

Payments for environmental services as a piece in building an alternative for financing sustainable forest management in

San Nicolás, Colombia

A participatory and holistic approach in forestry

Case study prepared by Carmenza Robledo¹ and Patricia Tobón^{2 3}

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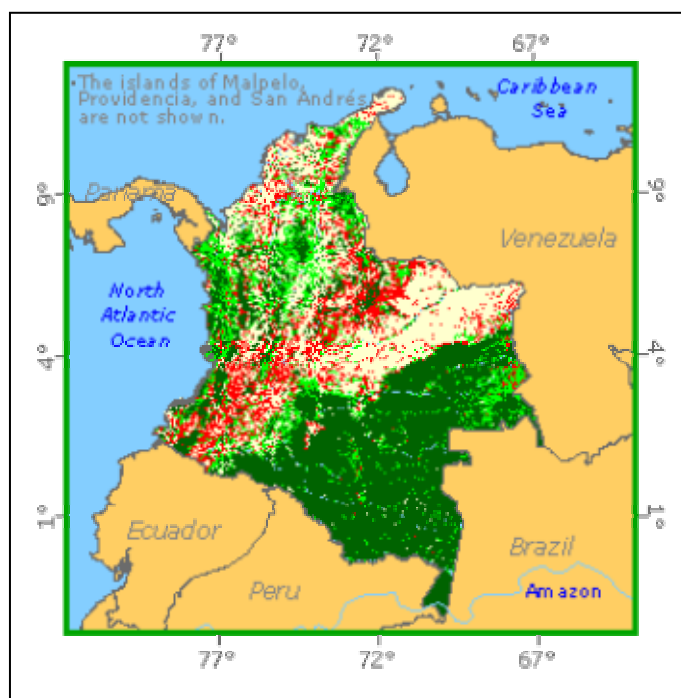
¹ Carmenza Robledo is a specialist in climate change and natural resource management. She works as a Señor Scientist in the “Technology and Society Laboratory of the Swiss Federal Laboratories for Materials Testing and Research – EMPA”. She also deals de Climate Change Group in the Swiss Foundation for Development and International Cooperation – Intercooperation” Carmenza has been the international coordinator of the ITTO PD 54/99 (F) Rev.2 and the ITTO PD 204/03 (F) Rev. 1

² Patricia Tobón is a Señor forestry expert form the Corporación Autónoma Regional del Rionegro – Nare, CORNARE”. She has more than 20 years of experience in the region of San Nicolas as well as managing many international projects in CORNARE. Patricia has been the national coordinator of the ITTO PD 54/99 (F) Rev.2 and the ITTO PD 204/03 (F) Rev. 1

1 Introduction

Colombia, the fourth largest country in South America, has an area of 114 million hectares. The country can be divided in three main geographic areas: Coasts, Andean-mountain and continental plains. Colombia has access to both the Pacific and the Atlantic oceans, giving the country a maritime area of 902.000 – 988.000 km² (IVEMAR, 2006). The Andean-mountain area is characterised by three mountain ranges (western, central and eastern Cordilleras) and two inter-mountain main valleys (Magdalena and Cauca Valleys). The continental plains in the east and south-east of the country are composed of the Orinoco and Amazonas basins. Due to its excellent geographic location, Colombia is one the richest country in species of flora and fauna worldwide.

There are different estimates of the forest area in Colombia. These estimates include 65.6 million hectares (WCMC 2004), 63.7 million hectares, 56.6 million hectares (for 1996; Government of Colombia 2002) and 49.6 million hectares (FAO 2003). An estimated 85% of Colombia's closed forests are found in the Amazon Basin and on the Pacific coast. Pure and almost closed forests include edaphic formations and stands of *Mora megistosperma*, *Camposperma panamensis* and *Prioria copaifera*. Submontane and mountain forests (cloud forests) occupy the western slopes of the western Cordillera and the eastern slopes of the Eastern Cordillera, with patches of oak stands (*Quercus humboldtii*) (ITTO, 2006) (see map 1).



According to the geographic areas the majority of forests is located in the Amazonas basin (60%), followed by the Andean Mountains, which contains only 14% of the total natural forests in the country (see table 1). San Nicolas is located in this area.

Map 1. Forest cover in Colombia

³ The authors want to express their gratitude to Alejandro Calvache, Executive Director of MASBOSQUES for his collaboration

Table 1 Distribution of forests

Area	Million of ha.
Amazonas Basin Forest	33.5
Andean forest	9.1
Pacific and Caribbean Forest	5.2
Gallery forest	3.4
Swamp and mangrove forest	2.8
Fragmented forest	9.9
Total	63.9

Source: ITTO, 2006

The great diversity of forest offers great opportunities not only in terms of wood production, but also in terms of non timber forest products including i.e. food, orchid flowers and medicinal plants⁴. Nevertheless, forests are used in a non-sustainable way. The FAO data rates on deforestation indicate a loss of forest cover of 92.000 ha per year (-0.4%) (FAO, 2003). Deforestation is the highest in the following regions: foothills of the Andes in the departments of Chocó, Cesar, Santanderes, Nariño and Putumayo. Understanding deforestation in Colombia implies to take care of different socio-economic factors that abet such a process.

Firstly, the value of forests is not translated into economic terms. According to the Ministry of Agriculture and Rural Development (2003) the sector is not considered yet as a pillar for the regional and national socio-economic development. In fact, forestry, including wood production does only represent 0.2% of the Colombia's PIB (ibid).

