

CHEMONICS INTERNATIONAL INC.



**PROMOTING SUSTAINABLE GROWTH AND DEVELOPMENT OF COCOA  
IN THE ANDEAN REGION**

LAC Bureau Poverty Reduction

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## ACRONYMS

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ACDI/VOCA	Agricultural Cooperative Development International and Volunteers in Overseas Cooperative Assistance
ANECACAO	The National Association of Cocoa Exporters (Ecuador)
ARD	Associates for Rural Development
CATIE	Centro Agronómico Tropical de Investigación y Enseñanza (Costa Rica)
CCN-51	
CEPLAC	Comissão Executiva do Plano da Lavoura Cacaueira (Brazil)
CGIAR	Consultative Group on International Agricultural Research
CICAD-OAS	Inter-American Drug Abuse Control Commission-Organization of American States
CORPOICA	Corporacion Colombiana de Investigacion Agropecuaria
FEDECACAO	Federation of Cocoa Producers (Colombia)
IABA	Inter-American Board of Agriculture
ICCO	Interchurch Organisation for Development Co-operation
ICRAF	International Council for Research in Agroforestry
IICA	The Inter-American Institute for Cooperation on Agriculture
IITA	International Institute of Tropical Agriculture (Nigeria)
INIA	Instituto Nacional de Investigaciones Agrícolas (Peru)
INIAP	Instituto Nacional de Investigaciones Agropecuarias
NAS	Narcotics Affairs Section – Embassy of the United States of America, Lima, Peru
PADF	Pan American Development Fund
UNDP	United Nations Development Programme
UNOCACE	Union of Rural Cacao Organizations of Ecuador
USDA	United States Department of Agriculture
USAID	United States Agency for International Development
WCF	World Cocoa Foundation

## EXECUTIVE SUMMARY

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The purpose of the assignment was to obtain a rapid assessment of the current status of the cocoa subsector in the Andean Region. The resulting information would be used by the USAID and its partners to identify activities for the launching of a regional effort to facilitate the growth and development of cocoa, and to contribute to improving farmers' income by achieving sustainable cocoa production in the region. This regional effort would also support USAID mission programs to reduce the numbers of families producing illicit crops, which would be replaced by an environmentally friendly crop grown under shade, within an agroforestry scheme that promotes biodiversity.

Cocoa was the most important crop in Latin America in the colonial period and during the first century of independence, when the region was the world's largest cocoa producer. Although growth continued into the 1990s, its market share declined. Currently, the region only produces about 15 percent of world's supply, as a result of the onset of *Monilia* and *Witche's broom*. The later destroyed of more than 50 percent of the Brazilian stock. The declining trend in Colombia and Peru, however, can also be attributed to low market prices and the increase of illicit crops in areas where cocoa was traditionally grown.

Over the last three years, prices on the world cocoa market have increased, largely due to a tightening supply-demand equation and prospects of disruptions in supply following political unrest in Côte d'Ivoire. This has led to interest in the U.S. industry to promote production in the Andean Region, especially in Ecuador, where *Arriba* flavor is classified as fine cocoa. Given the current conditions in the international cocoa market, there is potential for the Andean Region to benefit by significantly increasing its production, if low productivity resulting from the spread of diseases can be overcome.

Within this context, USAID's missions in the region expressed interest in supporting cocoa production by developing a regional structure to help producers improve their productivity through the sharing of results of scientific knowledge and technology; enhancing quality with improved post-harvest handling techniques; and facilitating the development of strong domestic markets. If production grows significantly, USAID missions and the World Cocoa Foundation (WCF) would help facilitate access to new markets within the region, the United States, Europe, and Asia.

The policy environment in the region has discouraged agricultural production, and existing policies have reduced support for research and almost completely eliminated training and extension services. However, in all countries the ministries of agriculture and other organizations in the public and private sectors still provide limited support to the cocoa subsector. This is especially true of the INIAs, which carry out research for agricultural products including cocoa. In addition, international organizations like USAID, NAS, and USDA are supporting cocoa projects through Chemonics International, Associates for Rural Development (ARD), ACDI/VOCA, and the Pan American Development Fund (PADF) within the framework of the alternative development programs in the region.

One problem in the region is the prevalence of diseases, which are a major constraint to cocoa production. The levels of infestation vary from country to country, and the main causes for the infestation and loss of productivity include the age of trees, the lack of access to technology packages, and poor farm management. Overall losses from diseases in the region are estimated at 40 to 50 percent, and extreme cases can reach 90 percent, resulting in low yields of 364.67kg/ha in Peru, 400kg/ha in Bolivia, 300kg/ha in Ecuador and 490kg/ha in Colombia.

Low quality has had a special impact in Ecuador, where the onset of *Monilia* and *Witche's broom* devastated the original stocks of *Nacional* trees, which produces the famous *Arriba* flavor. Renovation efforts resulted in lower quality cocoa beans, causing Ecuador to lose reputation in the international markets. Peru, Bolivia, and Colombia do not produce quality flavor cocoa, but local processors complain of poor quality beans due to poor post-harvest handling, resulting in low quality final products that hinder the competitiveness of the industry in the international markets.

The Andean Region has a clear opportunity to increase its cocoa production over the next 10 years without having a significant impact on the price, according to LMC International. Significant increase in production is achievable if we consider the following factors: the long tradition and culture of growing cocoa; ii) the availability of suitable land; the existence of political will and resources to support the development of cocoa as an alternative to coca; institutional and business infrastructure for local processing and exporting beans and finished goods; and availability of research organizations with the necessary scientific and technical capacity.

