Programmes and Projects

Andean Countries: A Strategy for Forestry

Volume I of V

EXECUTIVE SUMMARY

FAO/World Bank Cooperative Programme
Latin America and the Caribbean Service
Investment Centre Division

This report was prepared within the framework of the FAO/World Bank Cooperative Programme of the Investment Centre, by Richard Owen, TCIL, with inputs from Pablo Pacheco (Bolivia), la Corporación Nacional de Investigación y Fomento Forestal (CONIF, Colombia), Hans Thiel (Ecuador) and José Dancé (Perú). In FAO, the study was coordinated and supervised by Selim Mohor, Chief of the Latin America and Caribbean Service of the Investment Centre Division.

The collaboration and comments received from colleagues in the World Bank and FAO are gratefully acknowledged.

The findings and conclusions presented in the report are the responsibility of the authors and do not represent the views of FAO or the World Bank.

PROGRAMMES AND PROJECTS

ANDEAN COUNTRIES: A STRATEGY FOR FORESTRY

Volume I of V:
EXECUTIVE SUMMARY

06/028 CP-LAC
31 August 2006

FAO/World Bank Cooperative Programme
Latin America and the Caribbean Service
Investment Centre Division

ÍNDICE

List of Acronyms and Abbreviations

List of Acronyms and Abbreviations

CAF	*Corporación Andina de Fomento*
CAS	*Consejo Agropecuario del Sur*
CI	Conservation International
CUFTA	Colombian United States Free Trade Agreement
EIA	Environment Impact Assessment
FAO	Food and Agriculture Organization of the United Nations
FONABOSQUE	*Fondo Nacional para el Desarrollo Forestal* (National Forest Development Fund)
FONDEBOSQUE	*Fondo de Promocion del Desarrollo Forestal* (Forest Development Promotion Fund; Peru)
GDP	Gross Domestic Product
GEF	Global Environmental Facility
IDB/IADB	Inter-American Development Bank
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IRR	Internal Rate Return
LAC	Latin American Countries
NAFTA	North American Free Trade Agreement
NFP	National Forestry Programme
NGO	Non-Governmental Organization
NWFP	Non Wood Forest Product
PUFTA	Peruvian United States Free Trade Agreement
SFA	State Forest Agencies
TA	Technical Assistance
TFAP	Tropical Forestry Action Plan
US	United States

1. INTRODUCTION

1.1 The World Bank's revised forest policy came into being in 2002 and covers all types of forests. It has the following key objectives: (i) harnessing the potential of forests to reduce poverty in a sustainable manner; (ii) integrating forests effectively into sustainable development; and (iii) protecting vital local and global environmental services and values. The policy enables the bank to fully engage in forestry throughout the developing world, while ensuring that it complies with such safe guard policies such as OP 4.01 (Environmental Assessment), OP 4.04 (Natural Habitats) and OD 4.20 (Indigenous Peoples). On the other hand, the policy provides only a general framework for its lending operations in forestry and cannot take account of the individual socio-economic and environmental needs of regions and sub regions.

1.2 To address the needs of individual regions, such as LAC, more detailed regional and sub regional strategies are needed to ensure that forestry contributes fully to the challenges of poverty, inequity, environmental degradation and sustainable development. This report presents such a strategy for four Andean Countries of South America, that is, Bolivia, Colombia, Ecuador and Peru. Venezuela could not be included because of time constraints, and the difficulties of obtaining a suitable consultant to carry out the field work.

1.3 To carry out the work, experienced local consultants were recruited to prepare country level reports following guidelines provided by the FAO Investment Centre, the aim being to gain a strong local perspective on the main issues and potential for sustainable and equitable growth in the sector. These reports were complimented by reference to an extensive literature base to produce individual country reports and the summary which follows. Given the complexity of forestry in the region, the need to involve large numbers of stakeholders, and the need to accommodate change, the findings of this report should not be regarded as definitive, but rather as a first step to shaping the Bank's interventions in the sector in individual countries over the medium term. It should also be noted that data have been obtained from a variety of sources, and that inconsistencies and gaps were common; they should consequently be regarded as orders of magnitude.

2. UNIQUE IN TOPOGRAPHY, CLIMATE AND ECOLOGY

2.1 The topography of the region is dominated by the Andes and headwaters of the Amazon Basin, and these have had a profound influence on climate and ecology. To the west lie the Andes which exhibit a wide range of climatic conditions from arid in the south to temperate and alpine in their middle and upper reaches, polar on the peaks to sub tropical in the higher rainfall north and lower eastern flanks. The vegetation of the Andes is as varied as its topography, but is grouped in to three main types namely the Páramo in the higher rainfall areas of the north, the puna in the southern drier Andes and the Jalca in areas of intermediate rainfall in north eastern Peru. A band of cloud forest occurs on lower altitude, east facing slopes, and on westerly facing slopes in the higher rainfall areas to the north. Tropical moist

forest covers extensive areas of both the headwaters of the Amazon basin, and the north western slopes of foothills of the Pacific coast of Colombia and Ecuador, giving way to deciduous forest and savannah on the coastal plain and mangrove forests along the coasts of Ecuador and northern Peru. Semi arid and arid landscapes dominate the remainder of the Peruvian coastline. The vegetation of the coastal areas of Colombia, Ecuador and northern Peru has been heavily modified by human intervention, as has that of the inter Andean valleys - to such an extent that the natural state of the latter is difficult to interpret.

