development	Foreign Debt programme in environmental programmes. Higher Board of Directors SINAC- US$ US$300,000- 4 years	
COBODES (Forest Conservation and Sustainable Development)	European Union – Management Unit of the Regional Direction of the Conservation Tortuguero Area (ACTo)- € 4,400,000 - 5 years	On-going since 2002.
Institutional strengthening for the execution of the National Strategy for the Control of Illegal Logging of Forestry Resources in Costa Rica TCP/COS/3003 (A)	FAO- Office controlling Illegal Logging / SINAC (ECTI) - US$ 257,000 - 2 years	On-going since 2005.

Source: III Country report on the implementation of the Convention on Biological Diversity (CBD)

8. ENVIRONMENTAL CHANGES IN COSTA RICA SINCE ENTRY INTO FORCE OF POWFBD

Our country ratified the 1992 Convention on Biological Diversity (CBD) through Law No. 7416 of 28 July 1994. This ratification was consolidated with the adoption in 1998 of the Biodiversity Law No. 7788 and the subsequent promulgation of Standards of Access to Biochemical and Genetic Elements. This is one of the most advanced and complete legal frameworks at global level on this matter.

However, this has not protected forests from the threat of activities such as large-scale tourism that in turn enables concentration of land tenure. Furthermore the forestry contingency plan has enabled large companies (which helped to negotiate it) to produce timber with involving a market concept, concentrating incentives such as Environmental Service Payment for the establishment of monoculture plantations and opening up the exploitation of forest timber and that of other agro-ecosystems, following strict profitability and market criteria.

Similarly, various studies on illegal logging in Costa Rica estimate that at least one third of the timber consumed in our country comes from this source. However in the South Pacific area of the country, in the Osa Peninsula, after countless struggles peasant communities, allied with ecologist groups, including the COECOCEIBA-AT and technicians from the University of Costa Rica (UCR) managed to promote a ban on intensive timber exploitation and as from the end of 2005, generated a decree making a new model of forest use legal, in which peasants and small farmers in the area are able to use trees that have fallen naturally in their forests, by means of an environmentally sound and socially just process.

Furthermore, until a few years ago (2002), the follow-up commission for the National Forestry Plan and the Ministry of the Environment spoke of the success of Costa Rica's forests. However, this year (2006), the same Ministry warned that the country "is running out of timber" and that in the short term it will be necessary to import it. (Baltodano, 2006)

With regard to the social impacts of the use of forest resources, various opinions are voiced. On one hand, the organizations related with the productive sector have systematized statistics produced by the business community and have made a positive assessment of the impact of

timber activities on a national level in terms of added value, trade balance and creation of rural employment. (Barrantes, 2005; Arias, 2004). On the other hand, other sectors have pointed out that forestry policies have favoured large companies, both on an industrial and on a commercial level, that have concentrated a great percentage of the wealth generated by this resource (COECOCEIBA-AT, 2003).

In fact it has been pointed out that it is precisely the areas where a considerable part of the timber consumed by the country is produced that have high poverty rates. Many communities continue to complain that "logging only leaves bad roads, damaged bridges and poor salaries," in the localities where it is practiced. The main cause of this situation is without any doubt, the model of timber exploitation. Trees are logged in rural zones by logging companies which, until a very short while ago, paid for standing trees less than 13% of the total value of the timber. A large percent of the value remained in the hands of the industrialists (up to 33%) and of the marketers (up to 55%). (COECOCEIBA-AT, 2003).

Furthermore, the vulnerability of the communities vis-à-vis natural phenomena is increased for reasons such as badly planned logging routes and trails, both within the forest and in paddocks and agricultural systems. Lang (2000) measured the erosion rates in logging trails made by following management plans for the use of forests and paddocks with trees. The rates of erosion measured are high, varying from hundreds to thousands of metric tons of eroded soils per hectare per year, depending on the type of soils and the slopes in each watershed. On several occasions, a close relationship has been pointed out between the intensiveness of logging in the upper parts of the watershed and flooding in lower areas.