Ecuador has the opportunity to take advantage of research carried out by Instituto Nacional de Investigaciones Agropecuarias (INIAP) and USDA in their efforts to restore the reputation for quality and market share its cacao once enjoyed in the international markets. The country can also take advantage of emerging niches based on the consumption of dark chocolate with high contents of cacao—from 75 percent to 80 percent.

Interventions to address the problems and to capitalize on opportunities that exist in the region would have a broad-based economic impact because of the large numbers of small-scale farmers involved in the activity. Cocoa activities are estimated to involve more than 158,000 families comprised of about 800,000 people. Thus, a 50 percent increase in production could potentially involve more than 400,000 people, many of whom would switch from illicit crops across the region. However, to reach the potential beneficiaries, strong producer organizations with the potential to take ownership and provide the basis for long-term sustainability will need to be developed.

Recommendations for specific interventions include strengthening research capacity, transferring technology to farmers, and establishing a coordinating secretariat.

*Strengthen research capacity.* The research component would strengthen the capacity of national research organizations through the promotion of inter-institutional cooperation agreements and partnerships among organizations within and out of the region. The results should include: 1) evaluating, introducing, and multiplying new germplasm that can result in resistance to *Monilia* and *Witche's broom*, and higher productivity in the medium term. Priorities should be preserving

the characteristics of the *Arriba* flavor and developing sustainable agroforestry-based farming systems; 2) carrying out research aimed at improving post-harvest handling to reduce defects and improve quality, placing special emphasis on appropriate fermentation methods to improve characteristics of clones like the CCN-51. Assistance in developing quality standards and quality control mechanisms should be included; and 3) developing simple low-cost technology packages that are manageable by the farmers and their families.

*Transfer technology to farmers.* This component should be aimed at ensuring massive dissemination of the technological packages developed by the research centers. This activity could be carried out by government-sponsored extension systems, producers' organizations, USAID contractors, and other public and private organizations. These organizations, however, would use methodologies that are proven to be effective in reaching large numbers of farmers at minimum cost, while offering a high potential for adoption.

*Establish a coordinating secretariat.* This coordinating structure should become a clearing house for information and the promotion of collaboration among key players in the public and private sector at the regional level. This idea would add value to local initiatives or strategies. Tasks of the secretariat would include reviewing, evaluating and documenting relevant experiences gained by member countries and others in the world market; sharing the information among the members; assisting them in the creation of a vision for the subsector's role at the national and regional level; and designing a regional master plan aimed at addressing the problems identified in this document and the development of the cocoa subsector in the medium and long-term.

The secretariat could be located in Ecuador and would be hosted by a reputable international organization with local presence and experience in the cocoa subsector. The operations of the secretariat would be governed by a steering committee, and the day-to-day activities would be the responsibility of a regional coordinator, who would report to the representative of the hosting organization. The representative would oversee the operations by delegation of the steering committee, and would be responsible for providing technical and administrative support to the regional coordinator. Candidates for hosting the secretariat are:

- The World Agroforestry Centre, founded by the Consultative Group on International Agricultural Research (CGIAR). The center is an autonomous nonprofit research and development organization supported by more than 50 governments, private foundations, regional development banks, and the World Bank. It was founded in 1978 as the International Council for Research in Agroforestry (ICRAF).
- The Inter-American Institute for Cooperation on Agriculture (IICA), an international organization of the Inter-American System specializing in agriculture. Its mission is to provide cooperation services for agriculture and to strengthen and facilitate Inter-American dialogue. IICA's ability to play a leadership role in regional agriculture is strengthened by the participation of the ministries of agriculture of each member country who direct the organization through the Inter-American Board of Agriculture (IABA).

Financing of the secretariat would be the responsibility of the main donors, namely USAID, the U.S. chocolate industry, USDA, and in-kind contributions by the hosting organization. Initial funding would consist of funds to launch the regional initiative and the secretariat, as well as its

operations for the first three years. The estimated budget for the three years is \$600,000. During this initial three-year period the members of the steering committee, the hosting organization, and the regional coordinator would develop a strategy for financing the secretariat's operations in the long-term.



## SECTION I

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### Introduction

#### 1.1 Purpose and Scope of Work

The purpose of the consultancy was to obtain a rapid assessment of the current situation of the cocoa subsector in the Andean Region. The resulting information would be used by USAID and its partners to identify activities for the launching of a regional effort to facilitate the growth and development of cocoa, and to contribute to improving farmers' income by achieving sustainable cocoa production in the region. This regional effort would also support USAID mission programs to reduce the numbers of families producing illicit crops by promoting the production and marketing of quality cocoa by small-scale farmers. The goals of the scope of work include the following:

- A list of main institutions in the development of cocoa in the Andean Region (government agencies, NGOs, donors, producers associations, cocoa farmers, research centers).
- A review or inventory of existing projects in the Andean Region focusing on the promotion of cocoa (production, productivity, marketing, quality, etc.), including location, project components, technical staff, funding source (national, USAID, other foreign support) and amount of financing.
- Identification of major obstacles (technical and marketing) that impede cocoa growth and development in the region.
- A set of recommendations and guidelines to overcome identified obstacles. The deliverable would be a paper elaborated on the basis of the consultants' in-country experience.

The team of consultants visited the countries of Peru, Bolivia, Ecuador and Colombia from March 23 through April 11. The methodology used to carry out the activities stated in the scope of work included the gathering of information from primary sources through interviews with key informants, and from secondary sources through the review of documents provided by the interviewees and other sources identified by the consultants.