2.2 The varied topography and climate of the region has given rise to treasure trove of biodiversity that is difficult to parallel elsewhere in the world. It would also be difficult to do justice to the topic in a report of this nature given that it includes a rich variety of tropical moist forests, mangroves, dry deciduous forests, Paramo, Jalca, cloud forests and deserts. The Regional Biodiversity Strategy adopted by member states in 2003, states the following: '*The Andean tropical countries are an eco region considered by world experts to be the global epicentre of biodiversity since they rank first in the world for diversity and endemism of vascular plants, birds, amphibians and total vertebrates excluding fish'* and *'Bolivia, Colombia Ecuador and Venezuela have the privilege of being counted among the most diverse countries in the world and those richest in species of flora and fauna. Their important natural heritage represents about 25% of the biological diversity of the whole planet and is also linked with the immense body of Andean cultural wealth and diversity wealth'.* Conservation International (CI) has described the area as *"the richest and most diverse region on earth,'* it also claims that '*the montane cloud forests that cover 500,000km2 in Peru and Bolivia are the richest and most diverse forests on earth'.* This biological bounty is, in part, a gift of the forest, with the destiny of the former being closely linked to that of the latter. However, according to CI, coverage of the original biodiversity hotpot areas have been reduced from 1.542 million Km2 to 0.385 million Km2 and that 363 endemic amphibians are under threat, as are 110 endemic birds and 14 mammals. The main cause of these threats is deforestation caused by mining, logging, oil exploration, agriculture and coca plantations. In addition to biodiversity loss, a loss of forest cover is having a negative effect on climate change, soils and water quality.

3. A COMPLEX SOCIAL FABRIC, ERRATIC ECONOMIC GROWTH, AND WIDESPREAD POVERTY

3.1 The combination of a colonial past, a rich indigenous heritage, an abundance of minerals and fossil fuels, and the production of coca leaf have helped shape the socio economic profile of the region. Its population totals 96 million, with Colombia, the most densely populated, accounting for 46% (45 million people). Even though the population density of the region is low (Ecuador 49 persons/Km2; Colombia 40 persons /Km2; Peru 22 persons/Km2; Bolivia 9 persons /Km2), annual population growth is quite high (1.8%) and population distribution uneven. In Ecuador and Peru, populations are highly concentrated along the coast (49% and 40% respectively) with most of the remainder living in the Sierra (44% and 36% respectively). In Colombia and Bolivia, the situation is reversed, 75%

Colombians live in the Cordilleras as do 70% of Bolivians. The Amazon basin is very sparsely populated, but it has the highest rates of population growth due to inward migration of landless peasants form the Sierra in search of both land and employment. Bolivia has the highest percentage of indigenous people (51%) followed by Peru (36%), Ecuador (25%) and Colombia (2%). Most of the remainder comprises people of mixed origin, Europeans and people of African descent.

3.2 The economies of the region are heavily dependent on mining, oil and gas, and extreme turbulence and near economic collapse affected all countries except Colombia in the second half of the 1990s. It was only towards the end of the decade that structural reforms helped return them to growth, with this having been sustained since then, thanks in part to high oil prices and global economic growth. Only Colombia and Ecuador have shown signs of diversifying their economies, with industry, financial services, commerce and communications making increasing contributions to GDP. Agriculture's contribution in the region is quite modest – Colombia 13.5 %, Bolivia 12.6 %, Ecuador 9.6% and Peru 8.3%. However, these figures belie the importance of the sector as a source of employment in countries where unemployment and underemployment is a serious problem, it must also be remembered that one quarter of the population of the Andean countries depends on agriculture for a living. As percentage of the active labor force, it accounts for the following, Colombia 22%, Bolivia 38%, Ecuador 30%, and Peru 35%. Using Bolivia as a yardstick where agriculture accounts for 80% of the active *rural* labor force (Trade for Development, 2005), agriculture obviously plays a fundamental role in sustaining communities in areas where poverty is most severe. In common with other countries in LAC, forestry's contribution to GDP in the region is small, between 1% and 3%. However, it is often pointed out that the methodology for measuring this is imperfect, data are unreliable and the institutional capacity to measure it is limited.

3.3 Poverty is a serious issue confronting all countries, with the region enduring the highest levels of extreme poverty, and the highest incidence of rural poverty in Latin America, with 3 out of 4 people living under the poverty line. The situation is most acute in Bolivia where 70% of the population has unsatisfied basic needs, with 63% living below the poverty line. In Colombia and Ecuador 65% live below the poverty line; while in Peru the figure is around 51%. Extreme poverty is most prevalent in rural areas, with the most vulnerable groups being indigenous peoples and women.

4. THE DRUG MENACE

4.1 The production of coca leaf, most of which is grown in Colombia (54%), Peru (30%) and Bolivia (16%) has had a significant impact on the socio economic development. Originally grown by indigenous people as a beverage and stimulant, global illicit demand and high prices for the refined product (cocaine) have had a significant impact on the economies of the region. The illicit trade in cocaine has also been a major contributor to crime and violence. Since the year 2000, various externally assisted programs have succeeded in

reducing areas under coca by 30% to 160, 000 ha, with Colombia accounting for 80,000 ha, Peru 50,000 ha and Bolivia 30,000. In Colombia, the coca and cocaine trade account for 3% of GDP. Most coca leaf is grown in cleared tropical moist forests by poor, small farmers, and given that it yields an IRR of 114%, it is not difficult to see why alternative crops and forestry find it difficult to compete. In addition to coca production, land clearing takes place for both marijuana and opium poppies, though the areas involved are not known.

5. LAND USE CONFLICTS, DEFORESTATION AND THE NEED FOR WORKABLE NATURAL RESOURCES STRATEGIES

5.1 Forests account for 55% of land cover of the region, most of which comprises biologically rich tropical moist forests which cover the upper Amazon basin and the Pacific Coast of Colombia and Ecuador. It is estimated that around 90 % of the dry deciduous forests of the Atlantic coast of Colombia, and the Pacific coast of Peru have disappeared, as has much of the montane forests of the more temperate areas of the Andes. The main reason for their disappearance is overexploitation for timber, fuel wood, posts and poles, and an advancing agricultural frontier.

5.2 Peru has most forest cover (60%) and Ecuador the least (47%). However, according to land use capability studies in Peru and Colombia indicate that land best suited to forestry accounts for 80%, and 62% of each country respectively. There are no such figures for Bolivia and Ecuador, but given the similarity of conditions, they are probably similar. That is, the predominant form of land use in the region should be forestry, but in many areas, this has been displaced by crops and pasture. Annual rates of deforestation are high, Ecuador 1.5%, Colombia 1.3%, Bolivia 0.55% and Peru 0.4%. The country with the lowest forest cover, Ecuador, has the highest rate of deforestation. In absolute terms, the annual losses are as follows; Peru 260,000 ha, Bolivia 250,000 ha, Ecuador 200,000 ha and Colombia 100,000 ha. That is, the region as a whole is losing at least 800,000 ha of forest annually, and there are few signs that this rate is diminishing.

