INTERNATIONAL TROPICAL TIMBER ORGANIZATION (ITTO)

THEMATIC PROGRAMME ON REDUCING DEFORESTATION AND FOREST DEGRADATION AND ENHANCING ENVIRONMENTAL SERVICES (REDDES)

PROJECT DOCUMENT

TITLE	MONITORING DEFORESTATION, LOGGING AND LAND USE CHANGE IN THE PAN AMAZONIAN FOREST – PANAMAZON II
SERIAL NUMBER	RED-PD 029/09 REV.1 (F)
SUBMITTED BY	GOVERNMENT OF BRAZIL
ORIGINAL LANGUAGE	ENGLISH

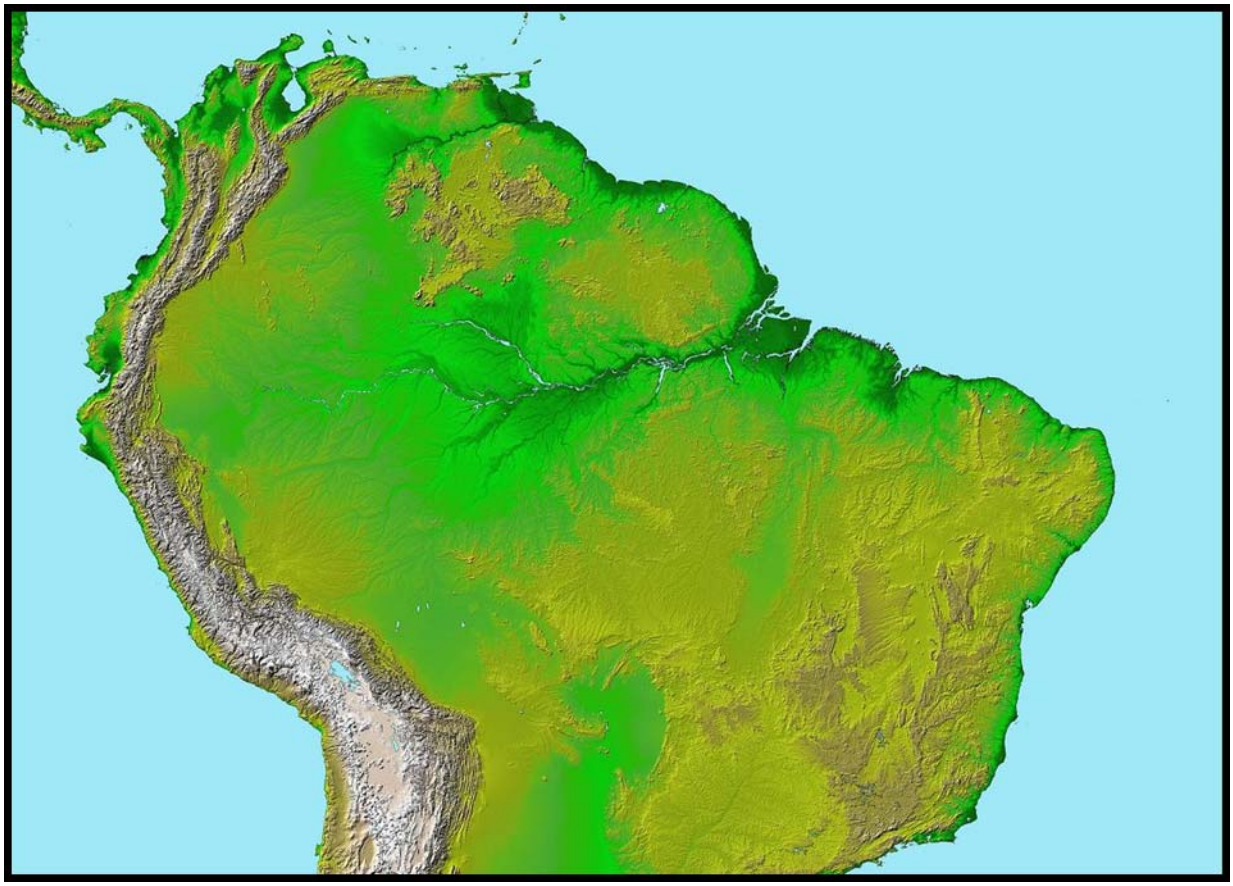
SUMMARY

In 2005 and 2006, the Amazonian Common Agenda Project was coordinated by ACTO – the Amazon Cooperation Treaty Organization – with the technical and financing support of the Brazilian Cooperation Agency (ABC). The concept of the common agenda project emerged after a cost benefit analysis accomplished by ACTO regarding the existing technologies for forest cover monitoring. The conclusion of the study indicated that the software and methodology developed by the Brazilian Space Agency (INPE) was the most appropriate for the region requirements. At that moment, as one of the most important results, the then called PANAMAZON trained 18 technicians and exchanged of information with other 120 people representing all ACTO Country members. The training sections were coordinated by INPE and covered all aspects of satellite forest cover monitoring. This time, a second phase of the project called PANAMAZON II is being proposed. The main objective of the PANAMAZON II project is to support all ACTO member Countries on the development of a national monitoring system to promote increasing governance in the Amazon Region. As main outputs, the PANAMAZON II project focuses on: (i) preparation of plans for the development of participatory Forest Cover National Monitoring Systems; (ii) implementation of the prepared National Plans; and (iii) strengthening of the existing platforms for regional dialogue and coordination on forest management, with focus on forest cover monitoring with the possibility to include other criteria and indicators for sustainable forest management.

EXECUTING AGENCY	AMAZON COOPERATION TREATY ORGANIZATION (ACTO)
DURATION	48 months
APPROXIMATE STARTING DATE	August 2010

BUDGET AND PROPOSED SOURCES OF FINANCE

SOURCE	CONTRIBUTION IN US$
ITTO	1.124.784
ACTO	1.389.600
ACTO MEMBER COUNTRIES	3.748.400
TOTAL	6.262.784



Monitoring deforestation, logging and land use change in the Pan Amazonian Forest – PANAMAZON II

An Amazon Cooperation Treaty Organization (ACTO) initiative to develop and implement participatory Forest Cover Monitoring Systems in the Amazon and to strength existing platforms for regional coordination on forest management.

In 2005 and 2006, the *Amazonian Common Agenda Project* was coordinated by ACTO – the Amazon Cooperation Treaty Organization – with the technical and financing support of the Brazilian Cooperation Agency (ABC). The concept of the common agenda project emerged after a cost benefit analysis accomplished by ACTO regarding the existing technologies for forest cover monitoring. The conclusion of the study indicated that the software and methodology developed by the Brazilian Space Agency (INPE) was the most appropriate for the region requirements.

At that moment, as one of the most important results, the then called PANAMAZON trained 18 technicians and exchanged of information with other 120 people representing all ACTO Country members. The training sections were coordinated by INPE and covered all aspects of satellite forest cover monitoring.

This time, a second phase of the project called PANAMAZON II is being proposed. The main objective of the PANAMAZON II project is to support all ACTO member Countries on the development of a national monitoring system to promote increasing governance in the Amazon Region.

As main outputs, the PANAMAZON II project focuses on:

(i) preparation of plans for the development of participatory Forest Cover National Monitoring Systems;

(ii) implementation of the prepared National Plans; and

(iii) strengthening of the existing platforms for regional dialogue and coordination on forest management, with focus on forest cover monitoring with the possibility to include other criteria and indicators for sustainable forest management.

Table of Contents

Project Brief

For several years the ACTO Member Countries have been discussing the Criteria and Indicators (C&I) for Sustainable Forest Management and adopted a set of criteria built at the Tarapoto and ITTO processes. As a relevant step for the institutionalization and adoption of these decision making tools, ACTO member countries initiated a validation process which was fundamental to identify the bottle necks for C&I adoption. Since then, the ACTO Member Countries identified Forest Cover as a relevant and fundamental indicator that was also expected to generate information for others and should be structured nationally and regionally, considering its relevance for the implementation of the National Forest Policies and guidance for a regional agenda.

The proposed project will address constrains that are limiting the use of the Indicator of the Forest Cover by implementing national monitoring system as a key element so as to increase the governance in the Amazon. In order to facilitate countries interaction and integrated action in boundary zones the project will strengthen the dialogue and coordination platforms linked to the Amazon Cooperation Treaty Organization (ACTO). The project is divided in three components:

(i) Coordination of participatory processes for the development of Forest Cover National Monitoring Systems;

(ii) Implementation of Forest Cover National Monitoring Systems; and

(iii) Strengthening of the existing platforms for regional dialogue and coordination on forest management, with focus on forest cover monitoring with the possibility to include other criteria and indicators for sustainable forest management.

The systems will make use of the technology platform developed by the Government of Brazil and the methodology already adopted in this country will be considered for the implementation of the National Systems. Furthermore, the project will contribute to the improvement of knowledge in the sector, to share new technologies, to prioritize lines of action for the regional cooperation and to share experiences on the enforcement of forest laws.

List of Abbreviations and Acronyms

ABC	Agência Brasileira de Cooperação / Brazilian Agency of Cooperation
ACTO	Amazon Cooperation Treaty Organization
C&I	Criteria and Indicators
COFLAC	Comisión Forestal para América Latina / Latin American Forestry Commission
DETER	Forest Cover Monitoring System in Real Time
FAO	United Nations Food and Agriculture Organization
IBAMA	Instituto Brasileiro do Meio Ambiente / Brazilian Institute for the Environment
IFT	Instituto Floresta Tropical / National Forest Institute
INPE	Instituto Nacional de Pesquisa Espacial / National Space Research Institute
ITTA	International Tropical Timber Agreement
ITTO	International Tropical Timber Organization
KS specialist	Knowledge sharing specialist
NASA	National Air and Space Agency (USA)
NGO	Non Governmental Organization
RIL	Reduced Impact Logging
SELPER	Sociedade de Especialistas Latinoamericanos em Sensoriamento Remoto e Sistemas de Informações Espaciais / Latin American Experts Society in Remote Sensing and Space Information Systems
SFM	Sustainable Forest Management
SPRING	Sistema de Processamento de Informações Georreferenciadas / GIS and remote sensing image processing system (developed by INPE)
UNFF	United Nations Forest Forum

Map of Project Area

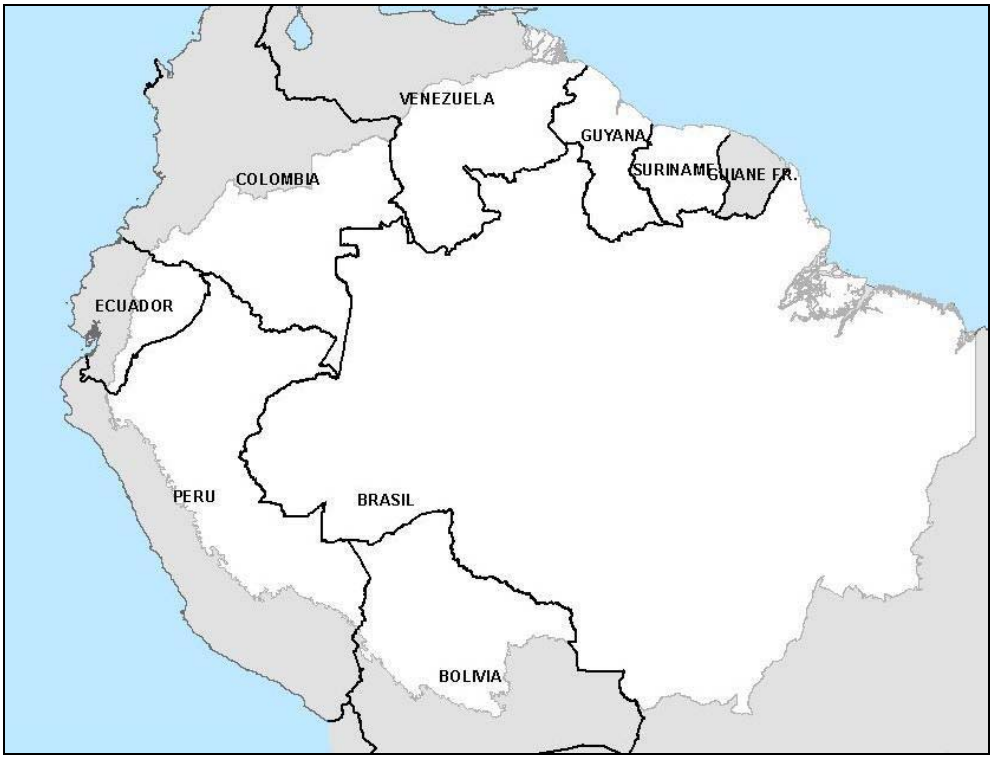


Figure 1: ACTO Members Countries and localization of the area focused by the project

Part I – The Project Context

1.1. Origin

In 2004, ITTO presented a set of 7 Criteria and 57 Indicators, duly revised, which were created in order to support the sustainable management of tropical natural forests. This revision is a consequence of a process of continuous revisions and discussions within ACTO Member Countries and has been carried out since the initial presentation of ITTO's proposal in 1992. In the same tune, in February 1995 in Tarapoto, Peru, ACTO Member Countries launched the discussion of a regional proposal of Criteria and Indicators for the Sustainability of the Amazon Forest as a contribution towards building a common agenda for sustainable management of forests among the countries (Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela). Additionally, in June 2001, the ACTO Member Countries agreed on the establishment of 15 priority indicators for the Sustainable Forest Management and decided to initiate a validation process.

ACTO Member Countries representatives, at the preparatory meeting for UNFF held in Quito on April 4-5 2005, reaffirmed the common understanding regarding the importance and the consensus reached regarding Tarapoto C&I and the role of ACTO supporting its countries in international agreements. As Member Countries of the International Tropical Timber Organization (ITTO) these same countries have sought to attain the Objective 2000 which seeks to reach the point where all "traded tropical timber would originate from sustainably managed forests".

A clear reflection of the constructive dialogue between the forestry sectors of the Amazonian countries, which is being held with the support and in the context of the different instances of ITTO, FAO and ACTO, is the conclusion of the III National Forest Authorities Meeting, accomplished in Brasilia in 2006, which mentions that Indicators are tools that must contribute for forest management, also recognizing that there are not only the main object upon which action must focus.

In order to consolidate discussions, all actors involved in the C&I validation process, with the support of ACTO, agreed in 2006 to launch the *AMAZONIAN COMMON AGENDA PROJECT* and to specifically move on with the *Pan-Amazonian* component, which was designed to support forest monitoring of the Amazon region. The *Pan-Amazonian* component seeks to disseminate the low cost and high benefits of available technologies for forest cover monitoring, focusing on the benefits of the *freeware systems* developed by INPE to process remote sense images and GIS data.

The current proposal is an outcome of these first steps, and is well supported institutionally by all ACTO Member Countries since it attends all national requirements for the efficient and effective monitoring of large scale forested areas.

During its first steps, the *AMAZONIAN COMMON AGENDA PROJECT* had the technical and financing support of the Brazilian Cooperation Agency – ABC and was launched in the year of 2005 – 2006 by ACTO. The concept of the Common Agenda Project emerged after a cost benefit analysis accomplished by ACTO regarding the existing technologies for forest cover monitoring. The conclusion of the study indicated that the software and methodology developed by the Brazilian Space Agency – INPE was the most appropriate for the region requirements. Thus, the *Common Agenda Project* focused its main objective on the development of regional awareness regarding Forest Cover

Monitoring in real time, by sharing with all ACTO Member Countries the Brazilian experience accumulated with the Real Time Forest Cover Monitoring System – DETER, a system that uses the SPRING, INPE´s geographic information processing system. As a result of this initiative, at the end of the *Common Agenda Project*, a total of 45 technicians from the eight ACTO Member Countries had been trained in low impact forest management (through four one-week courses applied by IFT in the Brazilian Amazonian Forest) and a group of 18 technicians had been capacitated, in depth, in satellite forest cover monitoring at INPE and another 120 received general information.

The *Pan-Amazonian* component of the *Common Agenda Project*, with strong emphasis on satellite forest cover monitoring, actually brings reinforcement to an initiative that started in 1992. At that time, INPE and the Latin American Experts Society in Remote Sensing and Space Information Systems (SELPER) created a baseline database for the whole Amazon region that was called "Panamazonia I". Now, the "Panamazonia II" project builds up on that pioneering INPE/SELPER initiative to share with all ACTO Member Countries the Brazilian DETER development process and the use of cost-free products like MODIS products[1] and the Landsat GeoCover dataset[2] to implement efficient monitoring systems.

More details on how phases I and II of the Panamazonia initiative evolved are presented in the next sections:

The Panamazonia I Project

A number of months before the United Nations Conference on Environment and Development - UNCED-92, Brazil proposed a cooperation project to the Amazon countries. The project concerned the use of Remote Sensing to monitor the tropical rainforest of the mega region. The name Panamazonia, as the project was called, served to designate the large region covered by rainforest in the set of Amazon countries (Table 1). Panamazonia I defined the coverage scope -surface area- of the Amazon.

The cooperative context of the first project included training technical teams in each country in the methodologies developed by INPE for the Brazilian forest domain. This procedure includes visually analyzing LANDSAT images on a scene to scene basis and integrating the results in a GIS. The local teams and institutions involved were selected by SELPER.