During the field work the team carried out interviews with relevant officers at the USAID missions and contractors in Peru, Bolivia and Ecuador to get their perspective regarding the situation of the cocoa subsector in their particular host country, as well as their vision for a regional support structure to promote the development of the subsector. Similar discussions were held by telephone with an officer at USAID/Colombia at a later date.

Likewise, interviews were carried out with key players in the cocoa subsector in each country, including producers' organizations, exporters and processors, government institutions, representatives of multilateral organizations, and other support organizations directly involved in cocoa related activities. A list of persons interviewed and their contact information is included as Annex 1 in this report. Important limitations to the team's field work were related to time constraints and the coincidence of the consultant's visit to

Colombia during a major religious holiday. The body of this report summarizes the findings and discusses the problems and opportunities that are common to the countries in the region. Likewise, it proposes recommendations that are applicable at the regional level. Country-specific information can be found in the country reports in Annex 2.

## **1.2. Background of the Cocoa Subsector**

Cocoa is a crop grown mainly by small-scale farmers in developing countries in tropical regions. It is the principal source of income for more than 3 million families and workers around the world, and provides an essential source of foreign exchange earning for the producing countries, according to the Interchurch Organisation for Development Co-operation. Cocoa is also considered a potentially environmentally friendly crop when grown under shade within an agroforestry scheme, which promotes biodiversity.

Cocoa is a native tree of the Latin American tropics. From its origins in Central America, the early development of cocoa as an international commodity was accompanied initially by a shift of production towards South America and to some extent the West Indies. Cocoa became the most important crop in the Latin American region – particularly Mexico, Venezuela, Ecuador, and Brazil – in the colonial period and during the first century of independence, when the region was the world’s largest cocoa producer.

In the early part of the 20<sup>th</sup> century, however, industrialization in the processing of chocolate and its subsequent rise as a popular consumer item—especially in Europe and other parts of the Northern Hemisphere—was mainly fed by the cocoa boom in Ghana. Later, stagnation in the 1970s was followed by an increased world production fueled by the growth in Cote d’Ivoire, which replaced Ghana as the largest producer. At the same time, growth in production in South-East Asia eventually pushed it past Latin America as the world’s second largest supplier of cocoa.

Even though production in Latin America continued to grow until the 1990s, its market share steadily declined, and after 1990 the volumes produced by the region fell in absolute terms. Currently, Africa produces about 65 percent of world production, South-East Asia about 20 percent, and Latin America only produces about 15 percent, down from about 25 percent in the 1990s and about 35 percent in the 1980s.

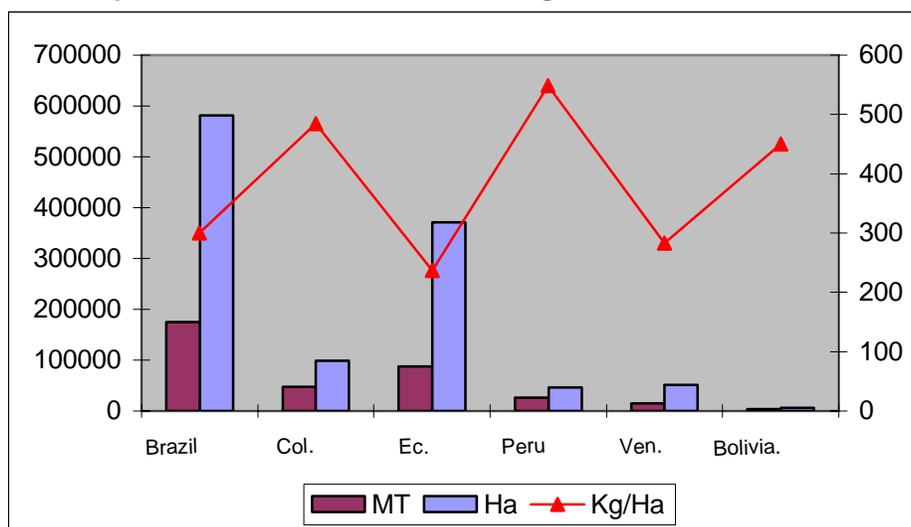
This document covers the production in four Andean countries, including Peru, Bolivia, Ecuador and Colombia. The combined production of the four countries amounts to 5.5 percent of world production, and Ecuador accounts for more than 55 percent of the region’s combined output. Table No. 1 shows comparative evolution of the aggregated cocoa production in the four Andean countries visited by the team and the world’s production from 1997 to 2003.

**Table 1. Comparative Production 1997-2003 (000s Metric Tons)**

	1997	1998	1999	2000	2001	2002	2003
<b>World</b>	2,711.9	2,689.8	2,808.2	3,061.2	2,825.1	2,782	3,056
<b>A. Region</b>	157	116	170	170	160	166	172
<b>percent of World Production</b>	5.7	4.3	6.0	5.5	5.6	5.9	5.6

Sources: SICA Project, Ecuador; individual country reports.

The main reasons for the decline include the loss of productivity associated with the onset of major diseases like Monilia and Witche's broom, which decimated cocoa trees throughout the region. This was especially catastrophic in Brazil, where Witche's broom destroyed more than 50 percent of the Brazilian stock in the 1990s. The declining trend in Colombia and Peru can be attributed in part to the increase of illicit crops in areas where cocoa is traditionally grown. Another reason was related to the low prices prevailing in the international markets. Chart No. 1 shows the comparative levels of production of five countries in the region, including Brazil and Venezuela.