5.3 Deforestation is caused mainly by an advancing agricultural frontier, for both large scale (soy bean, palm oil, cattle) and small scale (80% in the case of Peru). Fires also play a part. However, the underlying driving force is road building associated with poorly coordinated government development programs and policies aimed at promoting exports, for example, commercial agriculture, mining, oil and gas exploration. Land speculation in the lowlands and illegal land clearing for agriculture and narcotics is also a cause. In addition, institutional shortcomings and corrupt practice encourage illegal logging, while inappropriate short term forest management plans discourage investment in sustainable forestry. That said, the main issue to be confronted is the inability of government institutions at all levels to collaborate in addressing the formidable challenges of sustainable natural resources management, coupled with their lack of human resources and funds to move in that direction. Given the economic pressures on forests and the inability of institutions to respond, most

local observers think that deforestation rates are unlikely to fall for over the foreseeable future unless drastic action is taken.

5.4 Uncontrolled deforestation raises two important issues – (i) biodiversity loss, and (ii) carbon emissions. Reference has already been made to the uniqueness of the region's ecology, much of which is associated with native forest, and the losses being suffered. On carbon emissions, it is estimated (FAO) that each ha of forest cleared releases 150 tons of carbon. With present rates of deforestation in the region, 120 million tons of carbons are being released into the atmosphere annually from losses of biomass, deadwood, litter and soil (assuming a 50% loss from the latter). If one assumes that 30% of biomass is utilized as mechanical wood products, where the carbon is fixed, annual carbon emissions from the region would be around 100 million tons.

6. WEAK FOREST MANAGEMENT, ILLEGAL LOGGING AND LIMITED TREE PLANTING

6.1 **Native forests**. The harvesting of products from native forests takes place mainly the tropical moist forests of the Amazon basin in Bolivia and Peru, and along the Pacific coast in Ecuador and Colombia. A system of productive forest reserves exists in all countries except Colombia, which is in process of putting such a system in place. Productive forest reserves are publicly owned forests which are designated for sustainable use. The rights to harvest produce from these areas may be issued by the designated government office at regional or municipal level through 20 – 40 year concessions over large areas, or short term permissions of around 3 years over smaller areas. In addition, there are privately and communally owned forests subject to the same controls. Harvesting in forest areas may take place within the framework of a long term or short term management plan approved by the relevant forest authority. Title holders are permitted to selectively harvest their area in accordance with the provisions of the plan, for example, cutting cycles, diameter limits, and permissible annual yields based on an inventory. They must also comply with additional controls which afford total protection to certain species and prohibit certain activities such as clear cutting, farming and hunting. Fees are levied in various ways, but the most common is by area and volume of wood removed. From a sylvicultural point-of-view, the content of the plans are adequate to improve sustainability when applied to large areas. They are, however, costly and complex to prepare, and often poorly prepared, there being no system of licensed technical service providers in place to undertake the job. In some countries, such as Colombia, there is a tendency to favor the issue of short term, 3 year harvesting permissions to small operators over smaller areas, these being cheaper to prepare for the owner/title holder. However, short term plans suffer the disadvantage of covering too small an area and too short a period to encourage sustainability - because cutting cycles are rarely respected over such small areas. Activities in numerous small plans are also more difficult to monitor and grouping such small areas into larger units could help resolve this problem and reduce administrative costs.

6.2 A further major shortcoming of all plans is that compliance with the prescriptions of management is low, simply because forestry operations are remote, institutional capacity to monitor and enforce compliance is low and the cost to the owner of compliance is high. It is also difficult to bring offenders to justice in countries where awareness of the problem is still low and where the system of justice is weak and, possibly, corrupt. As a result, low compliance and illegal logging are common, with corruption being an added complication. In Bolivia and Peru, the Bank estimates that illegal logging accounts for 50% of output, and in Colombia 42%. In Ecuador, illegal logging accounts for between 17% and 54% of log output, with illegal produce costing 35% less than that obtained legally. The financial rewards for working outside the system are therefore high, and the risks are low. Further more, insufficient incentives are available to forest owners and title holders to help them offset the high costs of practicing forest management, the environmental benefits of which accrue to society as a whole, both within and beyond national boundaries. In Peru, forest owners can enjoy a 25% reduction in harvesting fees if their operations are certified, but so far there has been little interest in this. To date, no areas of native forest in the region have been internationally certified as being sustainably managed. In an effort to improve standards of management, countries have developed internationally recognized sustainable forest management criteria and indicators, but it is doubtful if these will have any impact under existing conditions.

6.3 Of interest on all countries of the region is the development of community forest management, much of it with the help of externally financed projects. In the tropical moist forests of Bolivia and Peru, the provision of training and technical assistance to communities to help them better manage their forests have proved very successful, the most successful being those in areas where social cohesion in communities is well developed and where land tenure conflicts are absent. Where such conditions prevail, training, technical assistance and support for land titling can greatly improve prospects for sustainable forest management in remote areas.

6.4 **Tree Planting** in the region has been quite limited, but it is probable that figures quoted are underestimates because of the difficulties of including trees in agro forestry systems, small woodlots and windbreaks. Most plantations comprise pines and eucalypts established in temperate areas in the inter Andean valleys. Together they total around 1.13 million ha (Peru 720,000 ha; Ecuador 220,000 ha; Colombia 164,000 ha; and Bolivia 45, 000 ha). Compared to Chile and Uruguay which have 2 million and 0.9 million ha respectively, and the amount of land suitable for planting, these areas are extremely low. Around 30% of areas planted are of low quality because of inappropriate species and site selection, poor maintenance, a lack of extension and poor access to markets.