In the course of the project work groups were created and trained in the various countries. The images used were transferred from the Cuiaba Station in Brazil and were

[1] The MODIS instrument operates on both the Terra and Aqua spacecraft. It has a viewing swath width of 2,330 km and views the entire surface of the Earth every one to two days. Its detectors measure 36 spectral bands and it acquires data at three spatial resolutions: 250-m, 500-m, and 1,000-m. (https://lpdaac.usgs.gov/lpdaac/products/modis_overview)

[2] A collection of high resolution satellite imagery in a standardized, orthorectified format, covering the entire land surface of the world (except Antarctica). The GeoCover data set provides global Landsat imagery at three temporal intervals, 1970-80, 1990 and 2000, utilizing, respectively, the Landsat MSS, TM and ETM+ sensors. (http://www.landcover.org/research/portal/geocover)

completed with images from the Cotopaxi Station in Ecuador and from the LANDSAT satellites. Final deforestation data was obtained for three countries: Bolivia, Peru and French Guiana. Partial results were presented by Venezuela, Colombia, Ecuador, Guiana and Suriname. These efforts were developed according to the context and technology available in 1992.

Table 1: Results of the Panamazonia I project (Amazon Rainforest Area per Country)

COUNTRY	AREA (km2)
BOLIVIA	567,303
BRAZIL	5,082,539
COLOMBIA	380,000
ECUADOR	76,761
GUYANA	214,960
FRENCH GUIANA	91,000
PERU	755,605
SURINAME	142,800
VENEZUELA	391,296
TOTAL	7,702,264

Source: Project PANAMAZONIA I (INPE), 1995.

The Panamazonia II Project

The Common Agenda project, also known as the name of one of its components "Panamazonia II", was instituted through a cooperation agreement signed between the Brazilian Cooperation Agency – ABC and the Amazon Cooperation Treaty Organization on 22 December 2005. The project provided technical cooperation for the Member Countries of ACTO to support a Subregional Forest Cover Monitoring System and the development of Reduced Impact Forest Management capacities. The main results of the project were: generation, integration and provision of a database on Georeferenced forest cover information for one baseline year; forest cover monitoring training courses; transfer of improved SPRING Technology; purchase and distribution of a few computers for INPE and for the country focal points; and a preliminary forest cover status analysis for each member country of ACTO.

Therefore, the present proposal extends the very first steps already taken on developing tools to increase the monitoring precision of the forest cover in all ACTO Member Countries with efficient resources and highly effective impacts and the development of a common methodology for forest cover monitoring. In order to accomplish this goal, ACTO interacted with its member countries, through their decision making structure (Ministries of Foreign Affairs), and its Forest Focal Points. An intensive exchange of information with those channels lead to the identification of the relevant stakeholders that will participate in the implementation of the current proposal. All stakeholder institutions support the *Pan-Amazonian* component and have already participated in training sessions held during the Regional Training Course in Brazil and the three National Workshops organized in Quito, Bogotá and Lima.

1.2. Relevance

1.2.1. Conformity with ITTO´s objectives and priorities

This project proposal is consistent with and contributes to several ITTO objectives. By implementing national forest cover monitoring systems, and improving regional dialogue, this proposal contributes to the ITTO objective of providing an effective framework for consultation, international cooperation and policy development among all members with regard to all relevant aspects of the world timber economy. As a matter of fact, this proposal contributes to the process of sustainable development, as it improves regional governance creating favorable conditions for a sustainable forest management.

Also, this proposal gives the opportunity to the member countries to have access to state-of-the-art technology and to the creation of conditions to better implement ITTO´s objectives. Indirectly, through the implementation of national monitoring systems, this proposal also supports the ITTO objective of encouraging members to develop national policies aimed at sustainable utilization and conservation of timber producing forests, as it improves the decision making process, favoring the application of forest legislation on sustainable land use and conservation.

This project focuses on the implementation of concrete actions to increase governance on forest management at the ground level, instead of the development of National Forest policies and legislation and is therefore in accordance with ITTO Action Plan. The project's central issue is to integrate field implementation with policy through the effective application of C&I. Improving information systems, as foreseen in this proposal will lead to better law enforcement.

The proposal will support the following cross-cutting actions: (a) enhance public relations, education and outreach activities in order to better raise awareness of the purpose and activities and of the fact that sustainable forest management can be an economically, socially and environmentally viable land use; (b) support the sharing of information, knowledge and technology to improve sustainable forest management; and (c) formulate and test guidelines and C&I related to the Organization's work in the field of forest management.

1.2.2. Relevance to the submitting country´s policies

The discussion process about C&I in the Amazon countries was undertaken by meetings of the Forestry Commission for Latin America and the Caribbean (COFLAC), in the special context of the Amazon Sub-regional Group of COFLAC. This Group established in its work plan 2004-2007 the prioritization of regional actions for the implementation of forest management and reiterated the importance of these actions in the 2007-2008 Plan. The development of a regional information system for monitoring of the Forest Cover and the promotion of a mechanism to institutionalize sub-regional dialogue are priority for action. The current proposal is a response to the decision made by the forest authorities, which was also incorporated by ACTO Members in the global dialogue processes regarding forests.

The mandate that was given to ACTO/PS to prepare this project proposal reflects the regional consensus and commitments regarding the need identified to develop harmonized national forest cover monitoring systems at regional level. In this sense, no specific additional approaches were necessary to build ownership for the project implementation.

The main issue identified during the preparation phase was the fact that each country has specific and particular institutional frameworks. Consequently, the project was designed considering the development of specific strategies and plans for each country, as well as, for the set of institutions involved. In terms of technology and compatibility with the existing national mapping strategies a specific situation was found in Colombia, where the Institute for Hydrology, Meteorology and Environmental Studies of Colombia – IDEAM informed that the use of the baseline information has to be in accordance with the national approved

database, and for this reason an experimental exercise is being implemented in a selected area with the support of INPE. The outputs will be used for possible adjustments in the baseline data prepared during the project preparation phase.

The evidences of the ACTO countries commitment and the participation of the Brazilian Space Agency were registered in specific letters attached to this proposal.

1.2.3. Relevance to ITTO REDDES Thematic Program

At first glance, this project might look focused only on monitoring deforestation, but actually the most important issue promoted here is the capacity to monitor the quality and use of the existing forests in the Amazon Region. More specifically, the project deals directly with the process of eliminating insufficiencies on monitoring capacity and on promoting timely corrective actions.

It is also in that sense that the project increases governance and contributes to the main REDDES thematic focus which is the reduction on deforestation and forest degradation. In practice, the elaboration of coordinated plans in the region for the development and implementation of participatory Forest Cover National Monitoring Systems, and the strengthening of existing platforms for regional dialogue and coordination on forest management with focus on forest cover monitoring, attack five problems identified by the REDDES Program as causes of the current level of inadequate capacity in the region to maintain and enhance environmental services of tropical forests. These targeted causes are: (i) lack of assessment and monitoring of forest resources; (ii) lack of appropriate technology and adequate knowledge; (iii) inadequate capacity to make informed decisions on maintenance of environmental services; (iv) lack of trained human resources; and (v) lack of awareness of, and access to, appropriate technology.

Activities in this project will also bring improvements in four areas considered strategic by the ITTO REDDES program: (i) assessment and diagnosis; (ii) enabling conditions and capacity-building; (iii) demonstration activities; and (iv) scaling up and dissemination.

1.3. Target Area

1.3.1. Geographic location

There are different ways of defining the boundaries of the Amazon Region. This project proposal considers the political boundaries (highlighted in Figure 2) defined by the OTCA Member Countries. The total area amounts to approximately 7,7 million square kilometers and is occupied by almost 33 million people, distributed across eight countries: Brazil, Suriname, Guiana, Venezuela, Colombia, Ecuador, Peru, and Bolivia.

Figure 2: Amazon Region according to ACTO Member Countries political boundaries.
Source: http://mapas.socioambiental.org/website/Redesig/viewer.htm

Another alternative is to use the boundaries of the hydrological basin (Figure 3). The hydrological boundaries of the Amazon basin can be set by information produced, for example, from the high-resolution elevation data obtained during the NASA's Shuttle Radar Topography Mission (SRTM) (http://hydrosheds.cr.usgs.gov and http://www.worldwildlife.org/hydrosheds). In this case the resulting total area is 5,913,491 km².

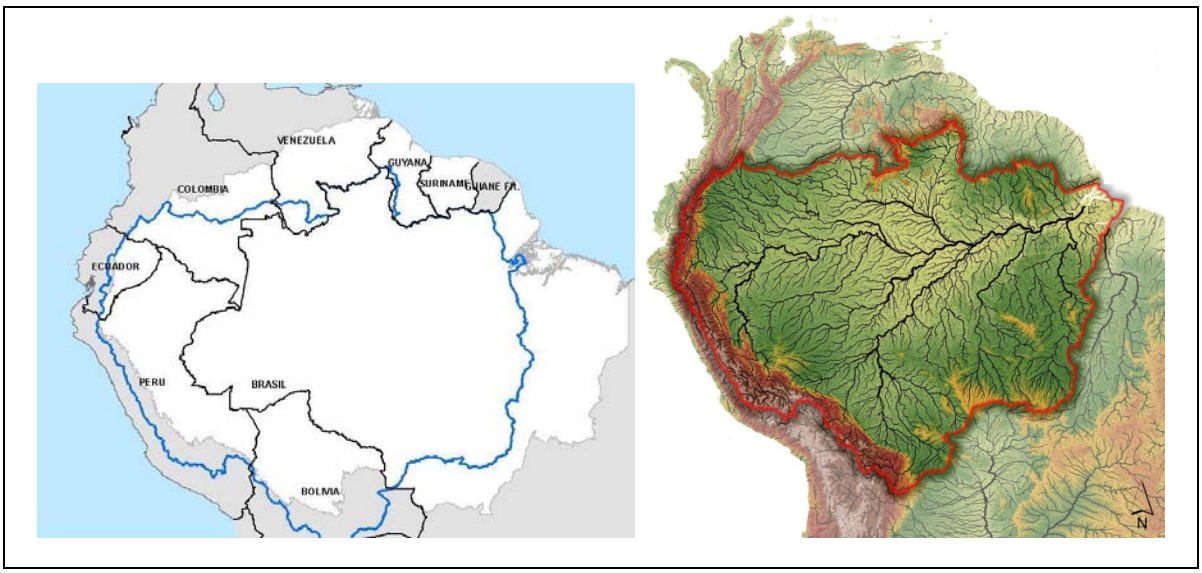


Figure 3: Amazon Region according to hydrological boundaries.

Sources: http://mapas.socioambiental.org/website/Redesig/viewer.htm *and* http://www.worldwildlife.org/hydrosheds

A third alternative to define boundaries for the Amazon Region is to use bio-geographical boundaries (Figure 4) which are also based on country data and include Guyana, Suriname and French Guyana in their entirety, resulting in an area of 6,970,939 km².

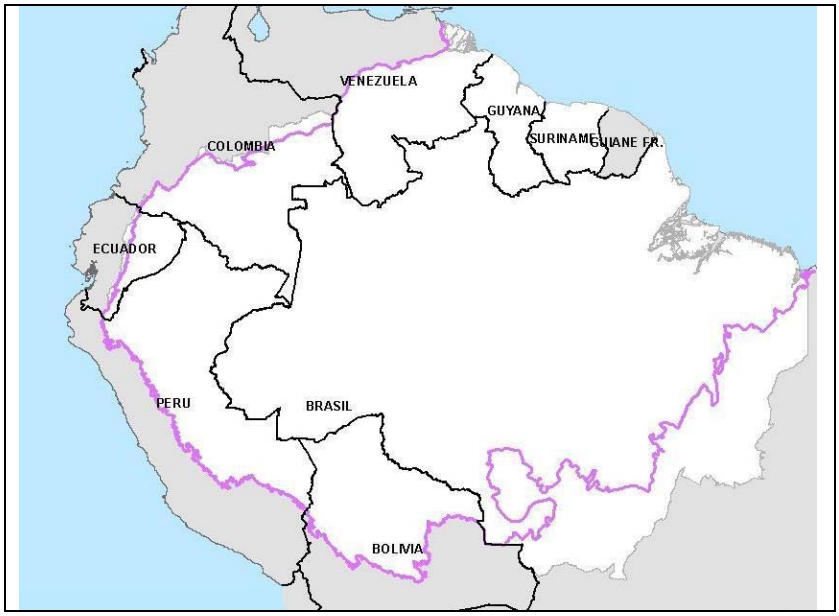


Figure 4: Amazon Region according to bio-geographical boundaries.

Source: http://mapas.socioambiental.org/website/Redesig/viewer.htm

The extension of land targeted by this proposal considers the first alternative, based on political boundaries defined by each country. The basic information about the area considered in this project proposal is presented in **Table 2**.

Table 2: Amazonian Population and Area of all ACTO Member Countries

Country	Total population	Amazonian population		Total area (km2)	Amazon area (km2)		Amazonia
Bolivia	8.274.325	1.233.727	14,9%	1.098.581	475.278	43,3%	6,2%
Brazil	169.544.443	22.495.460	13,3%	8.514.876	5.006.316	58,8%	65,0%
Colombia	41.649.792	1.650.904	4,0%	1.138.910	483.119	42,4%	6,3%
Ecuador	13.929.041	694.804	5,0%	248.406	116.604	46,9%	1,5%
Guyana	751.000	751.000	100,0%	214.969	214.969	100,0%	2,8%
Peru	28.220.764	3.675.292	13,0%	1.285.215	782.820	60,9%	10,2%
Suriname	475.000	475.000	100,0%	163.820	163.820	100,0%	2,1%
Venezuela	23.232.553	1.907.721	8,2%	916.445	453.915	49,5%	5,9%
Total	286.076.918	32.883.908		13.581.222	7.696.841		100,0%

Source: Red Amazónica de Información Socioambiental Georreferenciada (http://raisg.socioambiental.org/node/106)

1.3.2. Social, economic and environmental aspects

Social Aspects

Today the population of the Amazon Basin is estimated at approximately 33 million inhabitants, mostly concentrated in relatively few urban areas (Belém, Manaus, Río Branco, Porto Velho, Boa Vista, Iquitos, Leticia and Macapá, among others), and mainly living in the Brazilian part of the Basin. The urban centers are all located along the main river and its tributaries. In the upper, Andean part of the Basin, a high percentage of the total population consists of indigenous communities. In the Brazilian lowlands of the Basin, the indigenous population is relatively small compared with the population of Caboclos and immigrants (especially from the dry northeast regions of Brazil).

In part, this situation is the result of historic settlement patterns that moved inland from the oceanic coasts, only to be limited by the geographic barrier created by the Andes, which, until recently, has constrained movement from the coastal areas into the Amazon Basin. However, during the last three decades, the population of the Amazon Basin has "exploded," in large part spurred by high levels of immigration into the Basin and extensive regional migrations. In fact, the population growth rates range between 5.2% and 7.2%, well above the national averages of the Amazon Basin countries. Even so, the population density of the Amazon Basin is still very low compared to the national averages.

Development efforts in recent decades have led to significant changes in the Amazonian environment. The increase of roads and highways, the increasing demands of international markets for agricultural and specific forest products, new waves of immigration and settlement, and oil and gas exploration has contributed to the rapid growth of cities and towns in the region's interior. Nevertheless, these efforts not only were unable to enhance the quality of life of the Amazonian population, but also contributed to the current problems of deforestation, erosion, sedimentation, and water pollution, with concomitant impacts on human health and welfare. Otherwise, it is recognized that to conserve the Amazon ecosystem, sustainable forest management is relevant and that the economic valuation of timber and non timber forest products is necessary compared to other types of land use. For the entire region, timber and non timber forest products management is recognized as the main economical activity. Therefore, it is of crucial importance to create mechanisms to better implement Sustainable Forest Management.

Economic Aspects

Several studies have shown that there is an overall lack of reliable and updated information on forestry resources among the Amazon countries. To have information, evaluate and process it is essential to prevent, detect, control, notify and investigate the forest cover, especially its illegal operations. By doing so, governments are able to adopt corrective measures and guarantee a better application of forest laws. However, information is not always used properly, neither exchanged with the responsible official organizations nor interested parts. Therefore, the overall impact of the project in the region is expected to be positive because improving intersectorial cooperation and training all involved actors will lead to better governance in the region, as well as, a better regional dialogue on forest management.

The project will provide more information on the forest resources as deforestation and in addition land tenure, land use change and logging among the Amazon countries leading to enhance decision-making processes and creating an appropriate normative framework.

The proposed project will have a positive impact on the region's economy because it will create conditions for a more efficient use of the forest resources, promoting an appropriate policy environment for sustainable forest management and consequently creating quality employment opportunities in rural areas, benefiting communities which that depend on forests resources for their livelihood.

To introduce monitoring systems for forest cover means in first place to give better information for sustainable forest management. It is known that not sustainable logging can also lead to fiscal losses for the government bringing with it long term negative repercussions for the entire national economy. Improving the ability to better monitor the forest cover and have a improved normative framework creates an favourable basis for sustainable forest management. This will safeguard the subsistence contribution of forests within the rural economy. It will also strengthen forest commercial production (timber and non-timber products) by increasing efficiency and safeguard the productive base.

Environmental Aspects

The Amazon biome represents approximately 30% of all the tropical forests left in the world. It occupies an area of close to seven million of km2 distributed across nine countries: Brazil, France (French Guiana), Suriname, Guiana, Venezuela, Colombia, Ecuador, Peru, and Bolivia. (Ministry of Environment of Brazil, 2002)

The Amazon is essential for the environmental stability of the planet. More than one hundred trillion tons of carbon are sequestered in the region. Its plant mass releases approximately seven trillion tons of water into the atmosphere per year through evapotranspiration, while its rivers discharge close to 20% of the all fresh water that flows into the oceans.

The Amazon, as any tropical rainforest, presents a complex and delicate ecosystem. All of its elements (climate, soil, fauna, and flora) are closely interconnected.

Tree diversity in the Amazon varies from 40 to 300 different species per hectare. Of the 250,000 species of overstory plants, 170,000 (68%) live exclusively in the tropics and 90,000 of them in South America. Recent estimates show that the region houses approximately 2.5 million insect species, 2 thousand fish species, over 1500 bird species, 550 reptile species and 500 mammal species. The extensive biodiversity of the Amazon is also evidenced in its different ecosystems: dense dryland forests, seasonal forests, igapo forests, floodplains, varzea forests, savannas, mountainous refuges and pioneer formations.