Another important threat to biodiversity is the extinction of species due to logging, both in forests and agricultural systems. Costa Rica has banned by law the logging of 18 species of trees (fancy woods) whose populations have been reduced and which are considered to be in danger of extinction, but the truth is that there are many more species close to extinction (State of the Nation, 2007). A recent study assessing the state of conservation of plants in the country, states that there are 53 endangered species of plants, of which 30 are considered to be critically endangered (Rodríguez et al, 2006). All of these are species of trees suitable for timber, that is to say their timber is being exploited under unsustainable systems. Another document based on a revision of all the studies published by different institutions and experts nationally and internationally on the degree to which plants are endangered, indicates that for Costa Rica, 300 trees in some degree of danger are reported (COECOCEIBA-AT, 2003b). Quesada (2003) is clear on concluding: *"the legislation regulating forestry activities shows gaps or shortfalls regarding aspects related to reproductive biology...these anomalies need to be corrected in the present forestry law and adjusted to the real conditions of existing information and to the characteristics of reproductive biology of the species..."*

In spite of the conservation efforts of Protected Wildlife Areas, the ESP and the attempts at forestry planning set out in the National Forestry Plan, Costa Rica has relatively high figures of endangered flora and fauna, and today is lacking the capacity to supply its own timber consumption. Furthermore, although there are some cases of modernization and diversification of the forest industry, a good part of it continues to be an industry operating with relatively high levels of waste and where statistics on performance and productivity are extremely scarce. (State of the Nation, 2007)

The truth is that forestry policies have been unsuccessful in maintaining sustained production of timber, or in generating wealth and appropriate distribution in the areas where timber is produced and even less successful in protecting the enormous biological wealth when producing timber.

At the same time, the accelerated expansion of monoculture plantations is evident, threatening with severe environmental damage, including loss of biodiversity, concentration of land in a few hands and corporative control of production. Mention can be made of pineapple, banana, bio-fuels and tree plantations.

Moreover, one of the greatest threats at present is the adoption of the Free Trade Treaty among the United States, Central America and the Dominican Republic, which will permit a development model that enormously damages the environment. In particular note should be taken of the exclusion of international agreements, such as the Kyoto Protocol, the Convention on Biological Diversity and the Cartagena Protocol.

Additionally, on excluding the definition of "environmental legislation", any legislation regulating or controlling the exploitation of a resource (Biodiversity Law, Mining Code, Forestry Law, Hydrocarbon Law, Water Law) is discarded. The treaty favours:

- *Bio-prospecting and patents:* The large corporations appropriate for themselves traditional knowledge and information contained in our biodiversity.
- *UPOV Bills (obtaining plants:* This favours large companies versus farmers and also uniformity and genetic erosion. It denies farmers' rights (to keep seeds) and just and equitable distribution in products using biodiversity, and privatization of genetic resources. .
- *Budapest Treaty* (microorganism deposits): this makes it possible to declare as private property any form of life, without the need to describe it.
- Increased demand for major works to satisfy the needs of the expansion of corporate investment (highways, hydroelectric plants, major tourist developments). This will have a negative impact on forests, causing disappearance or degradation.

There are negative impacts on forests and biodiversity due to increased trade and investment. A concrete example is the elimination of trade barriers with a particularly negative impact on efforts to protect and sustainably use forests. In particular it is feared that timber production certification processes will be affected, local measures for protection or zonation to reduce negative social and environmental impacts and on environmental legislation regulating the forest utilization. (State of the Nation, 2007)

Furthermore, these treaties increase pressure on community and artisanal practices of resource use, and on activities framed within community forest management, generally developed on a small scale to supply small local markets. The FTT are closely related to the expansion of monoculture plantations. The appropriation and management of vast expanses of resources to satisfy large international markets has required corporations to homogenize, standardize and simplify their operations to the maximum. In Costa Rica, monoculture tree plantations to produce timber (Melina and Teak) or paper, and lately to generate carbon credits, and monoculture banana, oil palm, soybean or pineapple plantations are examples to be noted. (Baltodano & Rojas, 2007)

The above-mentioned plantations also cause chronic pollution of rivers and have taken over the best farm land, causing aggression to natural biodiversity and agro-ecological systems.