6.5 While production figures must be interpreted with care, they illustrate the important contribution which plantations can make to the economy, and in relieving pressure on natural forests. Colombia's small but strategically located area of plantations accounts for 46% of industrial wood output, or 850,000 m3 per year. Most plantations are well managed and strategically located in the Cauca valley (Perreira/Medellin/Popayan) where good growth rates, adequate infrastructure and access to markets have favored expansion. Good plantation practice has also been driven by the presence of a multinational pulp and paper industry which has not only provided a market for wood, but also the technical assistance to needed help small scale growers produce a better quality product through out grower schemes. With an expanding, good quality resource, a vibrant mechanical wood products industry has developed in the area. This model demonstrates the importance of markets, critical mass (or the cluster

principle), infrastructure and TA in nurturing a successful plantation model. It also illustrates the potential which partnerships offer to develop the plantations with small producers. Some companies have also established smaller areas of native species such as Bombax, Roble and Ceiba. A similar case can be presented for Ecuador where its small area of plantations satisfies around 51% of industrial round wood demand, mainly for construction, particle board and balsawood. While unrecorded illegal produce from native forest may serve to exaggerate the importance of plantation output, it is reasonable to assume that industrial wood output from plantations is highly significant.

6.6 Even though Peru has the largest plantation area, recorded output of industrial wood totals only 200,000 m3 per year, most of which consists of eucalypts. About half of this is processed into sawn wood in small, low-tech sawmills in various locations in the Sierra. The remainder is used for house poles, posts and fuel wood. Most plantations were established for fuel wood and soil conservation and, as a consequence, are poorly located relative to markets for industrial wood. Planted areas are also small, highly fragmented, difficult to access and of low quality, so their usefulness as a source of saw logs is limited. The largest single user of plantation wood is the bagasse based pulpmill on the coast at Paramonga which augments its raw material supply with long fiber pine from Cajamarca, the only area to have significant areas under pine. The development of pine plantations in Cajamarca is fascinating and serves to demonstrate the potential which pine plantations have in the Sierra. With Belgian assistance, a cooperative in Porcón established 10, 000 ha of fast growing, good quality pine plantations in one compact block, in what was an extremely deprived rural area. The cooperative now operates a thriving mixed farming and tourism business, with forestry contributing significantly to its income. With the plantations nearing maturity, the cooperative intends to establish a wood processing plant. This model demonstrates that with strategic planning, and the application of improved technology, plantations can play an important development and poverty reduction role in the inter Andean valleys of the region.

6.7 In Bolivia, small areas of scattered plantations are located throughout the highlands where they were established to mitigate fuel wood and pole shortages, and to alleviate soil degradation. There are no figures of industrial wood output, and no there is significant plantation based industry.

6.8 Annual planting in all countries of the region is running at very low levels relative to potential – Peru and Colombia are estimated to have at least 4.5 million ha each of land suitable for plantations, mainly on grasslands of the Sierra/Alti Plano. However, average annual tree planting for all end uses is probably less than 50,000 ha, broken down as follows, Peru 25,000 ha, Colombia 10,000 ha; Ecuador 5,000 ha, and Bolivia probably 5,000 ha. Other nations in LAC, such as Chile and Uruguay have demonstrated that sound policy, strategic planning, extension and best practice can produce impressive results. Colombia's Cauca valley and Peru's Porcón cooperative in Cajamarca are further examples of what can be achieved. In addition to generating economic growth, plantations provide employment in areas where few alternatives exist. A recent study in the Magdalena Bajo Seco of Colombia showed that a 1000 ha of plantations creates 233 permanent jobs during the first three years. Taking this as a yardstick, if only 10,000 ha were to be planted each year in each country over a 10 year period, around 7000 permanent jobs would be created by year 3, with this remaining

stable for a further 7 years. However, strategic planning is essential to success. An FAO Investment Centre study in Peruvian Sierra pointed out (2002) that high transport costs, poor infrastructure, fragmented land holdings and insecure land tenure can undermine the viability of commercial plantations in some parts of the Sierra. On the other hand, the study found, that agro Silvo pastoral systems for poles and fuel wood appeared financially attractive in most areas.

6.9 Colombia is the only country to provide government support for tree planting, both direct in terms of grants and indirect in terms of tax relief. Experience in the Southern Cone of LAC, and in Colombia, has shown that during the early stages of developing the plantations sector, incremental planting, as opposed to re planting, is strongly correlated to the availability of planting incentives. Regrettably, the availability of funds in Colombia has been both inadequate and highly erratic, and this has discouraged investors to commit themselves over the medium term. In Bolivia, a portion of fees from forest produce is paid into FONABOSQUE, but none of this is used to finance tree planting. In Peru, a privately managed fund, FONDEBOSQUE, which receives funds from a variety of sources to promote forestry development generally, has also been supporting plantations, but it is far too small to have made much of an impact. Experience in Colombia, Argentina, Chile and Uruguay has shown that grants and an unwavering government commitment are essential to triggering incremental planting, but that incentives can be discontinued once the sector approaches maturity and wood markets develop. For example, replanting and some new planting is taking place without incentives in Chile and in parts of Argentina where the sector is maturing (Misiones, northern Corrientes and the delta of Buenos Aires). In the case of Uruguay, the Government, with Bank support, successfully triggered plantations development in the early 1990s, and large investors are now planting without incentives. The experience of Chile also demonstrates that the governments receive a good return from their initial investment through incentives - the export of plantation based products is now worth just over U$ 2 billion per year, and it has been estimated that the government has recovered its initial investment many times over through taxes. However, to be successful, incentives require strict fiscal discipline and tight monitoring, with abuses and irregularities being punished accordingly.

6.10 While barriers to large scale planting exist in some areas in the Sierra/Cordillera area, there will be areas where infrastructure, land tenure arrangements and markets are favorable to investments in plantations and agroforestry. What is important is that those areas with high potential are identified, and that attention is focused on developing these. It is equally important that safeguards are put in place to mitigate the potential risks associated with larger scale planting of monocultures of exotics. In Argentina, a GEF supported judicious mix of training, planning and incentives, is proving successful in integrating environmental concerns into plantation practice. What is required is a strategic approach to tree planting, with government support for private sector initiatives being directed towards encouraging the sustainable development of high potential areas.