This project will have a positive impact by increasing the institutional capacity of the Amazon countries and their ability to manage the region. This will allow them to assess the trends, guiding their actions and defining public policies accordingly. State actions can contribute decisively to reduce changes in forest cover and their consequences on the soil carbon balance, water and energy cycles, etc. As such, by reducing the levels of deforestation and forest degradation the project will bring considerable benefits.

Regional and Country specific aspects

The extension of the Amazonian Region considered in this project is almost 1,8 times the size of the European Union territory[3]. But the population is sparsely distributed and when compared to the European population it roughly reaches 7%. These numbers show the importance of remote sensing and satellite technology for monitoring such large and sparsely occupied region.

Some complementary information on the importance of the Amazon for each ACTO Member Country, compiled from "*Amazonia 2009 – Protected Areas and and Indigenous Territories*" (RAISG, 2009) is provided next.

1. ***BOLIVIA***: The Bolivian Amazon is a region comprising almost half the surface area of the country (approx. 475,278 km²) and comprises a mosaic of extensive tropical rainforests, seasonally flooded savannahs, sub humid transitional forests at the Cerrado and Chaco interfaces, and sub-Andean tropical forests characterized by high levels of biodiversity. Approximately 24% of the Bolivian Amazon is under protection: 16% as national protected areas and 8% as departmental protected areas. Some 25% is constituted by Community Lands of Origin, corresponding to the territories of more than 25 indigenous peoples. In some cases these are superimposed on protected areas. The main economic activities of this region, which contains more than a 1,2 million inhabitants, are agriculture, ranching, forestry and non-timber forest products, particularly the Amazon nut (Bertholletia excelsa) of which Bolivia is the world's largest exporter. Deforestation and forest fires are the main threats to Bolivia's Amazon ecosystems. Four thousand square kilometres are cleared annually for agricultural and cattle, whilst the incidence of forest fires is high, amounting to more than 70,000 registered heat spots a year.

2. BRAZIL: The Brazilian "Legal Amazon" region covers eight entire states and part of the state of Maranhão (approx. 5,006,316 km²), comprises almost 60% of the national territory and has almost 22,5 million inhabitants. It contains a wide diversity of environments, including closed and open rainforests, seasonal deciduous and semi-deciduous forests, savannahs (extensive areas of Cerrado and enclaves known locally as "campos"); areas of localized sandy soils known as "campinaranas" and "campinas"; and pioneer formations; as well as extensive areas of regionally important transitional vegetation. Currently 39.6% of the Brazilian Legal Amazon is protected in the form of conservation areas (UCs) or indigenous lands (TIs). Areas protected as state and federal UCs make up 20% of the region, whilst TIs cover 21,6% and some UCs are superimposed on TIs. The Brazilian Amazon is subject to different pressures arising from

[3] Considering the European Union constituted by the following countries (km² in parenthesis, and population in brackets): Austria (88.945)[8.100.000]; Belgium (30.158)[10.200.000]; Bulgaria (110.994)[7.970.000]; Cyprus (9.250)[865.000]; Czech Republic (78.866)[10.285.000]; Denmark (43.094)[5.300.000]; Estonia (45.226)[1.440.000]; Finland (338.000)[5.100.000]; France (550.000)[60.400.000]; Germany (356.854)[82.000.000]; Greece (131.957)[10.500.000]; Hungary (93.030)[10.070.000]; Ireland (70.000)[3.700.000]; Italy (301.263)[57.600.000]; Latvia (64.589)[2.400.000]; Lithuania (65.200)[3.700.000]; Luxembourg (2.586)[429.200]; Malta (316)[390.000]; Netherlands (41.864)[15.800.000]; Poland (312.685)[38.655.000]; Portugal (92.072)[10.800.000]; Romania (238.391)[21.700.000]; Slovakia (48.845)[5.395.000]; Slovenia (20.273)[1.985.000]; Spain (504.782)[39.400.000]; Sweden (450.000)[8.900.000]; United Kingdom (242.500)[58.600.000]

expanding human settlement and various forms of natural resource use. The most important is the expanding agricultural frontier. With the annual rate of deforestation at around 13,000 km², the advance of this frontier has already accounted for more than 17% of the forested Amazon. Estimates suggest that cattle's ranching is responsible for 75% of the area deforested. Other pressures include logging, mining, highway expansion and national energy demand translated into hydroelectric plants and agro fuels.

3. ***COLOMBIA***: The Colombian Amazonia covers almost 0,5 million square kilometers, and has ecosystems that range from upland plains in the eastern Andes to tropical moist forests that make up most of the region. The regional population exceeds 1,65 million inhabitant s, or 4 % of the national total. There are 62 indigenous peoples, out of a national total of 84, living in territories that are collective inalienable properties of the indigenous communities. The National Parks System comprises 54 protected areas, of which 16 are in Amazonia. There are also forest reserve areas for the development of the forest economy and the protection of soils, waters and wildlife, which to a large extent coincide with indigenous territories and national parks. The main threats are deforestation and fragmentation caused by human settlement, ranching, logging and mining, as well as ornamental and commercial fishery.

4. ***ECUADOR:*** The Ecuadorian Amazon represents 47% of the total area of Ecuador. The Amazon Region in Ecuador begins at 1.300 meters above sea level along the transitional forests in the Andean foothills and descends towards the Amazon plain to approximately 300 meters above sea level. The region contains part of the eastern Andean range with unique vegetation (for example, the moist mountain scrublands of the Amazon cordilleras). Around 26% of the area is protected under the National Protected Areas System. Pressures on Amazonian natural resources stem from the advancing extractive frontiers, mainly large and small scale agriculture and ranching, oil and mining, illegal logging and, more generally, uncontrolled human settlement. Between 1986 and 2001 human activities altered 6.54% of the region. In 2001, 85.5% of the region retained is original vegetation cover. In 2008 indigenous communities controlled approximately 70% of the forest cover existing in 2001 and 70% of these territories retained their original vegetation cover. Administratively the region includes the provinces of Sucumbíos, Napo, Orellana, Pastaza, Morona Santiago and Zamora Chinchipe.

5. ***GUYANA***: The Amazon Region in Guyana covers an area of approximately 215.000 km². There are only two protected areas in Guyana: the Kaieteur National Park established in 1929 with 5.913 km², where the Kaieteur Falls drops from a height of 226 meters; and the Iwokrama Wilderness Preserve created in 1996 with an area of 3,600 km², where half the area is dedicated to wildlife conservation and the other half is dedicated to the sustainable use of natural resources. In 1994 there were 28,975 indigenous people within the national territory belonging to nine different ethnic groups. Although some groups hold legal title to their lands, the territories of many communities still have not been assessed by the Amerindian Lands Commission. Currently 16% of the national territory has been classified as indigenous territory, of which there are 77 separate areas. Of those indigenous areas still awaiting recognition, many are under the control of mining companies, rural landowners and forestry concessions.

6. ***PERU:*** The total area of the Peruvian Amazon Region is close to 783.000 km², or almost 61% of the national territory, containing 13.4% of the national population. The official indigenous population is approximately 333.000 people. The Peruvian Amazon is divided in Upper Forest (500 to 1.900 meters above sea level) and Lower Forest (90 to 500 meters above sea level). Deforestation until the year 2000 was 71.725 km² and the average annual rate of deforestation

between 1990 and 2000 was 1.496 km². The main causes of deforestation are the construction of highways and local roads that provide access to forested areas and facilitate the expansion of agriculture and ranching. There are 1,497 registered native communities in the Peruvian Amazon, of which 1,232 have title to their territories, totaling 102.634 km². In addition there are five reserves in 28.126 km² for isolated indigenous communities. The 34 national Natural Protected Areas in the Peruvian Amazon cover 155.243 km². The main threats to the forests are expanding agricultural and ranching activities, uncontrolled logging, mineral and petroleum prospecting and extraction, and legislative attempts to change land usage from protected forest to agricultural use.

7. ***SURINAME***: The entire area of the country lies within the Amazon Region. Protected areas are eleven Nature Reserves, one Nature Park and four Multiple-Use Management Areas. Indigenous peoples and descendents of slaves brought from Africa during the colonial period and which fled from farms on the coast occupy State lands that make up 80% of the interior of Suriname. There is no specific legislation recognizing collective land rights of the indigenous peoples, and spatial information on the extent of land occupied by communities and indigenous peoples is unavailable. The government recognizes some indigenous rights regarding their current sites of residence and cultivation. A governmental project initiated in 2007 is mapping lands currently in use using GPS.

8. ***VENEZUELA***: The Venezuelan Amazon occupies approximately 50% of the country and encompasses the states of Amazonas, Bolívar and Delta Amacuro. It has an extensive river network, high levels of precipitation and is characterized by the presence of tepuyes (table top mountains). The vegetation is predominantly woody, with areas of savannah (in both high and lowlands) and tepuye shrub lands (highlands). The region is sparsely populated (< 5% of the national total), but is the most important in terms of indigenous territories with 24 of the country's 31 ethnic groups. The existing seven National Parks and four Natural Monuments in Venezuela cover 37,5% of the Country Amazon Region, although underestimated as a result of the way the National Parks and the Tepuyes Natural Monument were established. The national average annual rate of deforestation is estimated to be 1.2%, with a total deforestation already reaching 20% of the national total. Among the main causes of deforestation are: logging, hydroelectricity, forest fires, population pressure, tourism, commercial extraction of forest products and climate change.

1.4. Expected outcomes at project completion

Usually, information on how forests affect the social, cultural and economic life of people living in the Amazon Region of the eight ACTO Member Countries varies in quality, and most of the time is incomplete, unreliable or not updated. It is also important to mention that policy making on the use of forest resources and law enforcement is often a controversial and a very sensitive issue.

The circumstances contributing this situation can be overcome by adequate planning, effective identification of unprotected ecosystems and monitoring of land cover changes. These are essential activities that deserve special attention and can be improvement in these countries.

Forest monitoring technology is the most essential tool for making governments in the Amazon Region more capable on implementing corrective measures and better equipped on law enforcement activities. The exchange of information among stakeholders inside and outside governments is also supported by this proposal, which includes inter-sector cooperation and multi-national training activities.

The project is expected to cause positive impacts on several aspects. Among these aspects, some are of special relevance:

- More accurate, reliable and regular information on intense deforestation and land use change hotspots will allow decision makers to act more precisely and policy makers to respond with a more appropriate normative framework.
- The region's economy will be positively affected due to the creation of better conditions for a more efficient use of forest resources and the promotion of the appropriate political environment for the discussion of the main role of forests in each country.
- The monitoring of deforestation and illegal logging operations will reduce tax losses, bringing with it long term positive consequences for the entire national economies.
- Improved forest cover monitoring systems will give sustainable forest management a chance to contribute more significantly to the consolidation of local and regional markets and a more favorable basis for the development of local communities.
- The consolidation of local markets will also improve the quantity and quality of job opportunities in rural areas and in communities, especially those dependent on forests for their livelihood.
- The Amazon presents a complex and delicate ecosystem. The conservation and preservation of climatic and ecological processes in the Amazon Region will contribute to the essential stability of global environmental mechanisms. All of its elements (climate, soil, fauna, and flora) are closely interconnected, being carbon, water and biodiversity among the most important aspects to be monitored. The monitoring supported by this project will provide more accurate statistics about balances that are really impressive in the Amazon Region:
    - More than one hundred trillion tons of carbon is sequestered in the region.
    - The plant mass in the Amazon Region releases approximately seven trillion tons of water into the atmosphere per year through evapo-transpiration, while its rivers discharge close to 20% of the all fresh water that flows into the oceans.
    - Tree diversity in the Amazon varies from 40 to 300 different species per hectare. Of the 250,000 species of over story plants, 170,000 (68%) live exclusively in the tropics and 90,000 of them in South America.
    - Recent estimates show that the region houses approximately 2.5 million insect species, 2 thousand fish species, over 1500 bird species, 550 reptile species and 500 mammal species.
    - The extensive biodiversity of the Amazon is also evidenced by its several ecosystems: dense dryland forests, seasonal forests, igapo forests, floodplains, varzea forests, savannas, mountainous refuges and pioneer formations.
- The institutional capacity of the Amazon countries and their ability to manage the region will allow them to assess trends, guiding their actions and defining public policies accordingly.
- Governmental action, based on monitoring technologies, will contribute decisively to reduce changes in forest cover and their consequences on soil carbon balance, water and energy cycles, etc.
- Governments will produce better assessments on the dynamics of human settlements and regional urbanization. And because demographic and social aspects have significant economical implications, forest cover monitoring will support regional governments on dealing more adequately with the following consequences of human occupation:

- Current population of the Amazon Region is mostly concentrated in relatively few urban areas (Belém, Manaus, Río Branco, Porto Velho, Boa Vista, Iquitos, Leticia and Macapá, among others), and mainly living in the Brazilian part of the Basin. The urban centers are all located along rivers and its tributaries. In the upper, Andean part of the Amazon Basin, a high percentage of the total population consists of indigenous communities. In the Brazilian lowlands of the Amazon Basin, the indigenous population is relatively small compared with the population of caboclos and immigrants (especially from the dry northeast regions of Brazil).
- Historically, settlement patterns have moved inland from the oceanic coasts, only to be limited by the geographic barrier created by the Andes. However, during the last three decades, the population of the Amazon Basin has increased significantly, in large part spurred by high levels of immigration into the Basin and extensive regional migrations. In fact, the population growth rates range between 5.2% and 7.2%, well above the national averages of the Amazon Basin countries. Even so, the population density of the Amazon Basin is still very low compared to the national averages.
- The increase of roads and highways, the increasing demands of international markets for agricultural and specific forest products, new waves of immigration and settlement, and oil and gas exploration has contributed to the rapid growth of cities and towns in the Amazon Region. These efforts have been unable to enhance significantly the quality of life of the Amazonian population, and have contributed to increase the rate of deforestation, erosion, sedimentation, water pollution, and the negative effects on human health.
- On the other side, the conservation of the Amazon ecosystem depends on the development of sustainable forest management that assigns adequate value to timber and non timber forest products. As these products increase in value, lower is the trend on converting forested land to other land uses. For the entire region, the management of forests for timber and non timber products is recognized as the most competitive economical activity.

Part II – Operational Arrangements

2.1. Rationale

2.1.1. Institutional set-up and organizational issues

An agreement signed between the Brazilian Cooperation Agency – ABC and the Amazon Cooperation Treaty Organization (ACTO), on 22 December 2005, set up the terms for a cooperation named "Common Agenda Project". Now, on its second phase, the project is also known as Pan-Amazonia II.

ACTO is a regional intergovernmental organization supported **by eight Countries** that share common interests in the Amazon Region (Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela) **a Permanent Secretariat was created as the Executive body of the Organization. ACTO/PS** headquarters are located in Brasilia, Brazil.

Its mission is to support **regional cooperation towards** sustainable development of the Amazon Region by:

(i) strengthening or creating technical and financial mechanisms and instruments to achieve its mission;

(ii) promoting the active participation of its members as well as regional and local actors aiming at the implementation of solutions;

(iii) striving for an equitable distribution of the benefits that may be generated; and

(iv) improving the negotiation capacity of the member countries in themes of regional interest.

ACTO was designed by its Member Countries as the preferable instance for regional coordination of efforts towards sustainable forest management. Its mandate includes **policy dialogue** for UNFF negotiation, to act as **a kind of** executive secretariat of the Latin America Forestry Commission – COFLAC, for the Amazon Chapter, and to lead the implementation of the regional activities included in the ITTO Working Plan.

In the project, ACTO is the lead executing agency. **The technical coordination** of the project is made by a Project Steering Committee. In the Steering Committee, ACTO provides the services of a Permanent Secretariat. **The Regional Coordination Unit would be subordinated to the Secretary General.**

Each country will nominate a *National Coordinator* within one month of the project approval and recruit a ***Technical*** *Coordinator*. The committee will meet at least once a year. During the project monitoring missions, a specific meeting will be held to include all National participant agencies. National and ***Technical*** coordinators are responsible for the project execution in their countries.

A simplified flowchart of the organization setup is presented in Figure 7 (page 35).

2.1.2. Stakeholder analysis

The main beneficiaries of this Project are:

- Forestry and related sector policy-makers in the eight ACTO member countries, which will benefit from reliable and timely provision of key information on forest cover.
- Government agencies responsible for the implementation of forest policies, which will benefit from improved information and better policies.
- Other stakeholders in the forestry sector, which will have improved information and strengthened mechanisms for participation.
- Rural communities and the forestry industry in ACTO member countries, which will benefit from more efficient national forestry programs, as unsustainable management of the Amazon Forest will be restricted.
- Tropical timber and other product consumers, which will benefit from more efficient national forestry programs, as unsustainable supplies of these goods will be restricted.[

The discussion process about C&I in the Amazon countries was undertaken by meetings of the Forestry Commission for Latin America and the Caribbean (COFLAC), in the special context of the Amazon Sub-regional Group of COFLAC. This Group established in its work plan 2004-2007 the prioritization of regional actions for the implementation of forest management and reiterated the importance of these actions in the 2007-2008 Plan. The development of a regional information system for monitoring of the Forest Cover and the promotion of a mechanism to institutionalize sub-regional dialogue are priority for action. The current proposal is a response to the decision made by the forest authorities, which was also incorporated by ACTO Members in the global dialogue processes regarding forests.

Table 3 presents a chart to illustrate the regional political participation of ACTO Member Countries stakeholders.