**Chart 1. Comparative Production in the Andean Region in 2002**

Source: USAID/PRA

### 1.3. The International Cocoa Market

Over the last three years, the world cocoa market witnessed a period of irregular but sustained price increase, with futures prices recording 16-year highs at the end of 2003. This was largely due to a tightening of the fundamental supply-demand equation in the world cocoa market. Prospects of disruptions to the flow of cocoa following political unrest in Côte d'Ivoire also contributed to strong gains in prices. This situation presents a challenge for the chocolate industry, which is now showing considerable interest in diversifying its source of cocoa beans, and a great opportunity for producers from the Andean Region to take advantage of favorable market conditions to increase production. See paper by LMC International in Annex 3.

While the U.S. and European chocolate manufacturers would like to source cocoa from all of the Andean countries, their immediate attention is focused on Ecuador because of its

current level of exports and its ability to produce fine cocoa. In the 1990s, approximately 75 percent of the Ecuadorian production was classified as fine cocoa. Ecuador now produces 60 percent to 70 percent of its crop as Arriba fine cocoa, with small-scale producers representing 54 percent of that production, according to ANECACAO. Because of the impact of diseases and low productivity, Ecuador's cocoa exports decreased by 15 percent from 2001 to 2002. Although current yields are about 315 kg/ha, Ecuadorian farmers have the potential to produce approximately 1 metric ton per hectare, according to WCF.

Given the current conditions in the international cocoa market and the potential of the Andean Region to significantly increase production, USAID missions in the region see the cocoa subsector as a viable tool to promote broad-based economic growth and rural prosperity. Within this context, USAID missions expressed interest in developing a regional structure to help producers improve their productivity through the sharing of results of scientific knowledge and technology; enhancing quality by introducing improved post-harvest handling techniques; and facilitating the development of well-functioning domestic markets.

With the exception of Ecuador, the countries in the region are net importers of cocoa. However, as production grows and significant exportable volumes become available, USAID missions could help facilitate access to new markets within the region and the United States, Europe, and Asia to increase producers' income while reducing the number of families involved in the production of illicit crops, such as coca.

## SECTION II

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### Findings of the Field Work

#### 2.1 Institutional and Policy Environment

In general, the policy environment in Latin America and the Caribbean has discouraged agricultural production in favor of the promotion of the industrial sector. Existing policies have reduced support for research, and almost completely eliminated training and extension services for farmers. Likewise, access to financing for renovation and maintenance of plantations and other production technology has been severely curtailed. This situation has led to the spread of diseases like *Monilia* and *Witch's broom*, low productivity, and the loss of production and market share for the region.

As a result of recent gains in price, however, the prospects for profitable cacao production are more promising. Therefore, governments in the Andean Region and international donors have introduced policies and allocated resources to increase cacao production as a tool to alleviate rural poverty and to provide an alternative to illegal crops such as coca.

Although important country-specific policies are detailed in the annexes to this report, it is worth mentioning here a policy introduced by the government of Peru that imposes a tariff on imports of finished cocoa products to protect the local chocolate industry from international competition. This policy is a cause of concern for USAID/Peru.

#### 2.2 Public and Private Sector Support Organizations

In all countries, the Ministry of Agriculture carries the ultimate responsibility for the development of the cocoa subsector. In Ecuador the ministry created the Council for the Cacao Agro-Industrial Chain, which advises the ministry and helps coordinate other organizations supporting the cocoa subsector. Other public organizations include the national agricultural research centers INIAs, which carry out research for agricultural products including cocoa.

The National Association of Cocoa Exporters (ANECACAO) in Ecuador and the Federation of Cocoa Producers (FEDECACAO) in Colombia are organizations that work with the government in designing policies for the cocoa subsector in their respective countries. No similar organizations were found in Peru or Bolivia. However, the El Ceibo cooperative, whose members include most of the cocoa producers in Bolivia, could play a significant role in representing its interests in that country.

According to the respondents, in most cases the Ministry of Agriculture does not provide the necessary leadership or allocate sufficient resources for the development of cocoa support organizations, especially the research centers, which often lack the equipment and materials. Donations from such organizations as USDA are needed to carry out their work. This lack of resources hinders their ability to develop appropriate technology packages and

deliver them to the farmers. Private organizations like ANECACAO and FEDECACAO receive a percentage of the FOB price of cocoa for their operations, but these organizations do not seem to have the institutional capacity to address the needs of all their members.

### **2.3 Private Exporters and Processors**

Ecuador is the only exporter of significant quantities of cacao beans from the region and also exports manufactured products. The export of unprocessed beans is carried out by a network of about 30 companies affiliated with ANECACAO and the export of manufactured products is carried out directly by ANECACAO. The other countries in the region are producers and exporters of semi-processed and finished cocoa products.

The industries in the region are grinding smaller quantities of cocoa due to lack of productivity at the farm level, which leads to low usage of installed capacity—40 percent for El Ceibo, in Bolivia, and an average of 62 percent for the Peruvian industry. Also, the poor quality of the beans due to deficient post harvest-handling, leads to lack of competitiveness for their intermediate and finished goods in the international markets.

### **2.4 Intermediaries and Producers' Organizations**

As with other commodities, the intermediaries play an important role in moving the product up through the productive chain and offer other services as drying, transport, and, in some cases, financing for the producers. However, there are cases where the number of layers of intermediation can reduce the profitability of the activities, especially for the farmers, as it was reported in Peru, or become the agents of monopolistic buyers to artificially depress farm gate prices, as reported by FEDECACAO in Colombia.