6.11 **Non Wood Forest Products** (NWFPs) are abundant in the region, and are an important source of food, income and medicine for local people, especially in areas with tropical moist forest. While much research has been done on NWFPs over the last 10 years, knowledge on their extent, distribution, use and management is far from complete. In Peru significant quantities of at least 15 NWFPs are produced regularly, the most important being

the seeds of algarroba which are processed into a variety of foodstuffs, drinks and fodder; castaña nuts are also important. The annual value of exports, which probably reflects only a small percentage of their total market value, is around U$22 million. In Colombia, 60 NWFPs have been recorded, in Ecuador 5 are recorded as being commercially important, with a further 480 being of importance to indigenous people in the Amazon and that 208 tons of plant products were produced worth U$83 million. There is limited information on NWFP production and use in Bolivia, but it is known that castaña nuts are the mainstay of the economy in the upper reaches of the Amazon, such as in Pando. With the exception of a few externally supported international interventions, management systems for NWFPs are non existent, processing is rudimentary and wasteful systems of marketing are weak. The potential to improve on these areas has been demonstrated through several GEF Medium Size Projects in Peru, where studies, training and small investments in basic equipment have not only improved the management and production of NWFPs but they have also enabled local communities to develop alternative sources of income.

7. WOOD PROCESSING

7.1 **Fuel wood** is by far the most important use of wood. It accounts for most wood consumption in all countries except Ecuador, where subsidies on containerized gas have reduced dependence on fuel wood to 7% of total energy needs. The reverse is the case in Peru, Colombia and Bolivia where fuel wood comprises 80%, 70% and 60% of total wood output respectively. While no figures exist on fuel wood deficit situations by region, it is reasonable to suppose that the most critical deficits occur in the Andes, where sparse tree cover, low temperatures and high population densities combine to intensify pressure on a rapidly dwindling resource.

7.2 **Wood Processing**. The wood processing industry comprises mainly sawmills, and mills for the production of panels, particle board, fiber board and furniture. There are only two pulp mills in the region, one in Colombia (Cauca Valley) which is entirely plantation wood dependent and one in Peru (Pacific Coast) which uses a mix of bagasse and plantation wood. The pulp industry is a capital intensive operation and is well placed to look after its needs, but stable political and economic conditions favor investment, as does an abundant and reliable supply of wood.

7.3 The mechanical wood products industry, which consists mainly of sawmills, is a mix of sophisticated large units and numerous small, primitive and wasteful operations. Conversion rates in small operations are low (40%) and most waste is either burnt or dumped. As a whole, the industry is a highly fragmented, injurious to the environment, often forming part of the grey economy. Reliable information on the number of sawmills, their installed a capacity and conversion rates is not available, but Bolivia is estimated to have 300 and Peru 200. Using these figures and sawn wood output figures from all countries – 3.75 – 4.0 million m3 - as a proxy, it is reasonable to assume that the number of sawmills in the region totals is between 2, 000 and 3,000. Around 70% of mills are small (producing less than 1,000 m3 of wood per year) which lack such skills as saw doctoring, machine maintenance, and sawmill

management. A major failing in the industry is that very little processed wood is kiln dried, which impairs greatly its quality. The large producers commonly form producer associations, but small producers do not. Training facilities for the industry are best developed in Colombia, but these are still inadequate to cater for the needs of the industry as a whole. Short training courses designed to upgrade skills, improve product quality and competitiveness and reduce environmental impacts are urgently needed.

7.4 **On trade**, most countries in the region have been running an annual net trade deficit over the last ten years because of heavy imports of pulp and paper. Bolivia is the only country with a positive trade balance, thanks mainly to its low consumption of paper. Policies have also favored sawn wood and panel exports which total around 80,000 m3 and are valued at U$ 45 million, but pulp and paper imports are low at 1,700 tons and 50,000 tons respectively (valued at around U$36 million). Peru runs a deficit, its net exports of sawn wood and panels total around 35, 000 m3 valued at U$ 32 million, but it imports 20,000 tons of pulp and 180,000 of paper valued at U$145 million. Ecuador runs a healthy surplus in sawn wood and panels totaling 90, 000 m3 valued at US 60 million, but its imports of pulp and paper total 13,000 tons and 350,000 tons respectively which together total around U$ 200 million. Colombia's trade deficit is the largest, with imports and exports of sawn wood and panels being balanced, but with a deficit of 100, 000 tons in pulp and 300, 000 tons in paper, valued at U$275 million. However, Colombian exports of furniture have shown a steady increase since 1999, and this is helping to narrow the trade gap somewhat. The sector as a whole suffers from high transport costs because of both distance to markets and the logistical challenge of communications though the Andes to domestic and international markets beyond. The most disadvantaged is Bolivia which is land locked and the least Ecuador and Colombia which have easier access to their forests along their Pacific coast. However, in general topography and geography combine to give all countries a comparative disadvantage when it comes to wood exports. This disadvantage might be even greater if illegal logging and transport were eliminated which, as we have seen in the case of Ecuador, reduce wood prices by around 35%. To help Andean countries compete in the international market place, incentives are needed to support sustainable forest management which will help them penetrate markets for certified products, as well as assistance to realize efficiency gains in the industry.

7.5 On the international front, only Colombia and Peru have entered (2006) free Trade Agreements with the US, these being modeled on NAFTA with the local acronyms being CUFTA and PUFTA. No special provisions apply to forest products, but reciprocal arrangements could conceivably open up new markets for Colombian and Peruvian wood products in the US. This is unlikely to stimulate demand for utility plantation wood products (pine and eucalypts) in either country, since it is unlikely that Colombia and Peruvian wood producers could ever compete with the highly efficient US producers on quality and price. On the other hand, US demand for quality tropical hardwoods for furniture and veneers might well increase. However, if Colombia and Peru are to take advantage of this opportunity, they will need to greatly strengthen their systems of sustainable forest management, control, certification and labeling. If not, it is probable that their wood imports to the US could be prohibited on environmental grounds.