Table 3: Regional stakeholders participation in the project

Stakeholder	Policy/advocacy	Contribution	Implementation activities	Access	Monitoring
Forest Authorities	- Development of policies, incorporating forest information in decision making. - Establishment of a permanent Forest Cover Monitoring System.	Contributes with the permanent system staff	- Coordination of the national project activities. - Leading the participatory plan preparation and implementation process. - Coordination of the system operations. - Participation in the regional discussions.	- Indication of the staff for system design and operation. - Indication of training courses participants. - Coordination of the national institutions linked to the system design and operation.	- Participating in the Project Steering Committee. - Leading the national activities monitoring.
Ministries of Environment	Adoption and approval of policies and procedures proposed by Forest Authorities.	-National staff	-participation in the plan's preparation and implementation	Facilitates contacts with relevant units linked to the system implementation	-will be established as part of the specific national arrangements
Remote sensing Information Agencies	Incorporation of the system routines into its internal procedures (in some countries).	Contributes with the permanent system staff	- Participation in the national project activities and in the system implementation.	- Facilitates contacts with relevant units linked to the system implementation	-will be established as part of the specific national arrangements
Stakeholder	Policy/advocacy	Contribution	Implementation activities	Access	Monitoring
Ministries of Foreign Affairs	Support the regional forest dialogue and the construction of a regional forest agenda	-political support	-	-- Facilitates contacts with relevant units linked to the system	Appreciation of the Project reports.

	inside ACTO decision structure.			implementation	
Brazilian Space Institute	- Sharing technology and knowledge policy. - Cooperation with the other Amazon countries policy.	-technical assistance	- Offering Technical assistance and knowledge.	-technical decision for the implementation of forest cover observation rooms	Participate in the project monitoring and the systems operations.
ACTO/SP	Implementing the mandates received from its members.	Contributes financially for the project coordination, administration and technical assistance.	- Regional coordination. - Executing agency. - Technical assistance.	Facilitating the forest authorities interaction Facilitates contacts with relevant units linked to the system implementation	Support the national project monitoring and lead the regional monitoring
Donor Agencies	-	Provide funding	- Participating in the steering committee	-	Participate in the project monitoring.

The mandate that was given to ACTO/PS to prepare this project proposal reflects the regional consensus and commitments regarding the need identified to develop harmonized national forest cover monitoring systems at regional level. In this sense, no specific additional approaches were necessary to build ownership for the project implementation.

The main issue identified during the preparation phase was the fact that each country has specific and particular institutional frameworks. Consequently, the project was designed considering the development of specific strategies and plans for each country, as well as, for the set of institutions involved. In terms of technology and compatibility with the existing national mapping strategies a specific situation was found in Colombia, where the Institute for Hydrology, Meteorology and Environmental Studies of Colombia – IDEAM informed that the use of the baseline information has to be in accordance with the national approved database, and for this reason an experimental exercise is being implemented in a selected area with the support of INPE. The outputs will be used for possible adjustments in the baseline data prepared during the project preparation phase.

The evidences of the ACTO countries commitment and the participation of the Brazilian Space Agency were registered in a specific letter that is annexed to this proposal.

2.1.3. Problem analysis

Over the years, all ACTO country members have pledged an essential commitment to the improvement of life conditions among the Amazonian populations. Better life conditions guided by sustainable development principles and equitable distribution of benefits have been the main goals of the Amazonian Cooperation Treaty.

Vital to this process is the proper identification of unsustainable processes of land occupation and use in the region to avoid de depletion and illegal use of natural resources. The most efficient identification tools available are satellite monitoring systems regarding deforestation, land use change and logging. The insufficient implementation of these tools in all ACTO country members is considered the key problem.

The insufficient capacity to monitor deforestation, land use change and logging in the Amazon Region is basically due to three factors: (i) insufficient commitment and participation of decision making institutions responsible for monitoring forest cover in the Amazon regions; (ii) different levels of access to forest cover monitoring technologies; and (iii) variable and insufficient institutional capacities to assess large scale land use changes in the region.

The asymmetry in technology access and insufficient capacity to assess forest cover and land use changes are caused mainly by the use of (i) different monitoring technologies; and (ii) absence of a harmonized institutional framework to deal with forest issues in all ACTO country members.

The precise objective of improving the monitoring capacity in each Country is to alleviate the consequences of not having these capacities. The main consequence, obviously, is poor governance on deforestation, land tenure and land use change due mainly to the lack of sufficient information and good quality data. Specifically these weaknesses result in: (i) inadequate governmental presence and action in key areas; (ii) ineffective and inefficient law enforcement capacity; and (iii) the development of a legal framework and policy not totally comprehensive to deal with the deforestation problem.

In a broader sense, the most observable consequences, common to all ACTO country members in a higher or lower level, are law enforcement difficulties, illegal occupation of public forests and increasing levels of deforestation.

OTCA believes that this proposal will reduce significantly the insufficiencies identified in the key problem and will promote a concerted action among ACTO country members that will finally lead to better governance of forests and land use in the Pan Amazon Region. A graphical representantion of the problem analysis is shown in Figure 5.

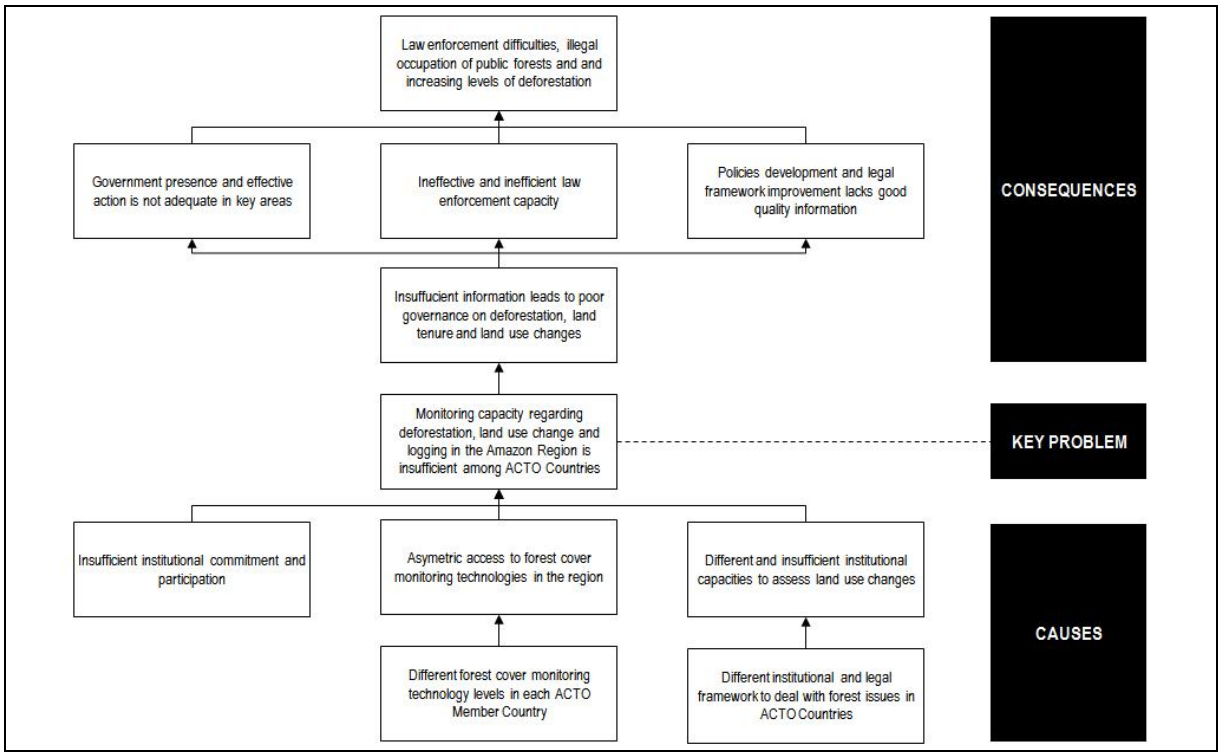


Figure 5: Key problem tree

2.1.4. Logical framework matrix

PROGRAM ELEMENTS	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
Development Objective: Development of monitoring capacity regarding deforestation, land use change and logging in the Amazon Region of all OTCA Member Countries	**National sustainable forest management indicators**	National statistics on deforestation and land use change are regularly published by all ACTO member countries. ITTO, UN organizations and ACTO reports.	Better governance on deforestation, land tenure, land use change and logging in the Pan Amazonian can be achieved by adopting modern technologies already available for monitoring forest cover extension and change.
Specific Objective : Real time data on the extent and quality of forest cover is made available to improve governance on deforestation, land tenure, land use change and logging in the Amazon Region	**1. Forest cover indicator report across the Amazon region** **2. National enforcement systems incorporate forest cover indicators in action planning** **3. Agencies responsible for SFM incorporate forest cover indicator in action planning** **4. Agencies responsible for territorial planning receive the produced information to support its action planning**	Data is publicly accessible and allows for the comparison of goals and observed deforestation rates. Also, 1. Country and ITTO reports 2. Project reports 3. Project reports 4. Project reports	Remote sensing forest cover monitoring systems and technologies are already available and national plans, adequately developed by all ACTO country member, can promote its adoption, dissemination and effective use.
Outputs 1: Participatory Development of Forest Cover National Monitoring Systems	**National plans prepared and validated by the national stakeholders by the end of Year 1 (12 months after start)**	National Plans for monitoring deforestation and land change use are consensually published by ACTO member countries	A concerted action involving all institutions responsible for the monitoring and management of the Amazonian regions in each ACTO country member leads to the development of national plans.
Outputs 2: Implementation of National Forest Monitoring Systems in all OTCA Member Countries	Reports on deforestation indicators updated at least every semester starting on second semester of year 2	A series of reports on deforestation and land use change is regularly published in each ACTO member country. One observation room per country is operational and functional.	The coordination of meetings involving all decision making representatives from all ACTO country members, well organized training sessions, the creation of the essential infra-structure and the harmonization of capacity building activities and workshops create the essential conditions for the successful implementation of the national plans.
Outputs 3: Functioning of a Four-year Forum for the Concerted Development of the Project	**Regional Forestry Agenda prepared and implemented by the beginning of Year 2.** **Regional report for forest cover monitoring situation independently produced in each country by Year 3.**	Lists of participants, representing all ACTO member countries, and internationally held monitoring workshops contribute to the process of improving and disseminating forest cover monitoring technologies in the Amazon	Workshops and meetings involving representatives from all ACTO member countries, focused on the development of forest cover monitoring systems, promotes the sharing of expertise and experiences and creates a forum for continuous education and improvement on quality and capacity building regarding forest management and C&I.

2.2. Objectives

The long term goal of all ACTO member countries is to guarantee the protection and the sustainable management of the Amazonian natural resources. Enhanced law enforcement and contained illegal deforestation are expected to halt the illegal occupation of public forests and illegal deforestation.

The illegal occupation can be significantly reduced if government institutions become better equipped to implement law enforcement and more capable to effectively control land use change in key areas. High quality information is needed to produce good policies, effective coordination and useful reporting tools. These are the basic pre-requisites for state of the art law enforcement and monitoring programs.

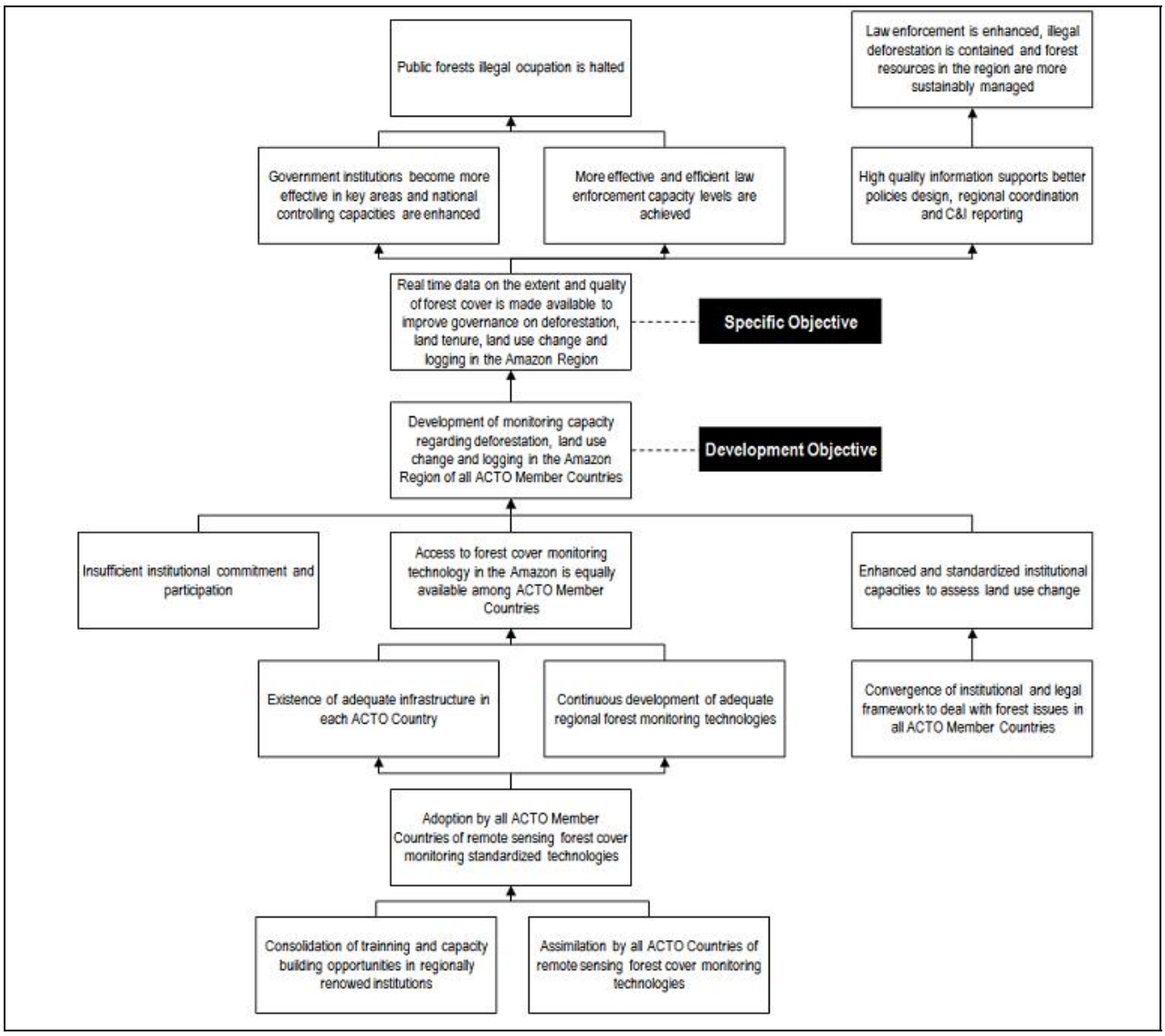


Figure 6: Objective tree

ACTO believes that the governance of all these matters, including deforestation, land tenure, land use change and logging, can be significantly improved if real time data on the extent and quality of the forest cover in the Amazon is made available to all ACTO member countries. That belief, regarded as the specific objective of this proposal (Figure 6), is the reason why the development of monitoring capacity in all ACTO country members is established as the main development objective.

All ACTO country members become represented by institutions really committed to participate.

Standard and essential technology for forest cover monitoring in the Amazon is equally available among all ACTO member countries. That is obtained because there is adequate infrastructure in each ACTO member country for the continuous development of efficient regional forest monitoring technologies. Furthermore, an agreement is reached among ACTO member countries to standardize remote sensing forest cover monitoring technologies. The agreement is possible, because high quality and consolidated training and capacity building opportunities are offered in renowned institutions for the complete assimilation by all ACTO member countries of remote sensing forest cover monitoring technologies.

All institutions representing ACTO country members in the project are capable of assessing land use change in their Amazon Regions. That is achieved due to the harmonization reached among ACTO member countries in order to eliminate any institutional or legal obstacle when dealing with national plans for the development of large scale monitoring systems in the Amazon.

2.2.1. Development objective and impact indicators

Development of monitoring capacity regarding deforestation, land use change and logging in the Amazon Region of all OTCA Member Countries. National statistics on deforestation and land use change are regularly published by all ACTO member countries.

2.2.2. Specific objective and outcome indicators

Real time data on the extent and quality of forest cover is made available to improve governance on deforestation, land tenure, land use change and logging in the Amazon Region. Data is publicly accessible and allows for the comparison of goals and observed deforestation rates.

Part III – Description of Project Interventions

3.1. Outputs and activities

3.1.1. Outputs

To deal with the specific objective of building national capacities to monitor deforestation, land tenure, land use change and logging in the Amazon Region as a fundamental tool to achieve forest governance in the Amazon countries, three outputs are expected:

Output 1: National plans for the implementation of a forest cover monitoring system prepared. These plans will include national scooping studies and a participatory preparation process leaded by the National Forest Authorities. **This output envisions a cooperative and multilateral regional effort.**

Output 2: National plans for the implementation of a forest monitoring system implemented. **This output orchestrates in each country the results of the harmonization and regional coordination processes developed in output one, but focusing to the national level and therefore requires different regional interaction modality.**

Output 3: Functioning of a Four-year Forum for the Concerted Development of the PanAmazonian Project. The forum offers a space for regional dialogue and coordination on forest management, with focus on forest cover monitoring, forest cover monitoring terms and concepts are harmonized and other criteria and indicators for sustainable forest management strengthened.