The Free Trade Treaty comes to weaken Citizen Participation and to consider Water as goods and not as an asset of Nature. It also considers the Water Law as a law unrelated to the environment, so that regarding commercial exploitation of water any law that is applied to any other commercial activity can be applied, creating a lack of protection on freeing and deregulating protection, access and use of water in our country. (Rojas, 2007)

Another of the dangers of the treaty, that additionally goes against the principles of the Convention on Biological Diversity as already mentioned above, is that it considers toxic waste as something that can be marketed and its transfer is understood as a service, converting this into an activity that admits almost no obstacle against it.

Regarding the scope of the information, interest has increased in the use of new technologies, such as Internet sites, for example the Information System on Forest Resources, in development (SIREFOR).

It is evident that the social, ecological and institutional sectors need to be integrated regarding matters affecting Biological Diversity, in addition to implementing effective action to solve the different problem situations. Perhaps part of the problem is due to the fact that scientific and traditional knowledge are not fully used, added to the lack of policies and appropriate laws and absence of political support.

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ANNEX 1

Acroyms:

- **UCR:** Universidad de Costa Rica (University of Costa Rica).
- **TEC:** Tecnológico de Cartago (Cartago Technological Institute).
- **UNA:** Universidad Nacional de Costa Rica (National University of Costa Rica).
- **UNED:** Universidad Nacional a Distancia (National Open Learning University)
- **IUCN:** Unión Mundial para la Naturaleza (International Union for the Conservation of Nature).
- **MINAE:** Ministerio Nacional de Ambiente y Energía (National Ministry for the Environment and Energy)
- **INISEFOR:** Instituto de Investigación y Servicios Forestales Nacionales (National Institute for Forestry Research and Services).
- **CATIE:** Centro Agronómico Tropical de Investigación y Enseñanza (Tropical Agricultural Teaching and Research Centre)
- **OET:** Organización de Estudios Tropicales (Tropical Studies Organization).
- **CCT:** Centro Científico Tropical (Tropical Scientific Centre)
- **SINAC:** Sistema Nacional de Áreas de Conservación (National Conservation Areas System)
- **ICE:** Instituto Costarricense de Electricidad (Costa Rican Electricity Institute).
- **ESPH:** Empresa de Servicios Públicos de Heredia (Heredia Public Service Company).
- **JASEC:** Junta Administradora de Servicios Eléctricos de Cartago (Cartago Electric Services Administrative Board).
- **FUNDECOR:** Fundación para la Cordillera Volcánica Central (Foundation for the Central Volcanic Cordillera).
- **FONAFIFO:** Fondo Nacional de Financiamiento Forestal (National Fund for Forestry Financing).
- **FECON:** Federación Costarricense para la Conservación del Ambiente (Costa Rican Federation for Conservation of the Environment).
- **AESO:** Acción de Ecología Social (Social Ecology Action).
- **COECOCEIBA:** Asociación de Comunidades Ecologistas La Ceiba (La Ceiba Association of Ecologist Communities).
- **COPROALDE:** Coordinadora de Organismos No Gubernamentales con Proyectos Alternativos de Desarrollo (Coordinator for Non-Governmental Organizations with Alternative Development Projects).
- **UNAG:** Unión Nacional de Agricultores y Ganaderos (National Union of Farmers and Cattle-raisers).
- **AUPA**: Asociación Centro de Capacitación del Agricultor Costarricense (Association Training Centre for Costa Rican Farmers).
- **MAOCO**: Movimiento de Agricultura Orgánica Costarricense (Costa Rican Movement for Organic Agriculture).
- **ASCOMAFOR**: Asociación para la Conservación y el Manejo Forestal (Association for Forest Conservation and Management)..
- **MAG:** Ministerio de Agricultura y Ganadería (Ministry of Agriculture and Livestock).

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This publication has been made possible through the generous support of the Ministry of Foreign Affairs of the Netherlands.