8. FOREST TENURE – LARGE AREAS OF RESERVES BUT DEFENDABLE PROPERTY RIGHTS IS AN ISSUE

8.1 The countries of the region are well endowed with state owned protected areas and reserves – 247,000 Km2 in total, with around half of this being afforded (in theory) strict protection. At least 10% of each country is under national parks or the equivalent. Indigenous peoples hold communal title to vast areas of forest, for example in Colombia they hold 45% (22.5 million ha), in Ecuador 44% (5 million ha), in Peru and in Bolivia 29% (19.5 million ha), even though in Bolivia they still lack formal title. Within these areas, indigenous communities have rights to their natural resources, and in cases where they are permitted to exploit them for sale, they must do so within the framework of approved management plans. The integrity of indigenous reserves is usually assured by the indigenous communities themselves and deforestation and over exploitation is rare. The main threat to indigenous reserves comes from government sanctioned oil and gas exploitation - as has happened in Ecuador and Peru – and illegal incursions by loggers.

8.2 In addition, each country has a system of state owned protected areas and production forest reserves. No exploitation is allowed in protected areas, but harvesting is permissible in production reserves through a system of concessions. The area of production forest reserves is very extensive in Bolivia (28 million ha), Peru (24.6 million ha), and Colombia (6.8 million ha), but in Ecuador the situation differs because all land within state forest reserves, which total 2 million ha, has been settled by farmers and indigenous people, as a consequence there are no state owned production reserves remaining – the result of uncontrolled but *de facto* settlement. There are now some 3.8 million ha of forest on 243, 000 farm holdings which average less than 50 ha each. This has also occurred to a much lesser extent in strict protection reserves. The situation in Colombia is similar where 65.6 million ha of forest were originally incorporated into seven National Order Forest Reserves in 1959, but since then over 10 million ha of this has been settled, even though they still form part of the reserve. Such a situation is especially common along the Pacific Coast. In Bolivia, the situation is a little confused, with individuals claiming ownership of between 5 and 8 million ha. In Peru all native forests are state owned. Throughout the region, plantations are privately owned, either individually or communally.

8.3 Throughout the region there is considerable overlap between the various categories of reserve, overlap of title between reserves and individual holdings, overlap between individual holdings, together with illegal settlement in reserves. In Bolivia it is estimated that 13% of land holdings or 7.8 million ha are subject to contested tenure. This anarchic situation is the result of poorly coordinated land use and natural resources planning, unclear and overlapping mandates with regard to natural resources development, and disarticulated, weak institutions. Such tenure overlaps, combined with the fragmented nature of land holdings in some areas present special challenges to sustainable natural resources use.

9. A PATCHWORK OF STRATEGIES BUT AN INCOMPLETE POLICY FRAMEWORK

9.1 Over the last 15 years all countries in the sub region have spent considerable resources and time on preparing strategies and plans in the forestry sector, such those formulated in the frameworks of the Tropical Forestry Action Plan (TFAP) and the National Forestry Programme (NFP). While these have served to generate much useful information, and to focus attention on the issues in the sector, they have also served to demonstrate that clear and commonly shared policy visions are essential to success and that strong government and civil society commitment to this policy vision is fundamental if progress is to be made. Fortunately, the last 5 years has witnessed a sharpening of awareness on the importance of these issues, with countries having put considerable effort put into developing a consensus on what is needed and in laying down the foundations of policy frameworks. However, as yet no country has succeeded in developing their various strategies into formal policy proposals (such as an Ante Proyecto de Ley or *White Paper)* for debate and approval by parliament/congress. As a result, 'policies' (such as they are) are implicit in a patchwork of strategies, plans and laws which can be modified or ignored as the government of the day sees fit.

9.2 In Bolivia, the 1996 Forest Law aimed to improve sustainable development in the sector through decentralization, improving access to forest resources and titling, forest fiscal reform, combating forest crime and corruption, and territorial planning. Since the year 2000, Bolivia has also prepared (Annex 1, Appendix 1) no less than 4 forestry strategies, all with similar aims, for example, promoting sustainable forest management, research, forest plantations, wood processing, wood exports and employment. However, none of these strategies has had any tangible impact on the sector, since none were formally adopted by parliament and no additional finance was ever obtained, the strategies also appear highly ambitious given that issues such as and disarticulated weak institutions, confused land tenure, and corruption are not easy to resolve. In the year 2000, Colombia developed a 25 year National Forestry Development Plan which aims to improve the management, conservation and rehabilitation of forest resources, develop supply chains, and strengthen institutions. The program has been approved by the National Environmental Council, and is complimented by at least six regional development plans. While some forestry projects are being implemented within the framework of these plans, staff of the National Plan is funded through international cooperation, and the program has never been institutionalized – there being no single institution or entity in Colombia responsible for its implementation. The program also lacks the necessary legal instrument to make it official. Colombia also has numerous laws in support of production (planting incentives, supply chains, decentralization to the regional corporations, management plan prescriptions) and conservation (concessions and permission, protected areas, biodiversity, conservation incentives, zoning, and research) forestry, conservation. Unfortunately, many of these strategies, plans and laws, while well intended, have had little impact due to institutional shortcomings (especially at corporation level) and a lack off funds at all levels. In Ecuador, the 1999 'Strategy for the Sustainable Development of Ecuador's Forests' aims to reduce deforestation, improve the value of forest goods and services, promote sustainable forest management, promote conservation and tourism and

sustainable use of biodiversity, rehabilitate degraded lands, and encourage social inclusion, especially of indigenous people. The strategy is supported by five action programs, namely improving land tenure and access to markets; incentives for production and conservation; public participation; institutional reform and updating the legal framework. This important and forward- looking piece of work was, unfortunately, adversely affected by the political turbulence of the last six years and weak political commitment, the result being that congress never approved legislation for the payment of environmental services, the regularization of forest dwellers property rights and the use of third parties for verifying compliance. It also suffered from inadequate levels of consultation and participation of indigenous people, and key ministries such as Finance, Energy and Public Works – all of whom are important players in the sector. As a result, the potential of the Strategy has not been realized. Peru published its National Forestry Strategy in 2003, though it has never been formally approved by Congress. The Strategy, together with the Forestry and Wild Life Law of 2000, aims to improve sustainable forest management, promote plantations improve the processing of wood and non wood products, widen participation in decision making and benefit sharing, support decentralization, improve efficiency and improve transparency and access to information. Even though potentially sound, the Strategy still lacks the approval of Congress. There is also the problem that neither the institutional capacity nor the funds are available to implement either the strategy, or apply the law.