3.1.2. Activities

It is important to consider that most of the activities depend on resources provided by the multiple funding agencies (ITTO, ACTO, Country Governments and Funding Institutions). The following activities, and overall actions, are expected to contribute to the completion of the three outputs:

1.1. Methodology and strategy coordination workshop

Consists in the preparation and organization of a regional start-up workshop with the national institutions designated by the Member Countries of ACTO to: (a) exchange related national experiences; (b) design crosscutting methodological elements to prepare the plans; (c) prepare and share operational plans to conduct national consultations; (d) define permanent consultation channels and tools to be used by national and regional institutions in the process; (e) standardize the Observation Rooms (units in which the monitoring will be carried out); (f) set up the initial steps for regional data bases adoption (baseline) of the images obtained as part of the Common Agenda Project and distributed to the countries by the ACTO/PS in coordination with MMA/Brazil and INPE.

1.2. Country scoping studies and draft Plan preparation

This stage will investigate the institutional and infrastructure conditions, the management chain and the success of a permanent deforestation and land use change monitoring program in the Amazon. The investigation will be conducted by the national institution appointed within each country. Member country experiences on deforestation combating plans will be assessed to determine the best alternatives for national monitoring plans. These must include intersectoral and interinstitutional interaction and coordination to ensure that the information generated by the observation rooms is effectively used to make decisions. Due to the nature of the Plan the deforestation dynamics in each country should be taken into account and key national and local institutions should be involved. There will be a permanent exchange of information and experiences through videoconferences between the 8 countries. These events will provide details on the Brazilian experience.

1.3. National plans participatory preparation and validation

At the national level (Bolivia, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela) expected actions are: Selection process to hire the technical support team: 01 National technical scientific coordinator, 01 project assistant, 01 geographic information systems analyst (GIS analyst); Installation of a national coordination unit and technical support unit; The national institution appointed will contribute the rooms and additional materials needed to operate the observation rooms; Pertinent administrative procedures, purchase and installation of equipment; Prepare a preliminary diagnosis of national forest cover monitoring experiences and processes; systematize the information and prepare a presentation for a regional workshop; Identify and contact possible members of an institutional interaction network to formulate the National Monitoring Plan; and Prepare the Annual Operational Plan proposal.

At the regional level, actions are: Prepare terms of reference for the technical support teams; Begin a selection process for the team that will support the ACTO/PS: 01 Regional technical scientific assistant, 01 administrative assistant; Prepare the terms of reference for the Regional Methodology Workshop in consultation with the national authorities designated; and Pertinent administrative procedures and purchase of equipment for the ACTO/PS, INPE and MMA/Brazil.

2.1. Institutional Capacities: building and training; and

Promote a forum in each member country coordinated by a science and technology institution designated by the country to institutionalize the use of the forest cover monitoring system promoted by this Project in the academia. The Forum with additional sources funds will additionally support post-graduate research and corresponding publications to complement forest management-related analyses and decision-making processes. The national designated institution for this area will work in coordination with at least one Amazonian university. The academic focal point will be selected by analyzing the counterpart offered, which may include institutionalizing the subject in the academic curriculum, previous experience on the topic and previous experience liaising with other Amazonian universities in which at least two of the post-graduate

Studies will be developed. The lead researcher will be selected competitively based on criteria defined by the university and must be approved by the national designated institution and by the ACTO/PS.

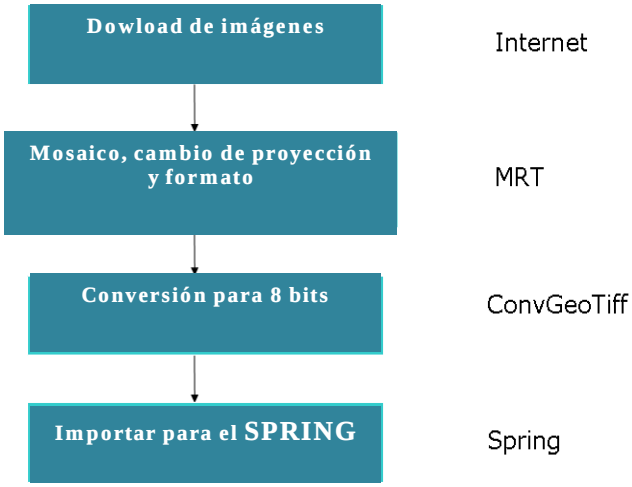
2.2. Technical support: visiting and sharing local experiences

Technical support will be offered by the National Institute for Space Research of Brazil (INPE). The operation of the Observation Rooms will be based on the methodology called "Panamazonia" developed by the National Institute for Space Research (INPE), Ministry of Science and Technology of Brazil, through the Remote Sensing Division. This methodology has as support elements, the procedures of PRODES-Digital project, which can estimate the gross deforestation occurring in the Amazon, and DETER project, which can detect deforestation in real time, extended to cartographic orthorectified levels provided by multiannual mosaics generated by INPE and NASA. The inputs to be used as part of the methodology "Panamazonia " are:

1. **Software SPRING (free access: http://www.dpi.inpe.br/spring/)**
2. **Imagens MODIS (free: https://wist.echo.nasa.gov/api/)**
   Imagens NASA-Geocover (free: https://zulu.ssc.nasa.gov/mrsid/)
3. **Imagens WFI (free: http://www.dgi.inpe.br/CDSR)**
4. **Software MRT (free: https://lpdaac.usgs.gov/lpdaac/tools/modis_reprojection_tool)**
5. **Software ConvGeotiff (free).**

Information Processing: The main tool for images processing is the SPRING program developed by the National Space Research Institute. SPRING is a geographic information system that allows processing of remote sensing images and performs integration of matrix data representations (within a raster structure) and vector data structure within a single environment.

Major processes expected in the methodology: The following diagram shows the main methodological steps that precede the stages of matrix editing and photo-interpretation applied to pluriannual image banks:



Scale of monitoring in land use changes: The main limitation for the identification of changes in forest cover is constituted by the availability of human resources capable of performing vector-matrix analysis and interpretation of regional scope. Another challenge lies on availability of cartographical qualified regional images. In the case of Brazil, with its territorial size, pixel size worked on this project corresponds to 90m on the ground, while the pixel size used in Geocover images may also be of

90m allows monitoring of forest cover in the Amazon region of Brazil according to the spatial patterns in deforestation usually recorded. This pixel size works to monitor clearcutting. In that dimension it can also be combined with MODIS images of high temporal performance, allowing monitoring on a daily basis, if clouds cooperate. Still, the effort in photointerpretation is great for composing basic thematic papers required for multiannual comparisons. The work carried out by INPE in the State of Mato Grosso shows that to compose a basic image bank of this state, which includes an estimated area of 1 million km2, took approximately 22 men/month of work.

Databases: One of the key elements related to the methodology "Panamazonia" is related to the structuring of data banks that allow for monitoring. Within training initiatives for specialists from the countries of ACTO in 2006 was developed a database SPRING with images information MODIS (2006) and GEOCOVER (2000) classifying forests, deforestation, savannah and basic hydrology of the following countries: (a) Bolivia: bank of 600 megabytes (b) Ecuador: bank of 300 megabytes (c) Peru: bank of 700 megabytes (d) Colombia: bank of 800 megabytes, (e) Venezuela: bank of 800 megabytes; (f) Suriname: bank of 400 megabytes, and (g) Guiana: bank of 500 megabytes. It is important to point out that the structure of database was developed to accommodate information from Geocover and Modis.

Alternatives observation on a larger scale: Information MODIS allows weekly updates of information, with a pixel equivalent to 100m. Need for larger scale can be obtained using images from other sources, noting the restriction of the database structure. However, specific analysis can be conducted using Landsat-7 images (14 m pixel), CBERS (2.5m o 20m pixel), which are obtained for free over the Internet.

Modis products: MODIS products allow a revisit to the analyzed surfaces with a periodicity almost daily, with free products and high quality for georeferencing.

2.3. National Observation Rooms: setup and networking; and
2.4. Training Laboratory: setup and networking

These activities are related to the setting-up of the Observation Rooms and institutional structures defined in the national forest cover monitoring plans. During the period of the project there will be a permanent gathering of complementary input to improve the monitoring plans as well as the instruments and tools used to liaise with the institutions and to apply the information in decision-making processes. Through continued interaction between the member countries the project will explore the possibility of developing a specific policy to combat deforestation and forest fires in the region. The implementation of these plans will include the adoption of specific strategies in each country to disseminate the information to society in general. The Regional Coordinating Unit, interacting with the Coordination of Environment of ACTO/PS, will be in charge of following the national implementation, facilitating interaction between the member countries and providing systematized information on related experiences under way in the countries. The activity provides for capacity-building for national technical professionals linked to the Project and for the professionals assigned to the Observation Rooms

through training and refresher courses at INPE. The activity includes at least 22 videoconferences per year to discuss technical and operational aspects of the Project. It also includes managerial tasks related to the Project, such as the preparation of management reports, financial reports and annual activity evaluations.

3.1. Adaptive and concerted planning; and Forum agenda and logistics management
This activity refers to a permanent dialogue process between the authorities of the ACTO Member Countries on public policy instruments being applied in the Amazon and related topics with a view to supporting national deforestation and forest degradation policies. Dialogue will not be restricted to forest authorities and will be promoted as part of the Project, facilitated by the ACTO/PS and supported by the focal points of ACTO in their respective chancelleries. It consists of periodic videoconference sessions to address specific issues, share institutional and regulatory progress and improvements, and inform specific national experiences. This discussion agenda will be defined in a specific session initially foreseen for the beginning of each quarter. The discussion agenda for the first quarter will be defined in the Regional Methodology Workshop. Discussions will take place on a monthly basis, but the frequency may be intensified by decision of the authorities of each country. It also includes managerial tasks related to the Project, such as the preparation of management reports, financial reports and annual activity evaluations.

PROJECT MONITORING, ADMINISTRATION AND EVALUATION

ACTO/PS will submit to ITTO in each year during the implementation of the Project:

i. **on an annual basis, Yearly Plans of Operation;**

ii. **monthly simplified progress report through the ITTO Online Monitoring System and annual progress reports;**

iii. **bi-annual implementation reports not later than (28 February and 31 August);**

iv. **detailed un-audited project financial and cash flow statements for ITTO funding and counterpart funding, as part of the progress report;**

v. **all documented outputs, products and other means of verifications as per the Logical Framework Matrix as soon as finalized or as per the project timeline; and**

vi. **completion report not later than three months after Project completion.**

MONITORING, REVIEW AND STEERING COMMITTEE VISITS

The project steering committee will meet once a year to ensure that progress is frequently monitored. The Amazon Coordination Commission will receive the Committee Report and will proceed to project monitoring and evaluation in the light of the regional agreed forest agenda. Regional and national coordinators will have parallel sessions, and will meet when necessary, to share information, national experiences and identify successful approaches.

EXTERNAL EVALUATION

The project will be submitted to midterm review and ex-post evaluation.

3.2. Implementation approach and methods

ACTO is trying to engage three entities in the implementation of this project: (i) ITTO, (ii) country governments and (iii) another funding source. ITTO resources will contribute mainly to fund the following activities: Methodology and strategy coordination workshop; Country scoping studies and draft Plan preparation, Project monitoring and administration; and Project Evaluation. ITTO resources complemented by funds from another source will allow for the implementation of the following activities: National Plans participatory preparation and validation; Training: building institutional capacities; Technical support: visiting and sharing local experiences; National Observation Room setup and networking; INPE Laboratory for Training and Supporting Activities; and Regional forest agenda design and implementation. The project was designed to be initiated by the funds from ITTO and the already available counterpart funds from ACTO. The expected additional funds will increase the plans implementation scope and will focus in development of additional capacities and technical assistance in the academy sector, as an input for the Countries Forest Cover Observation Rooms with direct impact in its sustainability.

The Project's implementation structure is based on the procedures habitually adopted by ACTO to execute regional projects. For this, it is proposed a structured three level system that interrelates: ACTO, Project Steering Committee, and ACTO Countries Parties. What follows is a description of how the system works.

AMAZON COOPERATION TREATY ORGANIZATION
The Permanent Secretariat of ACTO acts as Project manager and establishes a technical decision-making sphere (project steering committee) formed by the national entities designated by the member countries as national focal points for its execution. This committee has consultative and deliberative powers in what project actions are concerned and is linked to the decision-making bodies of ACTO as such, the Amazon Cooperation Council (ACC). ACC will be in charge of following, monitoring and evaluation of the Project. The Permanent Secretariat will act as regional coordination unit and as executive secretariat of the Project Technical Committee.

The Regional Coordination Unit **(RCU).- To execute the Project the ACTO/PS will be technically supported by a Regional Coordination Unit, which has a Project Technical Coordinator, an Administrative Assistant and a Technician. As counterpart the ACTO/PS will offer the physical infrastructure and cover its maintenance costs. It will also assign the ACTO Environment Coordinator and its administrative staff to the Project part-time. It will furthermore assign a full-time expert and two part-time experts for the Project with counterpart funds. The Regional Coordination Unit will be set up within the ACTO/PS headquarters and be subordinated to the Secretary General, who may delegate functions to the Executive Director and will work in close collaboration with the respective unit of Environment Coordination, besides receiving technical support from the Environment Coordinator and from the Project Technical Coordinator. The Regional Coordination Unit will follow the strategic guidelines set by ACTO country parties and according to the project document and procedures.**

PROJECT STEERING COMMITTEE
This Committee will be advice on actions in all activities about the project to be developed in Amazon countries as well as in the ACTO/PS. It meets at least one time per

year to review progress in Project implementation. Members of this committee are as follows: Eight Amazon country delegates (national coordinator), three of ACTO/PS acting as Secretariat of the Committee, one representative of the ITTO and one representative of each funding agency. A country delegate will be elected President in each meeting of the Project Steering Committee.

ACTO COUNTRIES PARTIES

Each ACTO Countries Parties will be represented by a National Coordinator from the National Designated Institution (NDI). The national implementation structures will reflect the local specificities (these specificities include the possibility to establish specific working groups or internal committees to facilitate project implementation and interinstitutional coordination). The executive sphere will be formed by the national designated institution, which wills set-up a Forest Cover Observation Room. The Room will be coordinated by the national designated institution and will be supported by a (*i*) technical coordinator, a (*ii*)technical assistant, a (*iii*) geographic information systems analyst, a (*iv*) technician and (*v*) at least one professional assigned to the Forest Cover Observation Room by the national designated institution. The national designated institution will be responsible for allocating counterpart resources, including the time set aside by its permanent staff, physical infrastructure (rooms and labs with corresponding facilities), infrastructure and equipment maintenance costs.. The additional technical team will be contracted in consonance with the terms of reference approved by the national designated authority and by the ACTO/PS. After conducting a selection process in compliance with the criteria in force in the country, the national entity will submit to the ACTO/PS a short list of at least 3 candidates apt for the job accompanied by their résumés. The national entity will be responsible for the final selection after the ACTO/PS approves the short list.

Procurement processes will be conducted by the ACTO/PS in consonance with the Administrative and Financial Operations Instrument approved by the countries parties as well as in a manner consistent with the ITTO Rules and Procedures Applying to ITTO Projects, ITTO Manual for Project Monitoring, Review, Reporting and Evaluation (Third Edition), ITTO Manual on Standard Operating Procedures for the ITTO Project Cycle (2009), ITTO Financial Rules and Rules Relating to Projects and ITTO Guidelines on the Selection and Employment of Consultants and the Guidelines for the Procurement and Payment of Goods and Services (Second Edition).

The organization chart in Figure 7 presents the Project management framework.