Clearing forest for other land uses is therefore the main driver of deforestation. Along with the expansion of the agricultural frontier and extensive cattle ranching, clearing for planting illicit crops plays an important role in Colombia. Coca, marihuana and opium poppy are primary Andean crops. Despite different strategies implemented by different governments since decades, growing illicit crops has seen a permanent expansion since the 70s. External demand for drugs, combining with a drop in coca or opium planting in other countries, drove the extend of land under coca from 37.500 ha in early 1991 to more than 100.000 ha in 1999 (SICHI, 1999). New plans of the government for combating illegal crops include the use of chemical agents as glyphosphato. Local communities report serious damages in some ecosystems in the Amazons basin as well as in the Sierra Nevada in the Caribbean, where these chemical agents have been used. There is not reliable quantitative or qualitative data yet on the extension of ecosystem's damage due to using

⁴ Data of the Technical Secretariat of the National Institutions of Science and Technology of the countries of the Andrés Bello Agreement, presented/displayed in the international Conference of forests: "Colombia: Country of Forests and life ". Santa Marta 18-20 November of 2003

glyphosate. However direct and indirect impacts of these damages down stream will include reduction in all forests functions in strategic areas.

Finally, another factor that affects the stage of forests in Colombia is related to the violent conflict that the country has experienced since 1964. Due to confrontations between the main actors involved, paramilitaries, guerilla and the army, local communities have repeatedly seen the need to migrate. Such migration can facilitate revegetation in some areas. However, as people use the forest as a temporary shelter or they initiate a colonisation process characterized by changes in land use especially from forest to agricultural or cattle ranching the impact on deforestation tends to be more significant.

2 Laws, Policies and regulatory Framework

In 1991 Colombia adopted a new Constitution. Some important guidance on forest tenure and on institutional arrangements on environmental matter was given then. Regarding forest tenure, the Constitution recognizes the ancestral rights to land of indigenous groups and Afro-Colombian traditional communities. Forest ownership is both public and private. Private land is subdivided into private property and collective property, the second one includes indigenous, Afro-Colombian and farmer groups. Today, 22.1 million hectares of forest, mostly in the Amazon region, are owned by indigenous communities and 5.4 million hectares, mainly in the Pacific region, by Afro-Colombian communities. In addition, many forest areas in the Andean region, in particular planted forests, are privately owned (ITTO, 2006).

Since the decade of the 90s, with the Law 99/93, Colombia adopted a new institutional framework for environmental management. In 2003, after reform of the institutional framework the Ministry of Environment received new functions and was renamed as Ministry of Environment, Housing and Territorial Development (Ministerio de Ambiente, Vivienda y Desarrollo Territorial—MAVDT). The MAVDT is aimed at contributing to sustainable development through the formulation of policies on the environment and renewable natural resources and the establishment of broad guidelines, rules and criteria for the environmental regulation of land-use, including forestry. Other functions of the MAVDT are related to policies on urbanization and urban development. At the national level, the Department of National Planning, the Ministry of Agriculture and Rural Development and the Ministry of Commerce, Industry and Tourism also play roles in forest development and conservation.

Colombia is one of the most decentralized countries in Latin America: 40% of total public expenditure is managed locally (by municipalities). The management of forests is part of the National Environmental System (*Sistema Nacional Ambiental*—SINA), established by Law 99 in 1993. The SINA belongs to the MAVDT and consists of 33 autonomous regional corporations (*corporaciones autónomas regionales y las corporaciones de desarrollo sostenible – CARs -*). These corporations are responsible for the management and administration of all natural resources in the area of their jurisdiction and according to the guidelines established in the national development plans. Some of the responsibilities of the CARs in forestry include granting of concessions, permissions and authorizations for forest harvesting and defining land uses. In order to fulfill their mission CARs have some legislative and controlling lordship. These sub-national institutions are the main instance for supporting local initiatives for sustainable forest management. With the creation of the MAVDT and the setting in place of the Environmental National System (*Sistema Nacional Ambiental – SINA -*) the conditions to enforce the environmental legislation were

established. This is considered as a significant step forwards in promoting conservation and sustainable use of the natural resources in Colombia.⁵

The current national development plan “Towards a communitarian State” considers forestry as one pillar of the future development of Colombia. In fact activities in forestry are considered not only in the plan, but also in some of its main strategies, especially the following: i) promoting sustainable growth, ii) employment generation and building social equity and iii) democratic security

The Forestry Law (Ley 2 sobre Economía Forestal de la Nación y Conservación de Recursos Naturales Renovables) dates back to January 1959. It has been complemented by a number of decrees, the most important ones being the forestry code of 1974 (Decreto 2811, Código Nacional de Recursos Naturales Renovables y de Protección al Medio Ambiente) and the decree of 1996 on forest use (Decreto 1791 Régimen de Aprovechamiento Forestal). Regulations that restrict the export of logs from natural forests have been in force for more than ten years; only round-wood coming from planted forests can be exported. Since mid-2004, the forest law is being reviewed, considering specific new actions in areas such as criteria and indicators, transport safe-conducts, forest harvesting rates, sanctioning regime, assessment of fines, and development of guidelines for the formulation of management plans for threatened species, among others (ITTO 2006).

The national forestry policy (Política de Bosques) now in force was approved in 1996. Main aims of the forest policy are: (i) to achieve the sustainable use of forests for their conservation; (ii) to consolidate the incorporation of the forest sector in the national economy; and (iii) to contribute to the improvement of the quality of life of the people. Essential steps include: (a) the modernisation of administration; (b) the conservation, restoration and use of natural forests; and (c) the strengthening, support and consolidation of the international position of Colombia in forest matters. Two main instruments of the national policy are “Plan Verde” (1998) and the National Plan of Forest Development - PNDP - (2000). Since the implementation of the PNDP began, coordination of activities has been undertaken at the national level⁶ as well as at the local level⁷.

“Plan Verde” promotes reforestation and, in particular, the restoration and rehabilitation of degraded forest and the management of secondary forests. The PNDP offers a strategic vision on forest management through 2025. It is aimed at establishing a strategic framework that actively incorporates the forest sector to the national development, optimising the comparative advantages and promoting the competitiveness of timber and non-timber forest products in national and

⁵ According to the Law 99/93, 26 Autonomous Regional Corporations CARs were created. The Environmental National System counts also with 5 research institutions and 5 environmental unities for urban areas as well as one entity fully dedicated to the management of natural parks.