9.3 Durable and stable policies which enjoy the support of major players are fundamental to sustainable forestry growth. Formulating them is complex, time-consuming and politically challenging, but over the last few years most countries in the region have shown a willingness to confront this challenge. The time would now seem to be right for the international development community to dialogue with governments to help them put the right policies in place, furthermore it could help promote mutually supportive policies in the region through support to by regional policy forums.

10. THE PROPOSED STRATEGY – A MEASURED APPROACH TO MOBILIZE FORESTRY'S POTENTIAL REDUCE POVERTY, STIMULATE GROWTH AND CONSERVE THE ENVIRONMENT

10.1 Even though governments in the sub region have taken bold steps to addressing the complex issues constraining equitable and sustainable development in the forestry sector, much still remains to be done. To help ensure that progress continues to be made, governments will need strategically directed support from development institutions, and the strategy which follows aims to provide guidance on where that support is most needed. It comprises a menu of possible interventions aimed at addressing the issues which constrain forestry's potential to reduce poverty, stimulate sustainable growth and foster environmental conservation. In realizing this potential, the strategy recognizes that large and small investors have a key role to play, and that the role of the state should be largely that of facilitator. It also recognizes that extra sectoral policies must be addressed if progress is to be made, but accepts that coca production will continue to have an impact on deforestation. The strategy is necessarily broad to cater for the diversity of the region, and the extent to which it can be

applied at country level, and the pace at which it can be applied will depend on local needs, capacity and commitment. A potential constraint to its implementation will be weak or faltering government commitment to get to grips with the formidable challenges which lie ahead, notably, inter sectoral policy conflicts, institutional reform, and forest tenure. To overcome this, the Bank will need to commit itself to the sector over the medium term, and ensure that forestry is always high on the agenda of CAS discussions. Given the magnitude and complexity of the task, it will also have to work closely with other important players in the sector such as the IFC, IDB, CAF, IFAD, FAO and bilaterals.

10.2 While strategy is strongly focused on poverty, sustainable growth and environmental conservation, addressing these issues requires a sector wide approach. Consequently, the strategy approaches the challenge on two fronts. At the higher level, it provides support to sector-wide issues fundamental to creating the conditions essential to equitable and sustainable growth, while at the lower level it provides carefully dimensioned and targeted support to promising field operations. Given the complexity of the challenge and the risks involved, the strategy also proposes a two step approach. Step One would be used to resolve the complex structural issues constraining sustainable and equitable growth; it would also be used to test and amplify promising 'field' interventions targeted at reducing poverty, stimulating growth and conserving the environment. Progress and lessons learnt under Step One would be used to trigger and dimension investments under Step Two, which would aim mainly at consolidating reforms and replicating successful field experience elsewhere.

Step one

Priority One - Creating the Enabling Environment

Clarify Forest Land Use

A lack of defendable property rights and land us conflicts are serious constraints to investment in sustainable forest management, tree planting and forest product processing, it also lies at the root of many of the problems in the sector such as deforestation. To help remove this constraint support will be needed to:

- establish an inter ministerial forestry land use commission/body with a legal mandate to clarify land use policy *vis-á-vis* forestry and competing forms of land use, and to resolve forestry land use conflicts;
- develop criteria for forested land that should remain under forest cover;
- develop criteria for land best suited to planted forests;
- review ownership rights and boundaries of forested land;

- rationalize and identify the boundaries of land to remain under forest such as state forest holdings and other categories of reserve, and remove legal contradictions which create conflicts;

- establish/reaffirm traditional rights to forest products including non wood forest products;

- collect information necessary to create up-to-date forestry data bases maps.

Improve Forest Policy and Regulatory Frameworks

10.3 Even though a great deal of ground work has been done in preparing strategies, no formal forest policies exist. To carry this work forward, support should be provided to:

- launch public and political awareness campaigns at national and local levels to place forestry high on the political agenda, *inter alia,* this should aim to highlight its important economic, social and environmental values, foster constructive dialogue within government on the appropriate role of forestry in sustainable and equitable development, and encourage public debate on forestry issues;

- establish communication channels between Ministries/Departments with an interest in forestry, and between them and other stakeholders;

- create and support *mesas forestales* at local, national and regional levels to help develop/refine/publicize/evaluate local and national policy frameworks, and to promote dialogue between countries on policy issues in the region;

- carry out socio economic studies to identify thematic and geographic areas where forestry has high potential and where it can contribute most effectively to economic development, poverty reduction and conservation;

- formulate new policy proposals for submission to Congress and local assemblies to underpin sustainable management of natural forests, investment in tree planting in areas of high potential, and modernization of forest products processing, including NWFPs;

- prepare realistic and workable regulatory instruments at local and national levels in support of policy; and

- develop consensus on and formulate national and local level forest development strategies - including indigenous people's forestry strategies in support of policy.