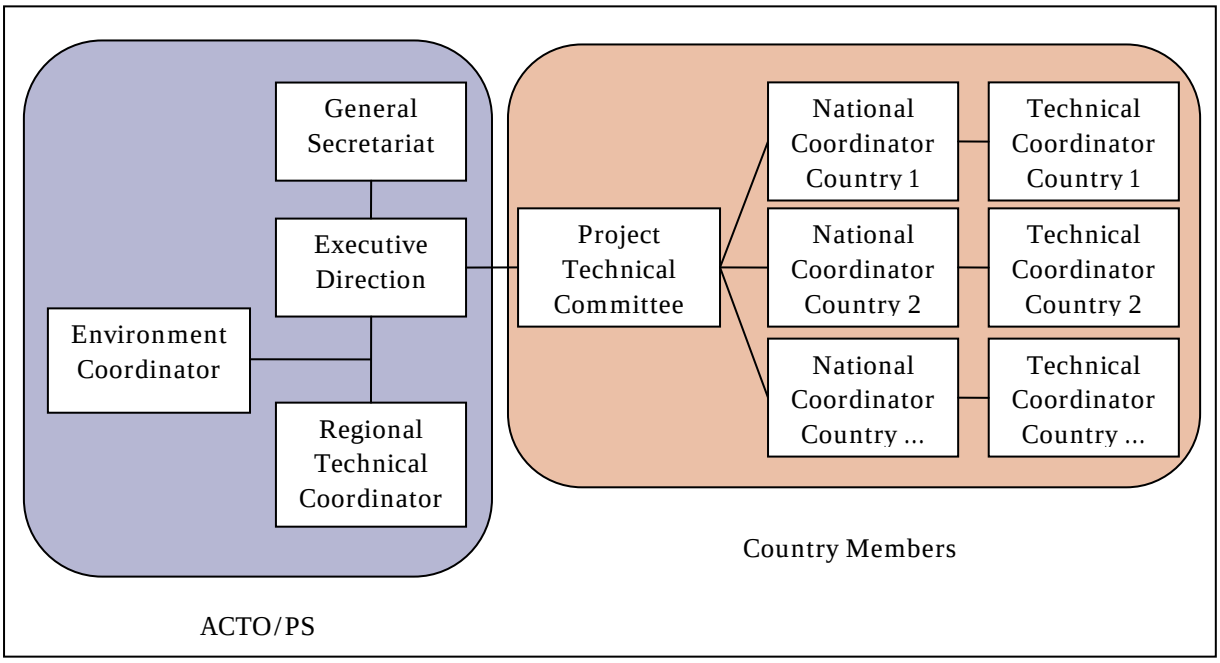


Figure 7: Organization Chart

3.3. Work plan

Activity		Responsible Party	Year 1						Year 2						Year 3						Year 4					
			1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
1.1	Methodology and strategy coordination workshop	Regional Coordinator and Consultant																								
1.2	Country scoping studies and draft plan preparation	National Coordinators and National Consultants																								
1.3	National plans participatory preparation and validation	National Coordinators and National Consultants																								
2.1	Institutional Capacities: building and training	Regional Coordinator and remote sensing experts																								
2.2	Technical support: visiting and sharing local experiences	Regional Coordinator and remote sensing experts																								
2.3	National Observation Rooms: setup and networking	National Forestry Authority supported national experts																								
2.4	Training Laboratory: setup and networking	Brazilian remote sensing experts indicated by EA																								
3.1	Adaptive and concerted planning	Executing Agency supported by expert on adaptive planning																								
3.2	Forum agenda and logistics management	Executing Agency supported by expert on adaptive planning																								

3.4. Budget

3.4.1. Master Budget Breakdown

Monitoring deforestation, logging and land use change in the Pan Amazonia Forest																
Outputs / Activities	Budget Component	Quantity				Units	Unit Cost US$	Total cost US$	ITTO				Sub total	(EA) ACTO	Countries
		Year 1	Year 2	Year 3	Year 4				Year 1	Year 2	Year 3	Year 4			
Output 1. Participatory construction of a plan to develop Forest Cover National Monitoring Systems								1.504.967	418.467	0	0		418.467	474.500	612.000
Activity 1.1. Install National Coordinating Units and Regional Coordinating Unit								513.717	119.567	0	0		119.567	208.150	186.000
National Technical Coordinator	111	7				man/month	3.000	21000	21.000				21.000		
National Technical Assistant	112	7				man/month	2.500	17500	17.500				17.500		
National GIS Analyst	113	7				man/month	600	4200	4.200				4.200		
Regional Technical Coordinator	122	1				man/month	5.000	5000					-	5.000	
Permanent instructor CRA/INPE	125	2				man/month	3.000	6000					-	6.000	
Regional Administrative Manager	124	1				man/month	4.000	4000					-	4.000	
Tickets Committee Meeting (2 x country)	31	16				un	900	14400					-	14.400	
Per diems (2 x 4 days x country)	32	64				days	250	16000					-	16.000	
Tickets ACTO team, INPE São Paulo and Auth. Brazil	31	5				un	900	4500					-	4.500	
Per diems ACTO team, INPE São Paulo and Auth. Brazil	32	20				days	250	5000					-	5.000	
Simultaneous translation	21	1				est	3.500	3500					-	3.500	
Local transportation	22	1				est	2.250	2250					-	2.250	
Server National Observation Rooms	41	7				un	4.500	31500					-	31.500	
Computers National Observation Rooms	441	21				un	2.000	42000					-	42.000	
Printers National Observation Rooms	442	7				un	1.000	7000					-	7.000	
Plotter Observation Rooms	443	7				un	2.000	14000					-	14.000	
Furniture National Observation Rooms	45	8				un	3.850	30800	30.800				30.800		
Video conference equipment Observation Rooms	46	8				un	5.000	40000	40.000				40.000		
Broadband service Observation Rooms	23	7				month	500	3500	3.500				3.500		
Installation supplies Observation Rooms	54	7				month	367	2566,97	2.567				2.567		
Computers ACTO/PS	441	3				un	2.000	6000					-	6.000	
Printer ACTO	442	1				un	1.000	1000					-	1.000	
Video conference equipment ACTO/PS and INPE	46	2				un	5.000	10000					-	10.000	
Associated counterpart ACTO countries								186.000							186.000
Associated counterpart ACTO/PS								36.000						36.000	

Monitoring deforestation, logging and land use change in the Pan Amazonia Forest																
Outputs / Activities	Budget Component	Quantity				Units	Unit Cost US$	Total cost US$	ITTO					(EA) ACTO	Countries
		Year 1	Year 2	Year 3	Year 4				Year 1	Year 2	Year 3	Year 4	Sub total		
Output 1. Participatory construction of a plan to develop Forest Cover National Monitoring Systems								1.504.967	418.467	0	0		418.467	474.500	612.000
Activity 1.2. Methodological guidance and strategic coordination workshop								293.350	128.100	0	0		128.100	107.250	58.000
National Technical Coordinator	111	21				man/month	3.000	63000	63.000				63.000		
National Technical Assistant	112	21				man/month	2.500	52500	52.500				52.500		
National GIS Analyst	113	21				man/month	600	12600	12.600				12.600		
Regional Technical Coordinator	122	3				man/month	5.000	15000					-	15.000	
Permanent instructor CRA/INPE	125	3				man/month	3.000	9000					-	9.000	
Regional Administrative Manager	124	3				man/month	4.000	12000					-	12.000	
Tickets Workshop (3 x country)	31	24				un	**875**	21000					-	21.000	
Per diems (3 x 4 days x country)	32	96				days	250	24000					-	24.000	
Tickets ACTO/PS + MMA + IBAMA	31	5				un	900	4500					-	4.500	
Per diems ACTO/PS + MMA + IBAMA	32	20				days	250	5000					-	5.000	
Simultaneous translation	21	1				est	3.500	3500					-	3.500	
Local transportation	22	1				est	2.250	2250					-	2.250	
Associated counterpart ACTO countries								58.000							58.000
Associated counterpart ACTO/PS								11.000						11.000	
Activity 1.3. Participatorily prepare and validate the National Plans to Monitor Forest Cover								697.900	170.800	0	0		170.800	159.100	368.000
National Technical Coordinator	111	28				man/month	3.000	84.000	84.000				84.000		
National Technical Assistant	112	28				man/month	2.500	70.000	70.000				70.000		
National GIS Analyst	113	28				man/month	600	16.800	16.800				16.800		
Regional Technical Coordinator	122	4				man/month	5.000	20.000					-	20.000	
Regional Administrative Manager	124	4				man/month	4.000	16.000					-	16.000	
Consultant to support formulation of Plans	24	7				man/month	4.000	28.000					-	28.000	
National tickets	31	70				un	300	21.000					-	21.000	
National per diems	32	280				days	150	42.000					-	42.000	
Tickets ACTO/PS and INPE participation in National Workshops	31	14				un	900	12.600					-	12.600	
Per diems ACTO/PS and INPE participation in National Workshops	32	56				days	250	14.000					-	14.000	
Services for National Workshops	28	1				est	1.500	1.500					-	1.500	
Associated counterpart ACTO countries								368.000							368.000
Associated counterpart ACTO/PS								4.000						4.000	

Monitoring deforestation, logging and land use change in the Pan Amazonia Forest																
Outputs / Activities	Budget Component	Quantity				Units	Unit Cost US$	Total cost US$	ITTO					(EA) ACTO	Countries
		Year 1	Year 2	Year 3	Year 4				Year 1	Year 2	Year 3	Year 4	Sub total		
Output 2. Implementation of National Forest Monitoring Systems in all OTCA Member Countries								**3.478.700**	**191.800**	**361.200**	**0**		**553.000**	**650.100**	**2.275.600**
Activity 2.1. Reinforce insitutional capacities and training								454.400	0	0	0		0	290.400	164.000
Permanent instructor CRA/INPE (in Spanish)	125	8	5			man/month	3.000	39.000						39.000	
Permanent instructor CRA/INPE (in English)	126	7	6			man/month	3.000	39.000						39.000	
Operational technical assistant CRA/INPE	127	3				man/month	1.500	4.500						4.500	
Tickets participants (35 people, 5 x country)	31	35				un	900	31.500						31.500	
Per diems (35 people, 5 x country x 17 days x course)	32	525				days	250	131.250						131.250	
Tickets monitoring	31		6			un	900	5.400						5.400	
Per diems monitoring	32		21			days	250	5.250						5.250	
Translation of teaching materials from Port. and Span. into Eng.	25	1				est	12.500	12.500						12.500	
materials for courses (CDs, flash drive, etc.)	58	1				est	10.500	10.500						10.500	
Local transportation for courses	22	1				est	7.500	7.500						7.500	
Associated counterpart ACTO countries								164.000							164.000
Associated counterpart ACTO/PS								4.000						4.000	

Monitoring deforestation, logging and land use change in the Pan Amazonia Forest																
Outputs / Activities	Budget Component	Quantity				Units	Unit Cost US$	Total cost US$	ITTO					(EA) ACTO	Countries
		Year 1	Year 2	Year 3	Year 4				Year 1	Year 2	Year 3	Year 4	Sub total		
Output 2. Implementation of National Forest Monitoring Systems in all OTCA Member Countries								**3.478.700**	**191.800**	**361.200**	**0**		**553.000**	**650.100**	**2.275.600**
Activity 2.2. Monitor reginal activities and promote exchange								486.100	0	0	0		0	112.100	374.000
Tickets repr. Countries (2 x country x year)	31	14	14			un	900	25.200						25.200	
Per diems repr. Countries (4 days x trip)	32	56	56			days	250	28.000						28.000	
Tickets ACTO/PS + MMA + IBAMA	31	3	3			un	900	5.400						5.400	
Per diems ACTO/PS + MMA + IBAMA	32	12	12			days	250	6.000						6.000	
Simultaneous translation	21	1	1			est	3.500	7.000						7.000	
Local transportation	22	1	1			est	2.250	4.500						4.500	
Associated counterpart ACTO countries								374.000							374.000
Associated counterpart ACTO/PS								36.000						36.000	
Activity 2.3. Fully operate National Observation Rooms								2.538.200	191.800	361.200	0		553.000	247.600	1.737.600
National Technical Coordinator	111	28	56			man/month	3.000	252.000	84.000	168.000			252.000		
National Technical Assistant	112	28	49			man/month	2.500	192.500	70.000	122.500			192.500		
National GIS Analyst	113	28	49			man/month	600	46.200	16.800	29.400			46.200		
Regional Technical Coordinator	122	4	9			man/month	5.000	65.000					-	65.000	
Regional Administrative Manager	124	4	10			man/month	4.000	56.000					-	56.000	
National tickets	31	21	49			un	300	21.000					-	21.000	
National per diems	32	84	196			days	150	42.000					-	42.000	
Broadband services	23	35	70			month	500	52.500	17.500	35.000			52.500		
Supplies for the functioning of the Rooms	54	35	63			month	100	9.800	3.500	6.300			9.800		
Associated counterpart ACTO countries								1.737.600							1.737.600
Associated counterpart ACTO/PS								63.600						63.600	

Monitoring deforestation, logging and land use change in the Pan Amazonia Forest																
Outputs / Activities	Budget Component	Quantity				Units	Unit Cost US$	Total cost US$	ITTO					(EA) ACTO	Countries
		Year 1	Year 2	Year 3	Year 4				Year 1	Year 2	Year 3	Year 4	Sub total		
Output 3. Functioning of a Four-year Forum for the Concerted Development of the Project								**1.125.800**						**265.000**	**860.800**
Activity 3.1. Participatory planning, forum agenda and logistics								1.125.800						265.000	860.800
Materials to support Regional Coordinating Unit	58	12	12	6		month	1.000	30.000						30.000	
Associated counterpart ACTO countries								860.800							860.800
Associated counterpart ACTO/PS								235.000						235.000	

Monitoring deforestation, logging and land use change in the Pan Amazonia Forest																
Outputs / Activities	Budget Component	Quantity				Units	Unit Cost US$	Total cost US$	ITTO					(EA) ACTO	Countries
		Year 1	Year 2	Year 3	Year 4				Year 1	Year 2	Year 3	Year 4	Sub total		
Output 4. Project Monitoring and Administration								70.000	10.000	25.000	10.000	25.000	70.000	0	0
Activity 4.1 ITTO monitoring and review	81	1	1	1	1	unit	10.000	40.000	10.000	10.000	10.000	10.000	40.000		
Activity 4.2 ITTO mid-term evaluation	82		1			unit	15.000	15.000		15.000			15.000		
Activity 4.3 ITTO ex-post evaluation	83				1	unit	15.000	15.000				15.000	15.000		
ITTO Sub total :													**1.041.467**		
ITTO Programme Support Costs (8%)	85	1	1	1	1	unit	20.829	83.317	20.829	20.829	20.829	20.829	83.317		
TOTAL:								**6.262.784**	**641.096**	**407.029**	**30.829**	**45.829**	**1.124.784**	**1.389.600**	**3.748.400**

3.4.2. Total Consolidated budget by component

Category	Description	Total	Year 1	Year 2	Year 3	Year 4
10	***Personel***					
111	Salary - National Technical Coordinator (7 persons)	420.000	252.000	168.000		
112	Salary - National Technical Assistant (7 persons)	332.500	210.000	122.500		
113	Salary - National GIS Analyst (7 persons)	79.800	50.400	29.400		
122	Salary - EA Regional Technical Coordinator(1 person, full-time)	105.000	60.000	45.000		
124	Salary - EA Regional Administrative Manager (1 person, full-time)	88.000	48.000	40.000		
125	Salary - Permanent instructor CRA/INPE (ESP)	54.000	39.000	15.000		
126	Salary - Permanent instructor CRA/INPE (ENG)	39.000	21.000	18.000		
127	Operational technical assistant CRA/INPE	4.500	4.500			
181	Salary - National Government Forest Staff	2.841.600	730.000	854.000	628.800	628.800
182	Salary - ACTO/PS Staff	244.800	67.500	54.900	61.200	61.200
19	Subtotal	4.209.200	1.482.400	1.346.800	690.000	690.000
20	***Sub-contracts***					
21	Simultaneous translation	14.000	10.500	3.500		
22	Local transportation	16.500	14.250	2.250		
23	Broadband service Observation Rooms	56.000	21.000	35.000		
24	Consultant to support formulation of Plans	28.000	28.000			
25	Translation of teaching materials from Port. and Span. into Eng.	12.500	12.500			
26	Physical space for instalation to project (cost of reforms)	80.000	80.000			
28	Services for National Workshops	1.500	1.500			
29	Subtotal	208.500	167.750	40.750	-	-
30	***Duty travel***					
31	Flight ticket	214.500	131.100	51.400	16.000	16.000
32	Per diem	444.500	266.850	93.650	42.000	42.000
39	Subtotal	659.000	397.950	145.050	58.000	58.000

continue ...

continue …

Category	Description	Total	Year 1	Year 2	Year 3	Year 4
40	***Capital items***					
41	Server National Observation Rooms	31.500	31.500			
441	Computers National Observation Rooms	48.000	48.000			
442	Printers National Observation Rooms	8.000	8.000			
443	Plotter Observation Rooms	14.000	14.000			
45	Furniture National Observation Rooms	30.800	30.800			
46	Video conference equipment Observation Rooms	50.000	50.000			
49	Subtotal	182.300	182.300	-	-	-
50	***Consumable items***					
53	Basic services (Energy)	86.400	21.600	21.600	21.600	21.600
54	Installation supplies Observation Rooms and Supplies for the functioning of the Rooms	12.367	6.067	6.300		
58	Materials to support Regional Coordinating Unit and for courses	40.500	22.500	12.000	6.000	
59	Subtotal	139.267	50.167	39.900	27.600	21.600
60	***Miscellaneous***					
61	Estimated physical space rental project installation and maintenance services and office equipment.	691.200	172.800	172.800	172.800	172.800
62	ACTO Audit cost	20.000	5.000	5.000	5.000	5.000
69	Subtotal	711.200	177.800	177.800	177.800	177.800
80	***Project Monitoring and Administration***					
81	ITTO monitoring and review	40.000	10.000	10.000	10.000	10.000
82	ITTO mid-term evaluation	15.000		15.000		
83	ITTO ex-post evaluation	15.000				15.000
85	ITTO Programme Support Costs (8%)	83.317	20.829	20.829	20.829	20.829
89	Subtotal	153.317	30.829	45.829	30.829	45.829
100	***GRAND TOTAL***	***6.262.784***				

3.4.3. ITTO budget by component

Category	Description	Total	Year 1	Year 2	Year 3	Year 4
10	***Personel***					
111	Salary - National Technical Coordinator (7 persons)	420.000	252.000	168.000	-	-
112	Salary - National Technical Assistant (7 persons)	332.500	210.000	122.500	-	-
113	Salary - National GIS Analyst (7 persons)	79.800	50.400	29.400	-	-
19	Subtotal	**832.300**	512.400	319.900	-	-
20	***Sub-contracts***					
23	Broadband service Observation Rooms	56.000	21.000	35.000	-	-
29	Subtotal	**56.000**	21.000	35.000	-	-
40	***Capital items***					
45	Furniture National Observation Rooms	30.800	30.800	-	-	-
46	Video conference equipment Observation Rooms	40.000	40.000	-	-	-
49	Subtotal	**70.800**	70.800	-	-	-
50	***Capital items***					
54	Installation supplies Observation Rooms and Supplies for the functioning of the Rooms	12.367	6.067	6.300	-	-
59	Subtotal	**12.367**	6.067	6.300	-	-
80	***Project Monitoring and Administration***					
81	ITTO monitoring and review	40.000				
82	ITTO mid-term evaluation	15.000				
83	ITTO ex-post evaluation	15.000				
85	ITTO Programme Support Costs (8%)	83.317				
89	Subtotal	**153.317**	***Note: This amount will not be disbursed to the EA, but will be retained by ITTO***			
100	***GRAND TOTAL***	**1.124.784**				

3.4.4. Executing Agency (ACTO) budget by component

Category	Description	Total	Year 1	Year 2	Year 3	Year 4
10	**Personel**					
122	Salary - EA Regional Technical Coordinator	105.000	60.000	45.000		
124	Salary - EA Regional Administrative Manager	88.000	48.000	40.000		
125	Salary - Permanent instructor CRA/INPE (ESP)	54.000	39.000	15.000		
126	Salary - Permanent instructor CRA/INPE (ENG)	39.000	21.000	18.000		
128	Operational technical assistant CRA/INPE	4.500	4.500			
182	Salary - ACTO/PS Staff	244.800	67.500	54.900	61.200	61.200
19	Subtotal	**535.300**	240.000	172.900	61.200	61.200
20	**Sub-contracts**					
21	Simultaneous translation	14.000	10.500	3.500	-	-
22	Local transportation	16.500	14.250	2.250	-	-
24	Consultant to support formulation of Plans	28.000	28.000	-	-	-
25	Translation of teaching materials from Port. and Span. into Eng.	12.500	12.500	-	-	-
28	Services for National Workshops	1.500	1.500	-	-	-
29	Subtotal	**72.500**	66.750	5.750	-	-
30	**Duty travel**					
31	Flight ticket	166.500	131.100	35.400	-	-
32	Per diem	318.500	266.850	51.650	-	-
39	Subtotal	**485.000**	397.950	87.050	-	-

continue ...

continue ...