⁶ Through the Nacional Council for Strategic Planning

⁷ Through the inter.-institutional committee of the PNDP

international markets. The plan has been developed according to the concepts of the Forests Program of the Convention on Biological Diversity, which takes the 'ecosystem approach' as its conceptual foundation. This approach looks for achieving a balance between conservation, sustainable use and the equitable distribution of benefits. The *Bosques para la Paz* (Forests for Peace) program, created in 2004, promotes co-management, reforestation and forest restoration as important elements in social development. Other programs include '*Familias Guardabosques*', which aims at promoting SFM and substitution of illicit crops such as coca.

Besides direct legislation on forest and forestry in Colombia, the government developed in the 80s a payment scheme for maintaining watersheds, which indeed corresponds to a first regulation on payment for an environmental service rendered by forest. This regulatory scheme requires hydroelectric utility companies to transfer a percentage of their earnings to support good land management in upstream communities, thus reducing reservoir sedimentation and preserving water flows. This scheme, called "tasa retributiva" has leveraged important resources for watershed restoration and management through a participative management approach called PRISER. The CARs are responsible for collecting the payments as well as for participative planning and implementing of management measures upstream.

Recently, the Law 811/2003 strengthens the production chains in different sectors including agriculture and forestry. This development promotes participation of more social actors in the production chains at both, regional and national, levels. Also the creation of the National Board of the Forestry Chain, chaired by the Ministry of Agriculture and Rural Development, facilitates participation of new actors in forestry activities.

2.1 Land tenure and land use rights

The national constitution has determined that private property of land in Colombia shall fulfill a ecological and social function, and consequently land use is subject to some restrictions. In this sense, for the Colombian law "land" is an asset related to a specific community. Goods and services provided by a given land should be used in favor of the national and local society.

This understanding of land tenure has allowed the intervention of the government in the environmental sector, by regulating the use of the forests beyond monetary return. The Colombian legislation recognizes a variety of land uses, including forestry activities (i.e. permanent forest, production forest, agroforestry, etc).

Thanks to this evolution in legislation, it can be pointed out that today private property of land (including forest land) is subject to an "ecological function", as a part of its "social function" (Art. 58, Colombian Constitution, 1991).

Furthermore, the Colombian law recognizes three main categories of land tenure:

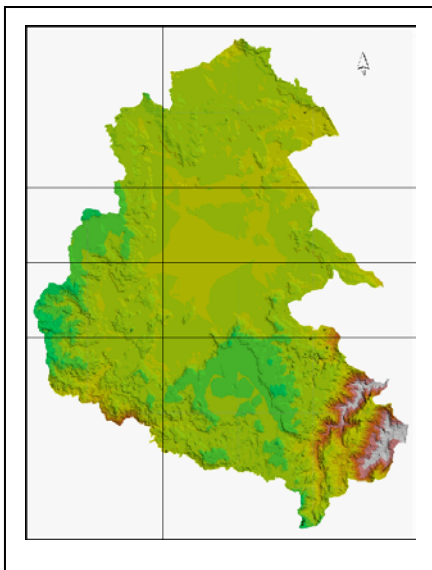
- Full property, when all the documentary requirements and procedures exist and are fulfilled. In this case the property is registered in a book of public instruments.
- Possession; is an expectation derived of a long occupation of a land without being the legal owner. Under the Colombian law after a period of time of possession (5 o 10 years depending of the specific circumstances) and if there is no allegation full property can be recognized. This occurs after an exhaustive assessment based on the law and considering all investments that the possessor has done in the land. This alternative for getting land is common used in “colonization⁸” processes on state owned land.
- Tenure: Is the simple exercise of using a good on a given land that is property of a third party. It considers only the use of goods and the access to its related services, but not the property right on it.

⁸ Colonization is strategy to expand agricultural land on state land. This process is sometimes promoted or at least allowed by local governments in order to promote development.

3 The San Nicolás project

The region of the San Nicolás' Valleys is located at the north west department of Antioquia in Colombia (see map 1). It covers nine municipalities as follows: Guarne, El Santuario, El Carmen de Viboral, El Retiro, Marinilla, Rionegro, La Unión, La Ceja and San Vicente. This is recognized as a strategic region because it has the main watersheds for two hydropower dams, which generate more than 30% of the total energy-power in Colombia. The region has a size of 72.000 ha. In terms of altitude the lowest part of the project is on 800 while the highest achieves 3.000 mm. Today more 12.000 families are localized in the rural areas of the 9 municipalities. Even if natural resources, especially forest and water, have a strategic importance for the development of the region, during the last decades these resources have been seriously degraded. The region of San Nicolás belongs to the area of influence of the CAR called Corporación Autónoma Regional de los rios Negro y Nare – CORNARE –.

Map2 : San Nicolás region



During the decade of the 90s CORNARE realized the increasing need of ensuring sustainable management of natural resources specially forest. As a consequence CORNARE agreed a legal instrument with all the municipalities establishing 40.000 ha for forest conservation and 32.000 ha for multiple forest uses, including plantations. This legal instrument is the Agreement 016 from 1998. This legal instrument is known as the Agreement 016 from 1998.

As a mean for enforcing the Agreement 016/98 and for promoting sustainable use of forest resources, CORNARE associated with the Swiss Federal Institute for Material Testing and Research (EMPA) in the project "Alternative financing model for sustainable forest management in San Nicolás". A project proposal was presented in 1999 to the International Tropical Timber Organization – ITTO -. Switzerland⁹, Japan and USA agreed to co-finance it¹⁰. This first phase of the project lasted from 2001 to 2004

The project was aimed at testing a new financing system, which combines sustainable tropical forest management with the possibilities offered by the Clean Development Mechanism of the Kyoto Protocol. Specific objectives of the project were:

⁹ The participation of Switzerland in the ITTO is under the responsibility of the State Secretariat for Economic Affairs (seco)

¹⁰ ITTO project PD 54/99

- a) to formulate, in coordination with the local community, a long term management plan that includes all possible forest activities relevant for the region¹¹
- b) to development an investment plan and to get new national or international investors
- c) to ensure the basic social and institutional conditions for implementing the management plan.