Of the major producer-based organizations analyzed by the consultants in the region, only FEDECACAO, in Colombia offers open access to all producers. Ecuador's ANECACAO is an exporters' organization and has opened membership for farmers affiliated with Union of Rural Cacao Organizations of Ecuador (UNOCACE), a cooperative producing and exporting organic cocoa. These major organizations have the ability to provide such services, as research and extension on a limited basis to their members. Many producers are organized—up to 50 percent in Peru and 60 percent in Ecuador—and are members of some primary level organization such as cooperatives and farmers associations.

Small producers' organizations, according to those interviewed by the team, are very weak and lack the ability to provide services like access to technology and extension to their members. Several of them, however, have been able to help their members to obtain organic certification and to export organic cocoa to selected markets, especially in Europe. The economics of this activity is in question due to the high costs of certification and the low productivity in most farms.

Most of the organizations are in need of receiving different levels of institutional strengthening if they are to assume ownership of ongoing and future activities at the farmers' level. Long-term Sustainability of the benefits introduced by the projects,

including the switch from illicit crops, can only be facilitated through ownership by strong local organizations.

## 2.5. International Organizations

The main international organizations supporting the cacao subsector in the region are U.S. Government organizations including USAID, NAS and USDA. These organizations are supporting several cocoa development projects through private contractors such as Chemonics International Inc., Associates for Rural Development (ARD), ACDI/VOCA, and PADF. These projects, components of the Alternative Development programs in the region, provide direct financial support some local organization and farmers switching from illicit crops.

Other international organizations supporting the subsector in the region include the Inter-American Drug Abuse Control Commission-Organization of American States (CICAD-OAS), UNDP, ICRAF, the Corporacion Colombiana de Investigacion Agropecuaria (CORPOICA), GTZ, and the Centro Agronómico Tropical de Investigación y Enseñanza (CATIE). The Comunidad Andina de Naciones, a regional organization based in Lima also supports the subsector with regulations and standards for the transfer of vegetal and genetic materials among the member countries. Most of these organizations, however, do not seem to maintain the level of communication and/or coordination to avoid duplication of efforts and to achieve a more efficient use of resources at the national or regional levels. Information on ongoing projects is included at the end of this section.

The list, however, does not include all the projects being implemented by different bilateral or multilateral donors due to limitations in the time available to the consultants or the small scale of their intervention. Even though some small projects were identified, because of these time limitations, the consultants were unable to follow-up on their scope of work or impact on farmers. A regional program would develop a database of ongoing projects, review their impact, document the lessons learned from their implementation, and share the information at the regional level. Currently, all cocoa projects are working independently with almost no communication, with minor exception of research programs supported by USDA.

Also, achieving the goals regarding the number of hectares of coca eradicated by the projects will have to be accompanied by a balanced approach to development of the cocoa production to avoid overlooking important issues regarding profitability and long-term sustainability. The projects need to transfer of a sound technology package that, once adopted by the farmers, can provide a dignified source of income for the families in the long term, and more importantly, it should enable them to make ends meet during the two to three-year transition period. This package, associated with a well-designed financing scheme, would have a better potential for final adoption and to facilitate a permanent switch from illicit crops.

**Table 2. Peru**

<b>NAME</b>	<b>LOCATION</b>	<b>COMPONENTS</b>	<b>STAFFING</b>	<b>AMOUNT</b>	<b>SOURCE</b>
PADP	VRAE	Cacao establishment and renovation/maintenance.	100 specialists (Agronomists, Economists and Sociologists)	\$4,580,330	USAID
PRA	Tarapoto	Market access facilitation for commercial crops.	90 (5 Agronomists, 5 Business and 80 farmer trainers)	\$485,234	USAID
UNDD	All country	Introduction/propagation of planting material, inst. Strengthening and Market Access facilitation.		Pending	UNDP
Amazon Initiative	Lima	Tree domestication Agroforestry.	2 specialists 1 mgmt.	N/A	ICRAF
ICT	Tarapoto	Research, farmer training and extension.	50 employees (25 research and 25 extension)	\$500,000	NAS

**Table 3. Bolivia**

<b>NAME</b>	<b>LOCATION</b>	<b>COMPONENTS</b>	<b>STAFFING</b>	<b>AMOUNT</b>	<b>SOURCE</b>
Modernization of Organic Cocoa (CATIE)	Alto Beni	Organic cocoa certification, organization and renovation/maintenance.	56 specialists (6 administrative and 50 technicians)	\$1,600,000	INL/CICAD

**Table 4. Ecuador**

NAME	LOCATION	COMPONENTS	STAFFING	AMOUNT	SOURCE
PRONORTE	Esmeraldas	Cacao establishment and renovation/maintenance, post-harvest and processing facilities, marketing.	--- specialists (Agronomists, Economists and Sociologists)	\$9,000,000 (about 50 percent for cacao)	USAID
Farmers Training (ACDI/VOCA)	All country	Introduction/propagation of planting material, farm management	--Agronomists, and --- farmer trainers)	\$	USAID

**Table 5. Colombia**

NAME	LOCATION	COMPONENTS	STAFFING	AMOUNT <sup>1</sup>	SOURCE
CAD	Northern Santander	Cacao establishment and renovation/maintenance, post-harvest facilities, training and marketing.	--- specialists (Agronomists, Economists and Sociologists)	\$8,149,000	USAID
CAPP	All country	Financing, business development, technical assistance, post-harvest and processing facilities, and marketing.	--Agronomists, Economists, and farmer trainers)	\$37,000,000 (about 50 percent for cacao)	USAID
PADF	Santander	Cacao establishment and renovation/maintenance, post-harvest facilities.	--- specialists --- mgmt.	\$4,031,000	USAID

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<sup>1</sup> Budget figures are pending confirmation.