Category	Description	Total	Year 1	Year 2	Year 3	Year 4
40	***Capital items***					
41	Server National Observation Rooms	31.500	31.500	-	-	-
441	Computers National Observation Rooms	48.000	48.000	-	-	-
442	Printers National Observation Rooms	8.000	8.000	-	-	-
443	Plotter Observation Rooms	14.000	14.000	-	-	-
46	Video conference equipment Observation Rooms	10.000	10.000			
49	Subtotal	**111.500**	111.500	-	-	-
50	***Consumable items***					
53	Basic services (Energy)	9.600	2.400	2.400	2.400	2.400
58	Materials to support Regional Coordinating Unit and for courses	40.500	22.500	12.000	6.000	-
59	Subtotal	**50.100**	24.900	14.400	8.400	2.400
60	***Miscellaneous***					
61	Estimated physical space rental project installation and maintenance services and office equipment.	115.200	28.800	28.800	28.800	28.800
62	ACTO Audit cost	20.000	5.000	5.000	5.000	5.000
69	Subtotal	**135.200**	33.800	33.800	33.800	33.800
100	**GRAND TOTAL**	**1.389.600**				

3.4.5. ACTO Member Countries budget by component

Category	Description	Total	Year 1	Year 2	Year 3	Year 4
10	***Personel***					
181	Salary - National Government Forest Staff	2.841.600	730.000	854.000	628.800	628.800
19	Subtotal	**2.841.600**	730.000	854.000	628.800	628.800
20	***Sub-contracts***					
26	Physical space for instalation to project (cost of reforms)	80.000	80.000	-	-	-
29	Subtotal	**80.000**	80.000	-	-	-
30	***Duty travel***					
31	Flight ticket	48.000		16.000	16.000	16.000
32	Per diem	126.000		42.000	42.000	42.000
39	Subtotal	**174.000**	-	58.000	58.000	58.000
50	***Consumable items***					
53	Basic services (Energy)	76.800	19.200	19.200	19.200	19.200
59	Subtotal	**76.800**	19.200	19.200	19.200	19.200
60	***Miscellaneous***					
61	Estimated physical space rental project installation and maintenance services and office equipment.	576.000	144.000	144.000	144.000	144.000
69	Subtotal	**576.000**	144.000	144.000	144.000	144.000
100	***GRAND TOTAL***	***3.748.400***				

3.5. Assumptions, risks and sustainability

3.5.1. Assumptions and risks

Certain assumptions are made to build the rationale and the strategy necessary to produce the prospective outcomes:

- Better governance on deforestation, land tenure, land use change and logging in the Pan Amazonian can be achieved by adopting modern technologies already available for monitoring forest cover extension and change.
- Remote sensing forest cover monitoring systems and technologies are already available and national plans, adequately developed by all ACTO country member, can promote its adoption, dissemination and effective use.
- A concerted action involving all institutions responsible for the monitoring and management of the Amazonian regions in each ACTO country member leads to the development of national plans.
- The coordination of meetings involving all decision making representatives from all ACTO country members, well organized training sessions, the creation of the essential infra-structure and the harmonization of capacity building activities and workshops create the essential conditions for the successful implementation of the national plans.
- Workshops and meetings involving representatives from all ACTO member countries, focused on the development of forest cover monitoring systems, promotes the sharing of expertise and experiences and creates a forum for continuous education and improvement on quality and capacity building regarding forest management and C&I.

The main risk menacing the project is not promoting the necessary and right environment in all ACTO member countries to lead to an internally consensual national plan. All efforts will be made to involve the main decision makers in each country, supported by the best regarded experts and most prominent government managers. The sustainability of the project is taken into consideration since its inception, and is promoted by training people in each ACTO member country, capacitating national coordinators, creating the basic infra-structure and enhancing the technical and professional skills available in local institutions.

A more detailed appreciation of risks and mitigation strategy is presented on Table 4

Table 4: Risks and mitigation

	Risk	Probability and mitigation considerations
1	Governments are not committed with the implementation of national forest cover monitoring systems.	Low – the system is necessary for the implementation of the National Forest Policies.
2	National institutional coordination is insufficient for the system operation.	Low – the institutional arrangements required for the system operation are simple and have low implementation costs. The System Implementation Plan will also contribute to identify the most efficient coordination activities.

3	**Insufficient commitment with the operation of harmonized forest cover monitoring systems for the Amazon**	**Low – specific mandates were issued to ACTO/PS to facilitate the operation of harmonized systems and for the application of C&I for sustainable forest management in the Region.**
4	**Insufficient human resources for systems operations.**	**Medium – one of the key aspects that has to be observed during the preparation of the System Implementation Plans is to identify the availability of human resources and how to maximize the participation of the current staff in the system operations.**
5	**Unavailability of technical resources from INPE to share knowledge regarding forest cover.**	**Low – INPE is already committed with Project implementation.**
6	**Differences in technology platforms available for forest cover monitoring among ACTO Countries.**	**Low – This aspect was initially identified during Panamazonia II. Possible differences regarding the technology platform available in Colombia has to be checked.**
7	**Expressive differences in implementation schedule among countries impacts the core project.**	**Medium – the project requires a strong interaction with national forest authorities in order to avoid expressive differences in terms of implementation timeline.**

3.5.2. Sustainability

Given the focus on people and local institutions already engaged in monitoring activities in each ACTO member country, the sustainability of activities after project completion will be obtained due to the independence each observation room and team will obtain.

The project works in two key aspects that are relevant for sustainability: (a) institutionalization of the process and routines to adopt specific C&I for decision making regarding sustainable forest management, that in long term could guarantee the system functional and operational; and (b) the participation of key organizations, with specific responsibilities in the system operation as part of their operational routines, that will reduce the operation costs. Based in the Brazilian experience, the system operation cost is low and it is mainly dependent to the action of human resources. In terms of technology and equipment, during the preparation phase ACTO identified that there is no obstacle for the system implementation and that the institutional framework for system operations already exist in ACTO Member Countries. Otherwise, investments have to be done in training, planning, monitoring, evaluation and giving direct support to Forest Authorities in the project implementation.

Considering, that for the system institutionalization and for the project execution it is important to have permanent actions at the national levels, in permanent interaction with the Forest Authorities, an operation unit will be installed in the Forest Directions and will be coordinated by the Forest Director with the support of a long term consultant during 27 months. The last 9 months of the project timeline will be executed without intensive support as a test of the system sustainability.

Part IV – Implementation Arrangements

4.1. Organization structure and stakeholder involvement mechanisms

4.1.1. Executing agency and partners

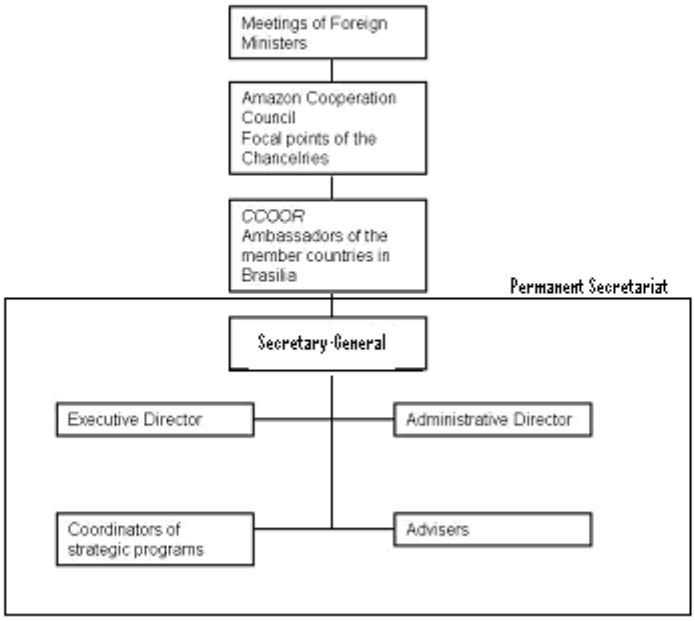
The ACTO is a supra-national organization established in 2003. Its origin lies in the Amazon Cooperation Treaty of 1978 whose signatories are eight of the nine Amazon Basin countries (Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela). The creation of the Permanent Secretariat of the Amazon Cooperation Treaty Organization in 2003 was recognition of the political priority given to the integration and sustainable development of the region by the member countries as well as the importance of having a supranational body with the legitimacy to act as 'facilitator' of regional dialogue and of the search for sustainability. Its strategic mention at different Presidential Meetings of the countries of the basin is a reflection of an important political moment where, with leadership from executive authorities, it is possible to catalyze important transformations towards these objectives.

The creation and operation of ACTO also represents a milestone in the recognition of the importance of sustainability and of the implementation of a development model for the Amazon region that has as essential elements the protection of natural resources, especially biodiversity, water, culture, improvement in the quality of life of the region's inhabitants and the just distribution of benefits from the forest. This recognition has been consolidated through the organization's mandates, found in its Strategic Plan 2004-2012. If on one hand the ACTO originated in the Chancelleries of the member countries, thanks to whom it has been possible to make real the Amazon Cooperation Treaty, on the other hand the commitments made by the member countries and the ACTO mandates prioritize the participation of diverse actors of Amazonian society as an essential element to achieve sustainability, such that its action is not restricted to governmental action.

The creation of the ACTO seeks to occupy spaces in regional action with a focus on the Amazon region without intending to substitute any multilateral organization present. The ACTO seeks to operate as an instrument of political cooperation and agreement between the member countries, creating synergies with these organizations and supporting the execution of programs and projects related to its mandate. Taking advantage of institutional capital available in the region and the maximization of benefits that can be gained through coordinated action and by the construction of alliances, and taking advantage of individual potential are considered principles of action. Its operational function and at the same time its character as a permanent consultation forum, makes it a privileged space where at the same time one can construct consensus at the highest political level and at the society's foundations and at all the intermediate levels. This privileged function is made concrete when we consider that the ACTO can support and execute actions (projects and programs) implementing and promoting policies for sustainability.

ACTO' mission is to support the process of integration and sustainable development of the region, which should be directed by i) strengthening or creation of technical and financial mechanisms and instruments to this end; (ii) the active participation of its members and regional and local actors in the search for and implementation of solutions; (iii) striving for an equitable distribution of the benefits that may be generated; and (iv) increased negotiation capacity of the member countries in themes of regional interest.

ACTO Organization chart



Projects conducted in the last 3 years

Project	Source of funds
Biotrade Programe Preparation	United Nations Foundation and United Nations Trade and Commerce Organization – UNCTAD
Conservation of the Amazonian Rain Forest	German Cooperation Agency – GTZ
Getting to Know the Amazon, Acto and the Youth in the Foot Steps of Orellana	Private sector investors and Peruvian, Ecuadorian and Brazilian Governments
Global Environmental Outlook – GEO Amazonia	United Nations Environment Program – UNEP
Integrated and Sustainable Management of Transboundary Water Resources in the Amazon River Basin	Global Environment Facility – GEF
Mechanism Proposal for Civil Society Participation at ACTO Structure	Latin America Future Foundation – FLA IUCN
National Forestry Programs Dialog – PUEMBO II	Dutch Agriculture Ministry and German Cooperation Agency
Protected Areas Project Preparation	World Wildlife Fund – WWF and French Technical Cooperation – CIRAD
Regional Action Plan Preparation for the Prevention and Control of Mercury Contamination in the Amazon Ecosystems	US HUB Program
Strengthening the Joint Regional Management for the Sustainable Use of the Amazonian Biodiversity	Inter-American Development Bank – IDB

ACTO is currently implementing two activities of the ITTO Plan of Work for 2006-07 (one related the Forest Sector into the National Aggregated Accounts and the other related to C&I) and executed a regional workshop regarding Forest Law Enforcement and Governance.

Collaborating Agencies, Consultants and other Stakeholders

Country	Organization	Nature	Contribution	Availability of resources
Brazil	Brazilian Institute for Space Research - INPE	Governmental	Technical cooperation	Yes
	Brazilian Ministry for Environment	Governmental	Technical cooperation	Yes
	Brazilian Cooperation Agency ABC	Governmental	Technical cooperation	Yes
	Brazilian Forest Service – SFB	Governmental	Technical cooperation	Yes
Bolivia	Ministry for Rural Development, Cattle Ranching and Environment of Bolivia	Governmental	National Coordination Policy Design Decision making	Yes
	Forest Superintendence	Governmental	Information management	Yes
Colombia	Ministry for Environment, Habitation and Territory Development of Colombia	Governmental	National Coordination Policy Design Decision making	Yes
	Institute for Hydrology, Meteorology and Environmental Studies of Colombia – IDEAM	Governmental	Information management	Yes
Ecuador	Ministry for Environment of Ecuador	Governmental	National Coordination Policy Design Decision making	Yes
	Center for Integrated Studies of Natural Resources by Remote Sensing of Ecuador – CLIRSEN	Governmental	Information management	Yes
Guyana	Guyana Forestry Commission	Governmental	National Coordination Policy Design Decision making Information management	Yes
Peru	Forestry Directorate- Ministry for Agriculture	Governmental	National Coordination Policy Design Decision making Information management	Yes
Suriname	Foundation for Forest Management and Production Control of Suriname	Governmental	National Coordination Policy Design Decision making Information management	Yes
Venezuela	Ministry for Environment of Venezuela	Governmental	National Coordination Policy Design Decision making Information management	Yes
ACTO	Amazon Cooperation Treaty Organization	Governmental	Executing Agency Regional facilitation Regional policy dialogue	Yes

ACTO Infrastructure

The ACTO operates with a central office in Brasilia and can use its member countries' infrastructure. To this end the focal points are the Chancelleries of the member countries (8) with Permanent

National Commissions composed of members from diverse government and non-governmental sectors that support project implementation as appropriate with their facilities. In the case of this proposal the national forest departments and their partner institutions where appropriate, will provide national infrastructure such as remote sensing and GIS facilities.

Budget

The last two years budget is presented following:

Annual Budget US$		
	2007	**2008**
Personnel	866.316	698.606
Travel costs	37.035	37.000
Capital items	6.221	
Consumables		
Others	230.028	882.828
Projects with direct administration	2.240.000	1.450.000
Projects administrated with partners	3.750.000	4.500.000
Total	**7.129.600**	**7.568.434**

Personnel

ACTO personnel are:

(a) quantitative of experts with post-graduation degrees = 19
(b) quantitative of experts with graduation degrees = 0
(c) quantitative of middle level technicians = 3
(d) quantitative of administrative personnel = 11
(e) total number of personnel in the forestry related fields = 16

In addition ACTO works with 56 National Tasks Coordinators and 119 national focal points and consultants, one third of whom are involved in forestry activities.

4.1.2. Project management team

Supervised by the ACTO General Secretary, and the Environment Coordinator, the project management team is formed by a Regional Coordination Unit and eight national coordination units, one for each OTCA Member Country. Each one of these groups is formed by one National Coordinator, one Technical Coordinator.

4.1.3. Project steering committee

The Project Steering Committee members and functions are described in 3.2 (page 34).

4.1.4. Stakeholder involvement mechanisms

The development of a regional information system for monitoring of the Forest Cover and the promotion of a mechanism to institutionalize sub-regional dialogue are priority actions. The current proposal is a response to the decision made by the forest authorities in each ACTO Member Country, which was also incorporated by ACTO Members in the global dialogue processes regarding forests. **Table 3** presents a chart to illustrate the regional political participation of ACTO Member Countries stakeholders.

4.2. Reporting, review, monitoring and evaluation

Project progress reports
National coordinators will provide concise quarterly reports for internal management purposes. ACTO with the support of the National Coordinators will prepare and submit project semester progress reports integrating reports prepared by the national coordinators. Financial reports will be prepared monthly for internal management purposes and a summary provided with the semester progress reports.

Project completion report
ACTO will prepare and submit the project completion report to ITTO within 2 months of project completion.

Project technical reports
The principal technical document this project will generate is a report on information systems for forest cover indicator(s). ACTO will submit this document to ITTO with the project completion report. In addition, ACTO will make available to ITTO and other interested parties any other relevant reports generated as a result of the project.

Monitoring, review and steering committee visits
The project steering committee will meet **at least one a year** to ensure that progress is frequently monitored. **Regional** and national coordinators will have parallel sessions to share national experiences and identify successful approaches.

Evaluation
The project will be subject to a **midterm and one** ex-post evaluation in accordance with Guidelines established by the ITTO Manual of Project Monitoring, Review and Evaluation.

4.3. Dissemination and mainstreaming of project learning

4.3.1. Dissemination of project results

For the system institutionalization it is important to have permanent interaction with the Forest Authorities. This is considered an essential element of the project and, therefore, the dissemination of project results will be stimulated through the constant interactions with an operation unit to be installed in the Forest Directions coordinated by the Forest Director of each Country.