1999, at the beginning of the project, the situation in San Nicolas was characterized by the following

- A high urbanization pressure in the south- west, west and north of the project area;
- an intensive use of water resources by hydropower dams, municipalities, industry and a growing flower production sector;
- besides, 9 urban areas and one industrial zone, land uses were shared between forest, managed and unmanaged pastures, and seasonal and perennial crops (see table 2). Some presence of illegal crops was detected at the beginning of the project;
- finally, some socioeconomic elements: the rural area in San Nicolas was inhabited by small and medium farmers with an average size of their property between 1 to 4 ha. At the beginning of the project 90% of the area was private owned with legal titles, without allegations. Population was already well organized in small associations and groups that made them vocal in front of local governments. A tradition of collaboration between CORNARE and local communities was already in place. Unfortunately the violent conflict present in Colombia had affected the project area during decades. All actors in the conflict (guerilla, paramilitary groups and army) where present. Confrontations between these groups were part of the daily life of the community, which suffered much.

Table 2: Land uses und the project area

Land use in 2000	Highlands	Lowlands	Total
Unmanaged Pastures	18,543	1,642	20,185
Forest (secondary growth)	15,723	3,539	19,263
Constructions	32		32
Managed Pastures	1,310		1,310
Water areas	7		7
Natural Forest	6,597	4,042	10,639
Planted Forest	6,499	6	6,505
Permanent crops	1,192	377	1,568
Shruplands	9,911	764	10,675
Seasonal crops	1,304	38	1,342
Shadows	213	231	444
<i>Total</i>	61,331	10,638	71,969

¹¹ Besides plantations for wood extraction, agroforestry and silvopastoril systems were also included.

For the project partners was clear from the beginning that, besides technical matters, the project needed to face the socio economic situation of the communities. For this reason the Regional Forum was created, a space for capacity building, discussion and decision-making within the project. As part of the Regional Forum more than 170 meetings with the community as well as with industry partners and municipalities were organized.

The Regional Forum was designed around three main phases: information, participation and decision-making. The first phase, **information**, was aimed to familiarize all potential actors with the project, including local communities, industry and policy makers at the regional and local level. Based on the comments made by these actors specific needs and requirements were assessed and future activities of the project were adapted.

The second phase of the Regional Forum, **participation**, was aimed at exchanging knowledge and expectations on future land uses according to the institutional agreements (including the Agreement 016) and the needs expressed by the community. During this phase all forestry activities were analyzed by experts of the project together with the members of the community. To do so a methodology on social mapping was used.

During this phase a clear need of the community on capacity building related to management practices for new forestry activities as well as to entrepreneurship was detected. The project reacted with the design and implementation of a capacity building program. Research and education institutions present in the region have been supporting the implementation of the capacity building program until today.

All the information collected during these two first phases allowed the project team to elaborate a detailed forest management plan. This information and the analysis on tendencies and forest cover by 1990 allowed also the quantification of the carbon potential in the project area.

The third phase of the Regional Forum, **decision-making**, was aimed at ensuring a participative decision-making process between small and medium farmers, NGOs, municipalities, regional institutions and the private sector. Main issues to be agreed in this phase were the forest management plan and the creation of an institution that could fulfill two objectives: a) to leverage the implementation of the management plan and b) to facilitate trade of all products and services, including carbon sequestration.

After three years the project some of the main outputs of the project were:

- The creation of the Corporation MASBOSQUES, a public-private partnership (PPP) aimed at promoting the implementation of the management plan as well as at facilitating the commercialization of all products and services from the region (see next chapter)
- A forest management plan for the next 25 years agreed with the community (small and medium farmers) and the municipalities. This plan includes the development of planted forests, agroforestry and silvicultural systems, forest conservation and forest restoration activities. Some of these activities are eligible for the CDM of the Kyoto Protocol other are not¹² (see table 3 for CDM eligible activities).
- Detailed market analysis from the expected products coming from agroforestry, silvo-pastoral systems and plantations. In this analysis the local markets (including Medellin), were considered the most important. International markets were considered mostly with regard of the CDM. However, as some participants in the project have experience in exporting goods (e.g. flowers) it is possible that international markets can be explored in the future.
- Forest inventory on the existing secondary forest and socio economic characterization
- Definition of the net carbon potential of the project (including baseline, project scenario, leakages and risks);
- Financing plan and market analysis for timber and non-timber forest products

Regarding the CDM, the project delivered all elements required for the validation of the project i.e. quantification of the carbon potential (including baseline, actual net, leakages and other GHG emissions) and monitoring and verification plan as well as an analysis of the environmental and socio-economic impacts of the project. Besides, the project develop a baseline and monitoring methodology that is currently (2006) under assessment of the Working Group on Afforestation and Reforestation of the Executive Board of the CDM. Negotiation of the Certified Emission Reduction (CERs) and Verified Emission Reduction (VERs) have been done by MASBOSQUES with the support of the project partners (see chapter 4).