## SECTION III

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### Problems and Opportunities

The analysis of problems and opportunities in the Andean cocoa subsector is based on the responses obtained from key informants and players, the review of existing literature and personal observations the team members were able to make based on their own experiences.

#### 3.1 Existing Problems

Diseases are a major constraint to cocoa production and the main cause for the loss of market share for the region over the last two decades. During that period, several fungal diseases, including *Monilia* and *Witche's broom* decimated the trees in the region. Although the level of infestation varies from country to country. There is general agreement on the main causes for the high levels of infestation and loss of productivity. These include:

- The age of the trees, many of which are over 50 years old;
- Lack of access to a proven technology package including improved planting materials that offer a potential for higher yields and resistance to the main diseases; and
- Poor management farm management and the lack of adequate cultural practices create favorable conditions to the spread of diseases.

Overall losses from diseases in the region are estimated at 40 percent to 50 percent, and extreme cases can reach 90 percent in some places in Peru, where plantations were abandoned during times of civil unrest. This situation resulted in low average yields, 364.67kg/ha in Peru, 400kg/ha in Bolivia, 300kg/ha in Ecuador and 490kg/ha in Colombia. There is an urgent need to carry out more research in order to develop disease-resistant, higher-yielding varieties, and carry out campaigns to prevent the advance of the diseases.

Quality. This has special importance in Ecuador, where the onset of *Monilia* and *Witche's broom* devastated the original stocks of *nacional* trees, which produces the famous *Arriba* flavor. As plantations were renewed, other varieties, including *Trinitario* were cross-bred with the remaining *nacional* trees, resulting in lower quality cocoa beans (Soria, 1994). As a result, Ecuador, the largest world producer of flavor cocoa, loss reputation in the international markets.

Although other countries in the region—Peru, Bolivia and Colombia—are not known in the international market as producers of high quality flavor cocoa, local processors in these countries complain that poorly prepared cocoa coming from low yielding *Criollo* trees resulted in a low quality products. Quality problems in the region are also considered the result of one or more of the following factors:

- Harvesting cocoa pods that are not in their optimum level of maturity;
- Admixture of cocoa beans from different varieties;
- Poor post-harvest handling, including lack of, or incomplete fermentation; and high moisture contents, usually 12 percent, but in some occasions, it can reach up to 20 and 24 percent due to lack of appropriate drying techniques or facilities;

- The inexistence of, or lack of compliance with quality standards; and
- Lack of quality control mechanisms, including cocoa tasting at critical levels of the production/processing chain.

The deteriorating quality of the cacao beans supplied by the farmers is resulting in poor quality of final products and the lack of competitiveness of the industry, especially for the penetration of the international markets for finished goods.

Producer Organizations. Fragmentation of the subsector and weakness of existing producer's organizations, coupled with the lack of extension services were considered by some players as a bottleneck for the transfer of technology to farmers on a sustainable basis. The lack of an organizational structure representing the interest of the producers and offering services—currently provided by projects—hinders the potential for long-term sustainability of the benefits of ongoing efforts. Strong producer organizations could also develop the influence, and support systems necessary to counter the pull that the coca economy and its leaders now have on the farmers.

### **3.2 Opportunities in the Cocoa Subsector**

Market Conditions. The main opportunity for the Andean cocoa subsector stems from the current situation in the international market. On the one hand, the current political instability in Cote d'Ivoire, which accounts for about 40 percent of global output is creating uncertainty for future supply from the region, thus availing the Andean Region an opportunity to become an alternative source of supply for the U.S. industry; and on the other hand, the current small market share enjoyed by the region can allow an increase of up to 50 percent in volume over the next ten years without having a significant impact on the supply-demand balance and price, according to a recent study by LMC International.

Significant increase in production over the next ten years is achievable if we consider the concurrence of several factors, including:

- The existence of a long tradition and culture of growing cocoa;
- Availability of suitable land in all countries;
- Existence of a political will and resources, especially from international development community to support the development of the subsector, especially as an alternative to coca;
- Existence of an institutional and business infrastructure—the later often operating critically below installed capacity—for local processing, and exporting beans and finished goods; and
- The availability of research organizations with the capacity to develop and transfer technology packages to fight diseases and improve productivity; and to design and disseminate improved farming systems that promote biodiversity and higher profitability through agroforestry schemes.

With the exception of Ecuador<sup>2</sup>, the only country exporting any significant amount of cocoa, the countries studied in the region are mainly producing for the domestic market and have only small surpluses for export. However, before defining any interventions to significantly increase production, it is recommended that specific market studies are carried out to determine the demand for cocoa beans and cocoa products, both at the domestic and international levels. Discussions with policy makers and members of the industry indicated that in the next ten years their priority will be to satisfy local demand, especially for the processing industries—currently working well under capacity.

In the medium-term, as countries are able to expand production and improve quality, they would develop marketing strategies aimed at exporting high quality cocoa beans and cocoa products to international markets, especially to take advantage of new niche markets based on new discoveries regarding the health benefits of dark chocolate. However, there is a need to make an assessment of the capacity of local industries to process additional amounts of beans, as well as the handling capacity of intermediaries, transporters and exporters to deal with much larger crops. Because of time limitations, the team of consultants was unable to make a detailed market analysis.