Explore and Develop New Institutional Approaches

10.4 Experience has shown that existing institutional arrangements in the sector have proved inadequate to create conditions favorable to investments in the sustainable and equitable growth of the sector, and to bring deforestation under control. If this situation is not corrected, the full potential of the sector will never be realized and environmental degradation will continue. There is little evidence to suggest that old structures and arrangements (state institutions acting largely alone) are up to the task. If progress is to be made, bold new ways of working will be needed, for example, partnerships with civil society to manage and conserve forests; leasing arrangements for the conservation and management of forests under strict internationally recognized standards; outsourcing of monitoring and technical auditing services; and, possibly, the privatization of some areas of natural forest. It is accepted that moving in this direction will be complex, tough, time consuming and not without its risks, so it is important that the transition be viewed as a process, rather than a one-step change. To help countries move in this direction, support should be provided to;

- carry out participatory institutional reviews and skills gap analyses at national and local levels to identify issues;
- identify the appropriate institutional models needed to carry the sector forward;
- support the creation of new institutional arrangements, and deepen the decentralization process if local actors feel that this is warranted;
- promote partnerships and outsourcing arrangements to improve forest management and reduce illegal logging;
- prepare new administrative procedures and manuals;
- create the necessary infra structure at local levels in support of new institutional models;
- train staff at all levels to fill skills gaps and better equip them to operate in the new policy and institutional environment;
- strengthen and refocus forestry training institutions to enable them to produce personnel with the skills appropriate to the new paradigm;
- provide training to partners in priority topics; and
- establish a system of independent technical auditing and performance evaluation of institutions.

Priority 2 – Testing and Replicating Small Scale, Promising Field Interventions

10.5 There are many promising forestry interventions in the sector addressing poverty, economic growth and conservation. The positive experiences from these interventions need to be amplified and replicated in high potential areas.

Reducing Poverty in a Sustainable Manner

10.6 The purpose of these interventions will be to identify the most effective ways in which forestry can reduce poverty in a viable and sustainable way. Using existing information, together with that generated under policy related studies, targeted support should be provided to:

- identify those areas where forestry can make a meaningful contribution to sustainable poverty reduction and short-list priority areas for intervention;
- finance feasibility studies to identify high potential activities and priority areas;
- assist interested small producers and communities to establish producer associations or cooperatives, and provide training and technical assistance to strengthen their entrepreneurial capacities;
- train small producers on how to enter equitable partnership arrangements with the industry and buyers (supply chain approach);
- train and regulate private forestry extension services, and make available competitive grants to producer groups to help them access these services;
- help small producer associations to access information systems, especially on markets and prices;
- make available seed capital for promising demand-driven forestry initiatives (community forest management, woodlots, agroforestry, silvopastoril systems, NWFPs);
- fund training courses for owners and workers in small scale forest enterprises to upgrade the quality of their product (for example sawdoctoring, wood drying, preservation, processing and packaging of NWFPs);
- provide community-to-community training; and
- provide basic training to communities and producer associations in forest management, NWFP management, plantation forestry and marketing.

Integrating Forests into Sustainable Development

10.7 With the right policy and institutional foundation, the private sector should be able to move the sector forward in this direction, to complement this, assistance will be needed to:

- run training courses for private sector employees in, for example, forest inventory, the management of natural forest, low impact logging, plantation practice, EIAs and certification;
- train the industry in data recording and reporting, and support the creation of information networks;
- strengthen training institutes and programs aimed at increasing the efficiency of the industry and at reducing environmental impacts;
- provide training for technical services providers and establish a system of licensed providers;
- undertake periodic censuses/surveys (capacity, employees, output) of the industry;

- carry out attitudes surveys in the industry to identify the main barriers to investment in sustainable forest management, tree planting and processing;
- establish norms for quality control and labeling of processed products;
- support independent systems of monitoring and technical auditing of forestry operations;
- promote certification/green labeling of products from sustainable sources;
- create participative, competitive and demand-driven mechanisms for identifying forestry research priorities and mechanisms to finance them; and
- promote best practice through technology transfer programs.

Protect Vital Local and Global Environmental Services

10.8 The major issue to be confronted is the very high rates of deforestation with consequent loss of biodiversity and impact on climate change. Many of the interventions being proposed to improve forestry land use, develop policy and reform institutions will help to address this issue, as will interventions under 'Poverty Reduction' and 'Integrating Forests into Sustainable Development.' However, to compliment and strengthen these, the Bank should assist Borrowers with the following, using GEF, the Prototype Carbon Fund and other sources of concessionary funding where appropriate:

- identify forest areas which contribute significantly to environmental conservation (biodiversity, soils, water);
- bring under sustainable management or complete protection those forests which form essential habitats for endangered, threatened and migratory species, and those which are essential to the integrity of corridors, water sources or aquifers;
- promote and support the creation and management of private and communal reserves as part of a national system of protected areas;
- ensure that sustainably managed production forests are integrated into the system of protected areas;
- create conservation partnerships with communities close to sensitive areas;
- provide conservation training to communities in close proximity to sensitive areas;
- prepare and launch forestry related conservation campaigns in and around sensitive areas;
- design and implement a system of compensation/payments/incentives for environmental services associated with the sustainable management, protection or rehabilitation of native forests;
- prepare and implement environmental norms and regulations for native forests, and plantations of over 10 ha;
- prepare a Code of Best Practice for plantations;
- strengthen public and private sector capacity to take advantage of carbon trading/offsets and 'deforestation avoided' facilities;
- mount fire prevention campaigns at national and regional/provincial levels, in collaboration with local level SFAs, municipalities etc; and
- develop partnerships with NGOs for environmental monitoring.

Step Two

10.9 The nature and scale of activities to be undertaken under Step Two would be dependent on progress and lessons learnt from Step One. Should the outcome of Step One be positive, investments under Step Two would focus more on supporting an expansion of successful field activities and consolidating progress made on forest land use planning, policy development and institutional reform.

The Andean countries of South America have vast areas of natural forests, most of which comprises biologically rich and ecologically fragile tropical moist forests. Proven models for the sustainable management of this resource are scarce, and while farm forestry has been successful developed in some areas, the development of commercial plantations has taken place only in Colombia. The sustainable and equitable development of forestry in the region faces special challenges. Topography, poor infrastructure in forest areas, weak and centralized forestry institutions, low levels of compliance, unclear forest tenure, and a lack of clear and stable natural resource management policies where the role of forestry is clearly defined are factors which combine to constrain potential. However, addressing these issues is a complex undertaking, and if success is to be obtained a measured approach will be required. Initially, support will be needed to put in place an institutional and policy environment supportive of sustainable and equitable growth, with progress in these areas being used to intensify efforts to maximize the contribution which forestry can make to poverty alleviation, sustainable development and environmental conservation.