¹² According to the negotiations within the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol, until 2012 only reforestation and afforestation project activities are eligible from the forest sector for the CDM. Reforestation and afforestation for the CDM are defined in the Dec. 19/CP.9. For the purpose of the San

Table 3

System Type	Code	Species and Varieties selected
Silvopastoral	SP1-ZA	<i>Persea Americana Alnus spp. Erythrina edulis</i>
Forestry Plantation	Ref 1-ZA	<i>Alnus acuminata</i>
Forestry Plantation	Ref 2-ZA	<i>Pinus tecunumannii</i>
Forestry Plantation	Ref 3-ZA	<i>Pinus oocarpa var. maximinoi</i>
Forestry Plantation	Ref 4-ZA	<i>Guadua angustifolia</i> ('Giant Bamboo')
Agroforestry	AF1-ZA	<i>Persea Americana Citrus limon Podocarpus rospigliosi Cedrela Montana</i>
Agroforestry (fruit, fodder trees and crops)	AF2-ZA	<i>Persea americana Citrus limon Erythrina edulis Solanum sp</i>
Agroforestry	AF3-ZA	<i>Persea Americana, Alnus spp, Erythrina edulis</i>
Agroforestry (fruit and timber) with	AF4-ZB	<i>Borojoa patinoi, Annona muricata, Quararibea cordata, Citrus limon, Cariniana pyriformis, Cordia alliodora, Tabebuia rosea and Cedrela odorata</i>
Agroforestry (fruit, crops and timber)	AF5-ZB	<i>Cordia alliodora, Cedrela odorata, Tabebuia rosea, Borojoa patinoi, Musa paradisiaca, Saccharum officinarum y Coffea arabiga</i>
Agroforestry (fruit, crops and timber)	AF6-ZB	<i>Quararibea spp., Cedrela odorata, Citrus spp., Annona muricata, Borojoa patinoi, Zea mays, Phaseolus spp., Manihot sculenta</i>
Agroforestry (fruit and timber)	AF7-ZB	<i>Persea Americana, Annona muricata, Borojoa patinoi, Quararibea spp., Tabebuia rosea</i>

The outputs of the project, as well as the participative decision-making approach used have helped to change the perspective regarding the future of forests in the region. Firstly, nowadays income possibilities from forests are considered in a broader sense including not only wood, but also agroforestry products and payments for environmental services (especially carbon sequestration during the first phase). This has helped to increase the value of the forest in monetary terms to a level that the opportunity cost becomes favorable to forestry. Secondly, some production chains, including wood and non-wood products will be reactivated. Some examples are handicrafts on wood, production of sub-products of guava and other agroforestry products. In preparation to these new possibilities in adding value to regional products, the project in a joint effort with a local research institution started two activities: capacity building in entrepreneurship and improvement of

Nicolas Project it meant that only some of the plantations, agroforestry systems and silvicultural systems were included into the CDM portfolio.

designs of handicrafts. As a result, today local communities are better prepared to gain a higher income from the forestry activities considered in the management plan.

Also as a consequence from the project local communities have increased their knowledge about the forest resource looking not only for wood in the forest but also as a source for important common goods as biodiversity. Local communities have been involved in the forest inventory and in the measurement of carbon in the existing forests. The result of these activities demonstrated the presence of not expected species. The project started also a review on previous uses given to those species. For doing that interviews and workshops with older people were undertaken. As a result some initial research in medical plants and other uses from native species are being undertaken.

Finally the Regional Forum arose as an adequate social space for peaceful consultation, exchange and concerting on matters related to the use of natural resources in the area.

In 2003 the project participants, ITTO, CORNARE and EMPA realized the need to forward develop financial instruments for payments of other environmental services that include forestry activities outside the CDM, especially forest conservation and restoration of secondary forest. As a consequence a second phase was presented to the ITTO at the end of 2003. The same donors, Switzerland, Japan and the USA co-financed it. The second phase is implemented since 2004 and for a period of 3 years. The ongoing second phase looks into restoration of forest landscape and into quantifying and valorizing other environmental services different than carbon sequestration, especially regulation of the hydrologic cycle, soil conservation, conservation of biological diversity and conservation of cultural habitat and scenic beauty. Further the project is designing or improving instruments for payments of these services. Outputs from phase II will complement the forest management plan and the activities under the responsibility of MASBOSQUES. The second phase of the ITTO project will finalize in July 2007.

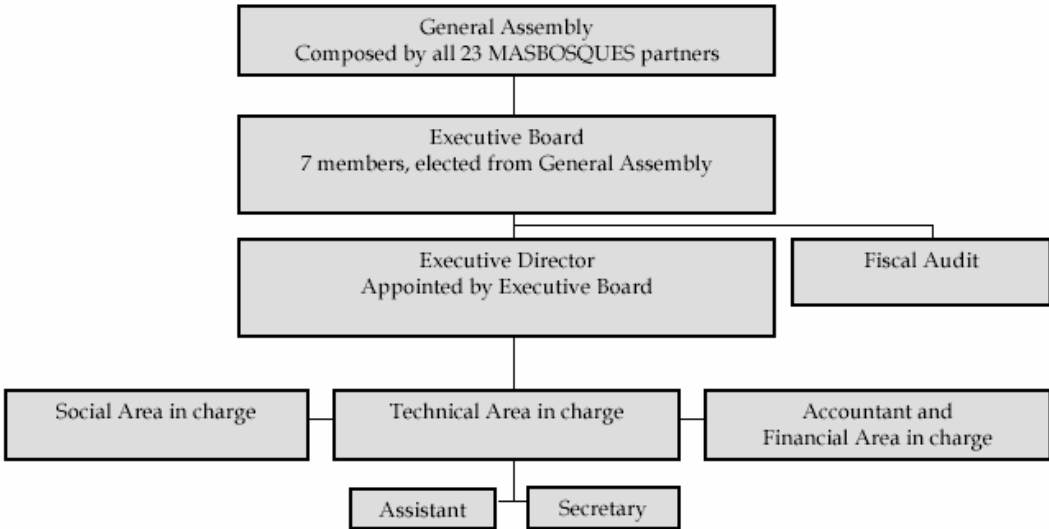
4 MASBOSQUES, an institution committed to Sustainable Forest Management

The Corporation for the Sustainable Management of the Forests MASBOSQUES was established in September 2003. As the result of a participatory process all social sectors present in the region are represented (see table 3). The creation of MASBOSQUES answers the needs of strengthening civil society and of ensuring participation of communities in planning and decision-making regarding sustainable management of the forest beyond the Regional Forum (see chapter before).