**Arriba Quality.** Ecuador, which developed a reputation through the exports of high quality *Arriba* flavor beans from the *Nacional* tree, can take advantage of ongoing research carried out by INIAP and USDA in its efforts to restore the reputation for quality and market share its cacao enjoyed in the international markets. It can also take advantage of emerging niches based on the consumption of dark chocolate with high contents of cacao—75 to 80 percent – and without other ingredients like milk. As it happened with red wine, the publication of this information has the potential to increase consumption of dark chocolate in the medium term. The requirements for these products can create a great opportunity for high quality flavor cacao conforming to the ASS and ASSS classification, for example.

**Mainstream (Bulk) Cocoa.** Peru, Bolivia and Colombia are not large producers of fine cocoa. Therefore, the new market conditions could open good possibilities for the specific varieties produced in these countries, including the CCN-51 clone, which is by far the highest yielding and most promising variety being produced in the region, and is increasingly being grown by producers in the four countries studied by the team. The main limitation for this variety is its poor characteristics of flavor and aroma. However, work on new fermentation methods, currently carried out by CATIE and other organizations, promises to enhance the natural characteristics of the CCN-51 to make it competitive with bulk cocoa beans produced in other regions. The most important limitation for most cocoa beans from the region, including the *Arriba* flavor, CCN-51 and other clones is the current low quality resulting from poor post-harvest handling, which limits their competitiveness in the international markets.

Opportunities for investment to take advantage of the existing market opportunities seem to be in increasing production and productivity, including the establishment of new farms, renewal of aging plantations, and the introduction of improved cultural practices for farm management; introduction of post-harvest handling technologies for quality improvement, including improved

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<sup>2</sup> There was a great internal debate in Ecuador about the merit of producing bulk cocoa, namely the CCN-51 clone versus preserving and promoting the production of the *Arriba* flavor cocoa.

fermenting techniques and technologies, upgraded cocoa dryers, and quality control—sampling for defects, selection and grading; and the promotion of cottage industry to process low grade cocoa for local markets. Since all countries have significant excess processing capacity for intermediate and final products, additional investments in larger processing plants are not recommended at this time.

***Broad-Based Economic Impact.*** Activities associated with the cacao subsector in the Andean region currently involve more than 158,000 families comprised by about 800,000 people. The number of families directly involved in production could be dramatically increased over the next ten years, which would result in a significant impact through the development of forward and backward linkages, which would generate more economic activities, including a more efficient use of industrial capacity and exports.

### **3.3 A Regional Approach to Developing the Cocoa Subsector**

The findings for individual countries during the field work highlighted several problems and opportunities that are considered important at the national level by different players of the subsector. However, there were crosscutting issues, such as low productivity and poor quality that hinder the competitiveness of individual countries and the region as a whole. Low productivity is result of *Monilia* and *Witches broom* infestation, and the lack of appropriate cultural practices at the plantation level. Low bean quality is the result of poor harvesting post-harvest handling techniques and technology.

To address these important common problems, a well coordinated regional program could be more efficient than having several national programs duplicating efforts by carrying out the same research to develop disease resistant planting materials and design basic technology packages. The results could then be transferred to all countries in the region for their validation to local conditions and eventual dissemination. Currently, according to respondents in all countries little or nothing is being done regarding dissemination of improved cultural practices for farm management and the use of upgraded technologies for harvesting and post-harvest handling of cocoa beans to improve productivity and quality. Most efforts are aimed at obtaining disease resistant planting material and renewing old plantations.

A regional program could take an integrated approach to addressing issues and take advantage of opportunities to improve competitiveness, both at the national and regional levels. It would promote the development of dialog among the different players within the subsector at the national level to better identify demand for knowledge and/or innovation, and identify thematic areas to remove bottlenecks hindering competitiveness. These groups could be encouraged to form clusters that could become viable national counterparts to the regional secretariat. In addition the interaction at the regional level would help identify new crosscutting issues that could be addressed by the regional program.

The advantage of the cluster development approach is the creation of public-private partnerships and alliances based on permanent organizations at the national and regional levels, which could add sustainability to a regional initiative. The team of consultants did not observe any ongoing dialogue among different players within the subsector's productive chain, and the level of

exchange between countries is very limited. This initiative could promote activities in individual countries, or mutli-country basis according to needs.

## SECTION IV

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### Recommendations for Interventions

The analysis of the information indicates that there are specific problems affecting the development of the cocoa subsector in each individual country. These problems will require solutions that are country-specific, and will demand the development of national strategies. However, there are also some cross-cutting problems, which can be addressed through proven technologies, approaches and methodologies that can be shared at the regional level through an appropriate coordinating mechanism.

The problems of low productivity and poor quality are negatively affecting the competitiveness of the region's cocoa in the international markets and the profitability of the operations, especially at the producers' level. The alternatives to solve these problems can be found through joint efforts in research and transfer of technology through efficient extension services.

The consulting team found that the region lacks effective off-the-shelf technologies to be directly transferred to address the most pressing issues facing the cocoa subsector, which is the high level of infestation with Witches broom and Monilia. Therefore, research needs to be carried out to develop new knowledge for the effective control of these diseases, if the region is to become competitive with other regions that are free from them.

The search for practical solutions, however, must also include an analysis of results from research and development successfully carried out by countries in the region or other producing countries, which has resulted in individual technologies and technology packages that could be validated for adoption by farmers. These could include cultural practices for farm management, post-harvest handling technologies and techniques.