4.3.2. Mainstreaming project learning

The project involves innovation and the application of advanced technology that are new to most of ACTO Country Members. The involved Countries will be developing, sharing experiences and testing scientific methods that will improve governance not only internally but also regionally.

The Project will facilitate the transfer of methods to monitor deforestation areas in a regional scale and on a cooperative basis. The procedures follow the method used by PRODES Digital and DETER projects performed by INPE, including specific improvements that resulted in a new designation: Panamazonic Method.

The sources of information are images collected by TERRA Polar Platform through the MODIS Sensor, with the database to which all images are referred being ortho-rectified by GEOCOVER mosaics of 2000 & 2005 generated by NASA&USGS from the ETM+ Sensor onboard the LANDSAT-7 Satellite. TERRA-MODIS and GEOCOVER are available at no costs. Further WFI images provided by the CBERS satellites are available at no costs as well. Large field images with moderate ground resolution and high temporal recovering (on a daily basis) such as MODIS frames are very appropriated to these kinds of studies and will be used.

The high positioning level that was obtained through the application of SPRING-georeferencing routines (software developed by INPE) to MODIS is other important reason to be considered when monitoring such wide regional domain as the Panamazonia. Accuracy lays within a pixel anywhere the measurements are made. To separate the eight themes of the legend, the method makes use of the Linear Spectral Mixture Model to generate the fraction images to reduce the data volume and also to enhance the specific ground targets. According to the Model, vegetation fraction can be used for analyzing vegetation condition, soil fraction shows the non vegetated areas, and shade fraction highlights the water bodies, burned areas and also discriminates the forest and non forested areas.

The procedures of photo-interpretation are based on a special routine available in SPRING known as Raster Edition. The routine allows the analyst to edit the interpretation directly in the display of the monitor. Within these parameters the method can be applied to measure any area or target of the planet as long as images free-of-clouds are available. An example ot these wide-world capability was the measurements undertaken by the Panamazonia Project II over the Amazon and the Nile rivers. They were selected because they are the longest rivers yet mapped through traditional methods. The results indicate that measurements obtained through MODIS and GEOCOVER match quite well as they lay within a linear error smaller than a MODIS pixel (250 meters) for a distance greater then 6900 kilometers.

References

RAISG, 2009 Red Amazónica de Información Socioambiental Georreferenciada (http://raisg.socioambiental.org/node/106)

Humberto Gómez & Saúl Cuéllar, Fundación Amigos de la Naturaleza – FAN/Bolivia

Annex 1 – Tasks and responsibilities of experts from EA

Regional coordinator (ACTO totally funded)
Regional coordinator will be engaged at ACTO to manage project implementation, closely with ACTO authorities and national coordinators.
Experience:
The regional coordinator will have relevant experience in project management and sustainable forest management. He or she should have excellent communication skills and have experience in managing financial resources. A minimum professional experience of 10 years is required.
Duties:
1. To identify, liaise with and facilitate the active participation of appropriate national stakeholders in the planning, implementation and monitoring of the project.
2. To prepare project annual operational plans and the corresponding annual budgets.
3. To ensure the timely achievement of the Project Results and Objectives.
4. To prepare project reports.
5. To administer project financial resources at national level.
6. To ensure widespread public awareness of the project and its results.
7. To report to the national coordinators
8. To interact with National Coordinator through ACTO official channels.

Length of work: 48 months (hired on full-time basis)
Total Cost: Included in ACTO contribution

Annex 2 – TORs of personnel, consultants and sub-contracts

National Project Coordinator (ITTO partially funded)
The National Technical Coordinators will be nominated by each country to take overall responsibility for project implementation in their respective country.
Duties:
1. To supervise the national consultant and take action necessary to ensure the timely, effective and efficient achievement of project results.
2. To report on national progress (technical and financial).
3. To submit national annual operational plans and budgets.
4. To liaise with the OTCA for effective project execution and administration and to participate in the Steering Committee.

Length of work: 8 months per Country over a span of 4 years
Total cost: U$ 223.179
(7) Seven National Project Coordinators (one/Country) x (2) Months x (4) Years x U$ 4000

National Project Assistant (ITTO partially funded)
The National Assistant will be nominated by each country to support the implementation of the project.
Duties:
1. Take action necessary to ensure the timely, effective and efficient achievement of project results.
2. Support the National Coordinator on elaborating progress reports (technical and financial).
3. Be responsible for all administrative and logistic work necessary to implement the project.

Length of work: 5 months over a span of 4 years per Country
Total cost: U$ 86.154
(7) Seven National Project Coordinators (one/Country) x (1,23) Months x (4) Years x U$ 2500

National Data Processing Assistant (ITTO partially funded)
The National Data Processing Assistant will be nominated by each country to support the implementation of the project.
Duties:
1. Support the National Coordinator and National Assistant on maintaining all databases, software and hardware related to the project.

Length of work: 5 months over a span of 4 years per Country
Total cost: U$ 62.031
(7) Seven National Project Coordinators (one/Country) x (1,23) Months x (4) Years x U$ 1800

Executing Agency Regional Assistant (ITTO partially funded)
Will support the Regional Coordination in technical and administrative issues related to the Project implementation.
Experience:
The regional assistant will have experience in project implementation and forest issues. To have excellent communication skills is desirable. A minimum professional experience of 3 will be required.
Duties:
1. Collaborate in the project implementation;
2. Prepare reports and technical and administrative documents;
3. Assist the monitoring and evaluation tasks;
4. Support the preparation of Terms of Reference and other relevant documents required;
5. Support the communication between the Regional and National levels;
6. Support National Coordinators in the interaction with INPE; and
7. Other required activities.

Length of work: 8 months over a span of 4 years
Total Cost: U$ 31.883
(1) EA Regional Project Assistant x (2) Months x (4) Years x U$ 4000

Regional Coordinator

Regional coordinator will be engaged at ACTO to manage project implementation, closely with ACTO authorities and national coordinators.

Experience: The regional coordinator will have relevant experience in project management and sustainable forest management. They should have excellent communication skills and have experience in managing financial resources. A minimum experience of 10 years professional is required.

Duties:

1. To identify, liaise with and facilitate the active participation of appropriate national stakeholders in the planning, implementation and monitoring of the project.
2. To prepare project annual operational plans and the corresponding annual budgets.
3. To ensure the timely achievement of the Project Results and Objectives.
4. To prepare project reports.
5. To administer project financial resources at national level.
6. To ensure widespread public awareness of the project and its results.
7. To report to the national coordinators
8. To interact with National Coordinator through ACTO official channels.

Length of work: 48 months (on full time basis)

Total Cost: Included in ACTO contribution

Regional Assistant

Will support the Regional Coordination in technical and administrative issues related to the Project implementation.

Experience:

The regional assistant will have experience in project implementation and forest issues. To have excellent communication skills is desirable. A minimum professional experience of 3 will be required.

Duties:

1. Collaborate in the project implementation;
2. Prepare reports and technical and administrative documents;
3. Assist the monitoring and evaluation tasks;
4. Support the preparation of Terms of Reference and other relevant documents required;
5. Support the communication between the Regional and National levels;
6. Support National Coordinators in the interaction with INPE; and
7. Other required activities.

Length of work: 48 months

Total cost: US$2.500/month

Consultant with national experience on processing remote sensing data

Knowledge regarding the functioning and operation of Governmental Institutions is required, with special emphasis in the Forest Sector. Will be in charge of the national operations and will support the National Coordinator, including the procedures and interaction with ACTO and the other countries.

Experience:

The consultant will be a professional with experience in project implementation. A minimum experience of 5 years on project implementation is required.

Duties:

1. To support the integration of the project actions with relevant ACTO regional programmes.
2. To support the effective knowledge sharing relevant outputs with other ACTO Countries.
3. To support the interaction and coordination with national stakeholders.
4. To support the design, implementation and monitoring of mechanisms for effective communication within national stakeholders.
5. To prepare documents and reports required.
6. To support planning and holding of project events such as regional workshops and steering committee meetings.

Length of work:

One closer to the ACTO Regional Coordinator: 21 months over a span of four years

One per country to work closer to the National Coordinator: 3 months over a span of four years

Total cost: US$4.000/month/consultant

Consultant on adaptive project management and planning

A consultant from ACTO member countries is required to assist on the coordination of multiple workshops and events organized to produce National Plans for the development of Monitoring Systems in each involved country.

Experience:

The specialist will be a professional from ACTO member countries with relevant experience in large scale forest projects and adaptive project management. A minimum experience of 5 years related to the implementation of Governmental projects is required and fluency in Portuguese, Spanish and English is required.

Duties:

1. To analyze the project particularities.
2. To study the Brazilian real time monitoring system and to identify key lessons learned.
3. To interact with the Brazilian Space Research National Institute (INPE) to identify methodology guidelines.
4. To elaborate a methodology for the development of national plans and the main guidelines to be taken into account.

Length of work: 12 months over a span of four years

Total cost: US$10.000/month

Consultants with international experience on training and processing remote sensing data

Independent consultants will be engaged by the Executing Institution to act as instructors and to disseminate public domain systems and routines to process remote sensing data developed by the Brazilian Space Research National Institute (INPE).

Experience:

The consultants will be professionals with experience in monitoring the Amazonian forests and in teaching and disseminating remote sensing data analysis methods. A minimum experience of 5 years on related issues is required.

Duties:

1. To organize training sessions and provide classes that will disseminate current technologies developed by the Brazilian Space Research National Institute (INPE)
2. To provide essential information regarding INPE´s real time monitoring systems, identifying key lessons learned, during meetings and workshops.
3. To interact with the Brazilian Space Research National Institute (INPE) and other National Institutions with similar duties to identify gaps and methodology guidelines.
4. To support the development of national plans and provide main guidelines on preparing National Forest Cover Monitoring Systems.

Length of work: 14 months over a span of four years

Total cost: US$ 6.000/month

ANNEX 3: AMENDMENTS IN REPONSE TO ITTO REVIEWER RECOMMENDATIONS

Reviewer´s Comment	Amendments incorporated into the Proposal
Comment 1: The REDDES Autumn 2009 call for proposals explicitly requested to address the relevance of any proposal to REDDES programme. The project is clearly in line with the REDDES scope and objectives, but needs to elaborate in detail on this aspect.	Section 1.2.3. (Relevance to ITTO REDDES Thematic Program) was included on page 11.
Comment 2: The implementation approaches and methods section is lacking. It can partially be derived from other sections, e.g. the work plan, but needs to be clearly elaborated.	Missing text in Section 3.2 (Implementation approach and methods) was included on pages 32-33.
Comment 3: The detailed methodology and strategy across the countries will be coordinated during a workshop to be held in the first quarter of Year 1. This item could be addressed more comprehensively.	More details about the workshop were included in the description of Activity 1.1. (Methodology and strategy coordination workshop) on page 29.
Comment 4: The proponent must re-incorporate the original strategy as described in PD 515/08 Rev.1 (F) under point 3.2, this has currently been left blank.	Missing text in Section 3.2 (Implementation approach and methods) was included on pages 32-33.
Comment 5: Workplan and budget are presented in a detailed and logic manner. However, it was noted that while Output 2 National Plans continued to be mentioned in the LFW, the related activities had been deleted from the workplan originally contemplated in PD 515/08 Rev.1 (F).	Activities 2.1, 2.2, 2.3 and 2.4, related to Output 2, now appear in the right order and highlighted in the work plan on page 34. Actually, when compared to PD515/08, this proposal expands the number of activities to four, including two new activities: Setup of one National Observation Room in each Country; and the renewal of an INPE Laboratory for Training and Supporting activities. All four activities related to Output 2 are listed on pages 30-31. The budget for these activities, though, is expected to be funded by another source (not ITTO) and is presented in Table 3.4.4. (Master Budget 4 – budget schedule from OTHER funding sources), page 38.
Comment 6: The budget tables are inconsistent (i.e. Table 3.4.1 has a total of $60,000 for independent midterm and ex-post evaluations, while Table 3.4.6 only requires $30,000 for the same item). The tables need more detail for the ITTO component, particularly ITTO M&E and Programme Support costs. The proposal should preferably revert to the level or detail presented in PD 515/08 Rev.1 (F), .e.g: - there should be 3 intermediate and 1 final report - are national consultants needed only in yr 1? - are office supplies needed only in yr 1? - the brackets added in the position “consulting fees” (per day, per month) are often incorrect - it should be made clear that 3.4.6 refers to the ITTO budget Annexes 1 to 3 must be reviewed according to the Manual for project formulation.	Table 3.4.6. (Project budget by component) on page 43 requires $30.000 on year 2 and again on year 4 (total = $60.000); and is consistent with information provided in Table 3.4.1. (page 35). Regarding ITTO monitoring, evaluation and Program Support costs, national consultants and office supplies, it is important to consider the integration of the ITTO budget with the ACTO counterpart commitment. This commitment is estimated in $321.174 and includes the salaries of the regional project coordinator, the administration officer and the acquisitions officer; external auditing services; communication; reporting; mail; courier; copying; website and media. Because several reports and team work involving many experts from several research institutes and academia is expected, M&E activities were concentrated and downsized to happen in the most relevant moments of the project. So, although seemingly downsized to only two external and independent midterm and ex-post evaluations, these M&E activities are complemented by adequate peer

Reviewer´s Comment	Amendments incorporated into the Proposal
	reviewing and sufficient resources. The incorrect information regarding consulting fees was deleted (pages 40, 42, 44 and 47). On page 44, Table 3.4.6 title was changed to explicitly indicate that it refers to ITTO budget. Manual guidelines for Annexes 1-3 were followed.
Comment 7: The work plan should name the responsible party.	Responsible parties were included in the Work Plan (page 35)
Comment 8: As for the environmental, social and economic effects, the information provided highlights the great importance of remote sensing and satellite technology provided by the project for the area, but in very general terms. This needs to be elaborated more explicitly in more detail. Again, the proposal should preferably just insert the text originally presented under this heading in PD 515/08 Rev.1 (F)	Pages 15 to 16 now incorporate more elaborated comments on social, environmental and economic aspects.
Comment 9: The section on quantitative indicators can be improved, as no measurable indicators are currently mentioned in the LFW. PD 515/08 Rev.1 (F) had more precise indicators and means of verification.	List of indicators in the LFW presented on page 27 was re-elaborated based on PD 515/08.
Comment 10: It is essential that the proposal reincorporates the several aspects and considerations that were included in PD 515/08 Rev.1 (F), but were left out when transforming the proposal into the format required under the Thematic Programmes.	Several aspects and considerations included in the previous version of the project [PD 515/08 Rev.1 (F)] were re-introduced to address this comment and many others in this list. All inclusions can be found highlighted and underlined in the text.
Comment 11: To further increase cost–effectiveness, the proponent should consider that some of the tasks might be handled by locals rather than international consultants, (e.g. preparation of a report under the activity “project monitoring and administration”)	As explained on Comment 6, monitoring and evaluation activities were downsized to occur in the most relevant moments of the project. So, there will be only two external and independent midterm and ex-post evaluations coordinated by international consultants. These M&E activities are complemented by adequate peer reviewing and sufficient resources coordinated by locals.
Comment 12: Although obviously there has been intense stakeholder consultation and involvement in the proposal development, this is not elaborated in the proposal. Please include details.	Section 2.1.2. (Stakeholder analysis) includes now more details (pages 24-25).
Comment 13: The proposal needs to explain, how the project will build upon the experience made and lessons learnt in the PANAMAZONIA I project and what is the value-added of the PANAMAZONIA II	More details on how phases I and II of the Panamazonia initiative are integrated are presented on pages 8 and 9, under section 1.1. (Origin).
Comment 14: The project design should elaborate more on (a) the precise objectives of monitoring, (b) how the outputs contribute to concrete actions to enhance governance on forest management and (c) how the project can mitigate the involved risks.	A new paragraph on page 26 was included to elaborate better on (a) the precise objectives of monitoring and (b) how the outputs contribute to concrete actions. A more detailed appreciation of risks and mitigation is presented on Table 4 (page 49).
Comment 15: The methodological approach should elaborate more on how the process of coordination	Details on how the coordination among the 8 participating countries is organized were included on

Reviewer´s Comment	Amendments incorporated into the Proposal
among the 8 participating countries is organized.	Section 3.2. (Implementation approach and methods), pages 33-34.
Comment 16: The indicators do not include any qualitative or quantitative criteria or any time-line when the outputs will be achieved.	Indicators included in the logical framework matrix (page 27) for outputs 1, 2 and 3 are now measurable and time framed.
Comment 17: In general, the activities are not broken down sufficiently to allow an estimate of the required resources. Elaborate more clearly, how the capacity building measures are organized, implemented and by whom (INPE?)?	Detailed actions planned for each activity are now included on section 3.1.2. (Activities), pages 30-32.
Comment 18: Output 1 and 2 should be combined into 1. It is unclear what output 3 wants to achieve; it needs substantial revision ("spaces for regional dialogue ..... are harmonized"). An output on capacity building should be added.	Output 1 envisions a cooperative and multilateral regional effort. Output 2 orchestrates in each country the consequences of plans delivered by the first output. Therefore, outputs 1 and 2 are considered two different achievements and were maintained separate. Output 3 is better detailed on page 32 and refers to a permanent dialogue process between the authorities of the ACTO Member Countries on public policy instruments being applied in the Amazon and related topics with a view to supporting national deforestation and forest degradation policies. Dialogue will not be restricted to forest authorities and will be promoted as part of the Project, facilitated by the ACTO/PS and supported by the focal points of ACTO in their respective chancelleries. It consists of periodic videoconference sessions to address specific issues, share institutional and regulatory progress and improvements, and inform specific national experiences.
Comment 19: The sustainability of the outcomes can be more clearly elaborated.	More details on the sustainability of outcomes were added on section 3.5.2. (Sustainability), page 50.