MASBOSQUES is aimed at promoting conservation, sustainable use and restoration of forests and their associated resources. Therefore MASBOSQUES facilitates projects that contribute to integrate good practices in forests with improvements in competitiveness of the productive chains, and with the use of instruments for payments of environmental services.

MASBOSQUES is directed by a General Assembly, which includes the representatives of all members (see table 4). An Executive Board is composed of seven representatives of the members of the General Assembly. The Executive Board names the Executive Director, which is the legal representative of the Corporation (see fig. 1). As highest administrative organ, the Executive Board meets at least once in all two months. All relevant decisions have to be approved by the board. This decision-making schema guarantees participation, consensus, transparency and efficiency in the work of the MASBOSQUES.

ORGANIZATION CHART
CORPORATION FOR THE SUSTAINABLE FOREST MANAGEMENT MASBOSQUES



Sector	Members	Explanation	Name of the members in Spanish
Public			
	Municipalities of Rionegro, Guarne, Marinilla, La Ceja, San Vicente, El Carmen de Viboral, La Uribe, EL Retiro and Santuario	The smallest unit of the state in Colombian is the municipality. As a consequence of the decentralization process the municipality can independently plan and implement development programmes as far as these are inline with the national strategies. For this reason today municipalities in Colombia have an extensive experience in the management of projects with local communities.	Municipios de Rionegro, Guarne, Marinilla, La Ceja, San Vicente, El Carmen de Viboral, EL Retiro y Santuario
	CORNARE	CORNARE is the CAR responsible for the area of San Nicolás as well as other more that 200.000 ha of the East part of the Department of Antioquia	Corporación Autónoma Regional del Rionegro - Nare
	MASORA: Asociation of the municipalities in the east Antioquia	This insittution associates all municipalities in the region. It facilitates coordination of local policy with regional and national iniciatives	MASORA: Municipios Asociados del Oriente Antioqueño
Private			
	ASOCOFLORES: Asociation of flower producers of Colombia	The region of San Nicolas is the second biggest producers of flowers in Colombia. Within the region epecially the municipalities of Rionegro and El Retiro are dedicated to flowers production.	Asociación Colombiana de Productores de Flores
	CEO: Corporation of Enterpreuners from the East of Antioquia	The CEO reunites more than 130 middle and big industries present in the project area	Corporación Empresarial de Oriente
Academic and Research			
	CORPOICA: Colombian Corporation for Research on agriculture and livestock	It is a PPP with more than 10 years experience in projects all over the country. Its work is oriented to promote the application of new agricultural techniques	Corporación Colombiana de Investigación Agropecuaria
	CEAM: Corporation of Studies, Education and Resarch on Environmental Matters	This is an association that promotes the implementation of projects at local level by means of environmental training and awareness in the region	Corporación de Estudios, Educación e Investigación Ambiental

	UCO: East Catholic University	Is the University with the major presence in the region. It was founded twenty years ago, and undertakes an important work in research and educational extension areas.	Universidad Católica de Oriente
	EMPA: Swiss Federal Laboratories for Material Testing and Research	This is a research institution of the Swiss Government. EMPA has been working in projects in Colombia since 1998as follows: The Cleaner Production. ITTO PD 54/99 (F) Rev. 2 and ITTO PD 240/03 (F) Rev. 1	Instituto Federal Suizo de Investigación y Prueba de Materiales y Tecnología
Civil Society			
	Asociation of the community action boards from all municipalities	In Colombia members of a community can organize themselves in Community Action Boards. Law recognizes the importance of this institutions in promoting sustainable development. Community Action Boards are enforced to abrogate for community interests in all public and/or private decisions related to their region. This is an instrument created during the decentralization process, which empower local communities.	Asociación de Juntas de Acción Comunal
	AVANS: Association of Environmental Organizations in the San Nicolás Valleys	AVANS reunites all environmental and some social NGOs present in the project area	Asociación de Organizaciones Ambientales

MASBOSQUES portfolio includes activities in technical and social areas as well as promoting trade of timber and non-timber forest products and payments for environmental services as follows.

- In a joint effort with CORNARE, MASBOSQUES offers capacity building in best practices for forestland restoration, agroforestry, silvopastoral systems and timber plantations (at small and middle scale) according to the management plan
- MASBOSQUES is responsible for negotiating the VERs and CERs from the implementation of the management plan with international investors. With this regard, MASBOSQUES has already signed a letter of understanding with the BioCarbon Fund of the World Bank (BCF). The BCF is interested in buying around 0.5 Mt CO_{2e} by 2012 and around 1.03 Mt CO_{2e} until 2017¹³ Further, some international investors have signalized their interest in investing in VERs
- Promoting the use of other instruments for payments of environmental services, specially those that are currently under design as part of the activities of the second phase of the ITTO, CORNARE, EMPA project.
- Facilitating trading of wood and non-wood forests products in national and international markets.
- Technical support and advisory for local communities through participative workshops in improvements of practices in the production chain
- Awareness of sustainable forest management in rural communities.

Financing MASBOSQUES

Now, one could ask: How all will work this scheme in future? Is this institutional agreement sustainable or will all fell down once the ITTO financing is used?

Finances of MASBOSQUES are a key issue for the long term implementation of the forest management plan as well as for maintaining credibility for national and international investors. The first step in financing MASBOSQUES was obtaining start capital. For this purpose each of the members in the Assembly made an investment, similar as it is done in any new company.

However MASBOSQUES is a non-profit organization and its members can not expect dividends. Why then should they invest? For public institutions as CORNARE or the municipalities, participation in MASBOSQUES is an instrument for implementing their development policies. Private partners see in MASBOSQUES an opportunity for activating local economy and for

¹³ (for more information see <http://carbonfinance.org/Router.cfm?Page=BioCF&FID=9708&ItemID=9708&ft=Projects&ProjID=9630>).

promoting new business (e.g. production of essential oil) from they will also get profit. For research institutions the area of the project as well as the activities included in the management plan offer a huge potential for research and student practices. Last but not least, organizations representing the civil society see in their membership a clear opportunity for accessing capacity building, business opportunities and decision power for their represented. MASBOSQUES in not a closed membership. It means that new members can joint the Corporation. The better the performance of MASBOSQUES is, the more interest will give in the region for participating.

Once the start capital was ensured the long-term functioning of MASBOSQUES is being carried out through the services offered.

5 Benefits and risks

Environmental benefits, conservation values, impact on biodiversity

Biodiversity will mainly benefit from the forestry activities of the project. On one side a biological corridor has been designed (see map 2). This corridor connects to major biological corridors in Colombia. Specific restoration models and enrichment activities of existing secondary forest have been defined. Tree replanting will also extend the forested land area, enrich the degraded natural forests with valuable species for the biodiversity, and help interconnect the existing natural forests fragments and restore the biological corridors. On the other side the project will also support the establishment of several types of agroforestry and silvopastoral systems, which will include fruit-bearing trees, forest species, other timber species and transitory crops or a combination of them. These activities will be developed in small areas, due to the regional situation. The implementation of a wide range of systems involving many tree species will increase the tree cover on abandoned pastures and create a more diverse scenery generating new ecological niches.

[include map 2]

Good forest practices have been developed for each plantation, agroforestry and silvopastoral system as well as for restoration, enrichment and conservation activities. It includes prevention of forest pests and fires as well as silvicultural practices and harvesting procedures for wood and non-wood forest products. Training in these practices are provided by MASBOSQUES and CORNARE. Explanatory material on the good practices has been formulated and printed in the local language and it is permanently being distributed to farmers. Implementation of these practices will improve the sustainability and longevity of reforested and restored areas. Finally, it should be mentioned that seeds for native species will be partly purchased from certified seedling stores, and partly obtained from seedling banks developed by CORNARE. That will avoid any harm to remnant natural forests and ensure enough genetic diversity.

In addition to increasing the natural diversity and rehabilitating abandoned pastures, the establishment of these permanent systems and forests will bring several other environmental benefits, among which: protection of soils and reduction of erosion which particularly threatens areas of steep slope in the zone and has taken away most of the superficial arable layer; improvement of the landslide prevention and control through fixation of the soil; better retention and increment of water flows through improvement of soil filtration and retention capacities, which will also lead to the restoration of hydrographic basins; supply of firewood and timber products for different uses in a sustainable manner, which will also reduce pressure on native forests; and improvement of landscape beauty.

Although the analysis of the potential environmental impacts conducted by the project team didn't identify any significant negative impact, a set of criteria and indicators was developed in the monitoring plan to monitor potential environmental impacts in the project area. These set of criteria and indicators includes both the effects linked to the implementation method and to the activities themselves, and have been defined taking into account their descriptive capacity and cost.

5.1 Social returns from the enterprise, culture, and livelihoods

Social returns from the project can be summarized in five main impacts: empowerment of local communities, creation of public-private partnerships, improvement of local capacities, improvement of family income and improvement in food security.

Empowerment of local communities

Through the Regional Forum local communities had access to a very active planning process on the forestry activities that in future will be implemented in their farms. Further, these communities participated in the decision making of forestry activities as well as on the design and creation of an institution that will leverage the implementation of the agreed management plan. Finally, the participation of the communities in future decision-making has been ensured through their membership in MASBOSQUES and in its Executive Board. At the level of individual decision-making, each farmer is free to participate with his or her farm and to implement the activities planned for the corresponding area. This decision is set down in a contract between MASBOSQUES and each farmer. These process of participatory decision-making has allowed that by now community members are aware of their possibilities and responsibilities in sustainable managing their forest.

Creation of public-private partnerships

The creation of MASBOSQUES is based on the mutual recognition of the importance that all partners have for the sustainable development of the area of San Nicolas. The concertation process that took place before MASBOSQUES was established was an effort for closing the gap between different sectors of the local society. Even if the success, in form of the establishment and ongoing activities of MASBOSQUES, has lasted for only two and a half years by now, it can be considered as a good starting point.

Capacity building

Training for farmers and communities for the elaboration of the social cartography, as well as in environmental matters, and forest management, enrichment and conservation has been

undertaken all along the last five years. These activities have improved the local capacities in forestry matters as well as in participation, decision making and on entrepreneurship. As a consequence local communities are now in a position that allow them to participate in implementing an monitoring the forest management plan and to improve the production chain.

Improvement of income

Before the project started farmers in the area were getting their income from extensive livestock or from other non-forestry related activities. In many areas land was abandoned as a result of reduced access to credit as well as to violence in the region. The project offers a real alternative as implementation of activities included in the management plan will be facilitated. CORNARE is facilitating inputs for planting trees according to the agreed forests systems (plantations, agroforestry and silvo-pastoral systems). Communities are investing their labor force. For both that is seen as an investment that will be partially paid through the CERs sell.

Project activities will generate income in different forms: (a) revenue from products; (b) generation of direct employment and (c) payments from environmental services (especially carbon sequestration).

Forest products include wood and non-wood forests. Return depends on the specific system. Agroforestry and silvopastoral systems will start producing revenues since the first year with a continuing increase until year 3 to 5 depending on the specific system. Wood production will also depends on the rotations established. However the most important harvesting will take place between years 20 to 23 (rotations of 20 years). Overall IRR of all CDM eligible activities is 6.5%. Through the combination of different systems income for local farmers will be maintained without any shortage.

Planting, managing and harvesting activities will create around 10,000 employs throughout its lifetime. Labor practices in the San Nicolas Region do not discriminate against gender, age or ethnicity, and decisions will be taken jointly between community and MASBOSQUES.

Payments for environmental services (including carbon sequestration from CDM eligible activities and future payments for regulation of the hydrologic cycle, soil conservation, conservation of biological diversity and conservation of cultural habitat and scenic beauty) will be distributed to landowners and shared according to the surface brought by each landowner to avoid inequalities.

Food security

Other social benefits brought by the project's activities will include the generation of new food supply, increased food safety and stimulation of the local market, the creation of new firewood sources, and the improvement of the attractiveness of the region to foreign investment.

Potential risks associated to land tenure, though rated low for the project area since there are no disputes over the ownership of the land. Risks associated to social tensions are not excluded in Colombian provinces, particularly risks linked to armed conflicts, the law and order - such as landowners' temporary displacements, and limitations in the accessibility to the project area. However these risks will be mitigated by the diversification and geographical dispersion of project activities and products, which diversifies the sources of income and reduces the propagation of damages. At a broader level, transparency and quality in the results, credibility of the project's social measures, guarantees of payment of CERs and other environmental services and increase in population incomes will also mitigate these risks.

Finally it should be mentioned that the project has also developed criteria and indicators to monitor socio-economic impacts, which will be included in the monitoring plan.

6 Conclusions and lessons learned

Promoting sustainable forest management needs to be based on a holistic approach. That is one of the most important lessons learned during the past six years of work in San Nicolás. There is no the accentuation of an issue (technical, social, economical or political) but the understanding of each of them and the inter-linkages and interdependences between them what is required in order to formulate precise and opportune proposals. The project of San Nicolás was divided in forestry, legal and institutional, social and financing fields. In terms of forestry, all potential goods and services were considered. As a result, the forest management plan includes agroforestry, plantations, silvopastoral systems as well as activities in restoration and conservation of secondary forest. Complementarily environmental services, especially carbon sequestration during the first phase, were quantified and negotiations for their payment started. Further the team was permanently looking at the implications that evolutions in each field have on the others and proposals were consequently adapted. Final decisions as well as the ongoing implementation cover specific activities in all four fields so that an integral development can be ensured.

Participation a key element of success. All potential partners for the development of the region, including public and private sector as well as representatives of the civil society, were invited to participate throughout the project. Participation, as understood in the project, is a process that allows information and knowledge exchange, familiarization with new issues, understanding of each other's expectations, common planning and finally a participative decision-making. To do so all potential partners have to recognise the right of others to participate and to decide. In order to ensure this recognition the project improved existing participation methodologies and, when required, developed new ones according to the specific circumstances and traditions in the area.

Institutional development should be considered as a mean for strengthening civil society. Institution is here understood as humanly devised constraints that structure human interaction. They are made up of formal constraints (rules, laws, constitutions), informal constraints (norms of behavior, conventions and self-imposed codes of conduct) and their enforcement characteristics. Innovative or new social arrangements should be "institutionalized" so that their impact can be maintained beyond the lifetime of a specific project. In the case of San Nicolas such an arrangement, in the form of the establishment of MASBOSQUES, is clearly aimed at empower civil society through the participation of their representatives not only in the Assembly but as permanent members of the Executive Board.

Empowerment needs knowledge and know-how. The process of empowerment in San Nicolás refers to the inclusion of different social groups in strategic decision-making. In order to actively participate in it (and consequently be empowered) an exchange of knowledge and know-how between these social groups needs to take place. On one side knowledge and expectations from farmers, but also from the private sector and public entities was to be carefully considered. On the other side innovative elements (i.e. the opportunities and challenges from the CDM) needed to be clarified in such a way that groups to be empowered can also decide on these new matters. In terms of participation, institutional development and empowerment, the Regional Forum served as an excellent instrument.

Climate change and the CDM as innovative elements. The United Nations Framework Convention on Climate Change has activated an interesting discussion in terms of the potential role of forests and forestry for adapting to and mitigating climate change. Through the inclusion of afforestation and reforestation as eligible activities in the Clean Development Mechanism (CDM) this discussion became more important in developing countries. Even if the payments for Certified Emission Reductions from forestry activities (ICERs and tCERs) are not very high in the market yet, new forestry activities in degraded or abandoned land are being proposed. In the case of San Nicolas the possibilities offered by the CDM opened a door for discussion on sustainable forest activities in the region. The project has produce a set of instruments, including a new baseline and monitoring methodology that could be used for other community projects in the tropics.

Future for other payments for environmental services. From the very beginning of the project payments for environmental services were understood as complementary income to other productive activities. During the first phase payments for carbon sequestration were set in place. Consequently, negotiations with the BioCarbon Fund of the World Bank were successfully undertaken. Currently, other services especially regulation of the hydrologic cycle, soil conservation, conservation of biological diversity and conservation of cultural habitat and scenic beauty are being analyzed in more detailed. This analysis is being done for restoration and conservation activities mainly due to the fact that such activities are likely to have a reduce return of investment but also a higher environmental benefits. Financial instruments that promote this payments will be improved/designed by end of this year and negotiations with potential buyers and investors will be also undertaken before midyear 2007. Until now, the experience of the project is that in fact payments for environmental services can promote sustainable forest management. However these payments alone are probably not enough to ensure income, especially when forest dependent population is high.

Finally, a more personal remark should be done. Besides all technical and professional background, our work in the San Nicolas region has been guide by a deep respect to all participants as well as by the interest of understanding and concerting the needs and requirements of different social groups. This human asset of the working team maintained the hope and the enthusiasm and has been a great support for our professional challenges. The community of San Nicolas reacted to this asset with permanent confidence and openness: Our gratitude to them for sharing with us their knowledge, their hopes, their time and also their conflicts as well as for their commitment to promote development in the region far beyond the possibilities of any single project.

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