Also, there is a need to address the vacuum created by the lack of strong producer's organizations, which hinders the potential for any intervention to achieve long-term sustainability due to the inability of most organizations to take ownership of project activities. These organizations could facilitate training and the transfer of technology, along with other necessary support services like marketing, acquisition of farm inputs and financing.

Recommendations for interventions are aimed at addressing the issues of low productivity and poor quality found to be of importance to most players in the region. Specific recommendations include: 1) strengthen research capacity, 2) transfer of technology to farmers, and 3) establishment of a regional coordinating secretariat.

#### 4.1 Strengthening Research Capacity

This component would strengthen the capacity of national research organizations through the promotion of inter-institutional cooperation agreements and partnerships among organizations within and out of the region. The activities should seek to carry out a diagnostic of the existing capacity for research in the region, and an inventory of the activities currently carried out by existing research organizations, in order to establish priorities, and allocate resources accordingly.

and to maximize impact. The research activities should be aimed at evaluating, introducing and multiplying new germplasm that can result in resistance to *Monilia* and Witche's broom, and higher productivity in the medium term. The validated planting material would then be disseminated to farmers through appropriate multiplication mechanisms, and extension systems such as farmers field schools to facilitate dissemination.

It should also build on current relationships and ongoing work being carried out by the USDA through specific cooperative agreement with several organizations like INIAP-Pichilingue in Ecuador, Comissão Executiva do Plano da Lavoura Cacaueira (CEPLAC) in Brazil, CATIE in Costa Rica, and other international organizations including IITA in Nigeria. The later hosts the Sustainable Tree Crops Program, focusing on cocoa for West Africa.

Through these cooperative agreements, new breeding populations have been established in Costa Rica and Ecuador using parents known for their tolerance to Witche's broom, Frosty pod, Black pod, and *Ceratocystis*. Also, an important element of the research should be aimed at increasing yields and preserving the main characteristics of the *Arriba* flavor associated with the cocoa beans from *Nacional* trees in several countries of the region.

Profitability and sustainability must be promoted by researching different agroforestry schemes, which can be financially viable by using cocoa as an anchor crop in a system that includes other species with significant commercial value—including forestry species—that in aggregate generates a livable income for the family, while helping spread the risks and promoting biodiversity. The research should also include the validation of farm management systems, inclusive of cultural practices, and integrated pest management to maximize productivity and enhance quality.

There is also a need for research in the area of post-harvest handling to reduce defects and improve the quality. This is especially important in the case of flavor cocoa, which can fetch premiums in the market, and to improve the aroma and flavor characteristics of clones, such as the CCN-51. The research centers should also validate fermentation technology and procedures that are appropriate to different climate conditions in producing areas. Likewise, they should introduce improved drying technologies and techniques to reduce the formation of molds and other defects due to high moisture contents. In addition, they should help in developing quality standards and quality control systems for cocoa in the region.

One of the weakest links in the systems is the transfer of results from the research stations to the field. Therefore, the research component should develop technology packages that are appropriate for the different agro-ecologic conditions offered by the producing areas of the region as demanded by the farmers. It should also develop appropriate mechanisms to transfer the proven technology packages to those in charge of delivering them to the farmers to ensure a high level of adoption. To achieve this goal, these packages must be easily accessible to poor farmers in terms of their cost and technical complexity.

## 4.2 Transfer of Technology to Farmers

This component should be aimed at ensuring massive dissemination of technological packages proven to be successful in a particular country in the region, and technologies adapted to local conditions after their application in other countries. In the latter category, we can include the experience of the World Cocoa Foundation and other organizations, which have developed farmers training methodologies to transfer simple low-cost cultural practices that are being used successfully by farmers to significantly improve productivity in Africa and South-East Asia. In addition, technology—especially disease resistant planting materials—developed through ongoing research in the region would be transferred to farmers after its validation and release.

The identification and selection of appropriate technologies could be carried out in a joint effort by the Regional Program and the potential users. A similar process would be utilized in transferring post-harvest handling technologies and quality control mechanisms, which would be used to address the issues of poor quality, which results in low comparative prices for most countries in the region.

The technology transfer activity could be carried out by government-sponsored extension systems, producers' organizations, USAID contractors, other public and private organizations, and individuals involved in transferring technology to the farmers. These organizations and individuals, however, would use methodologies that are proven to be effective in reaching large numbers of farmers at minimum cost, while offering a high potential to facilitate adoption. Training and technical assistance, as well as the propagation of improved planting material and distribution of farm inputs could be introduced as potentially viable business operations that can be adopted by producers' organizations as they strive for financial sustainability in the long-term.

## 4.3 Establishment of a Coordinating Secretariat

There was general agreement among the interviewees regarding the need for a regional coordinating structure to become a clearing house for information and to promote collaboration among key players in the public and private sector at the regional level. This idea would be supported by USAID missions and other relevant agencies and institutions in the measure that it adds value to local initiatives or strategies. In addressing the problems, the secretariat should follow a balanced approach, avoiding a bias towards any specific component of the initiative – research or transfer of technology.

Among the tasks of the secretariat would be to review, evaluate and document relevant experiences gained by member countries and others in the world market; share the information about lessons learned and best practices among the members; promote the development and exchange of improved genetic and planting materials within the regulatory framework of the Community of Andean Nations (CAN); develop and maintain databases of institutions, companies, and individual scientists and experts, who can provide products and services to the stakeholders; assist stakeholders in the creation of a vision for the subsector's role at the country and regional level; and design a Regional Master Plan aimed at addressing the problems

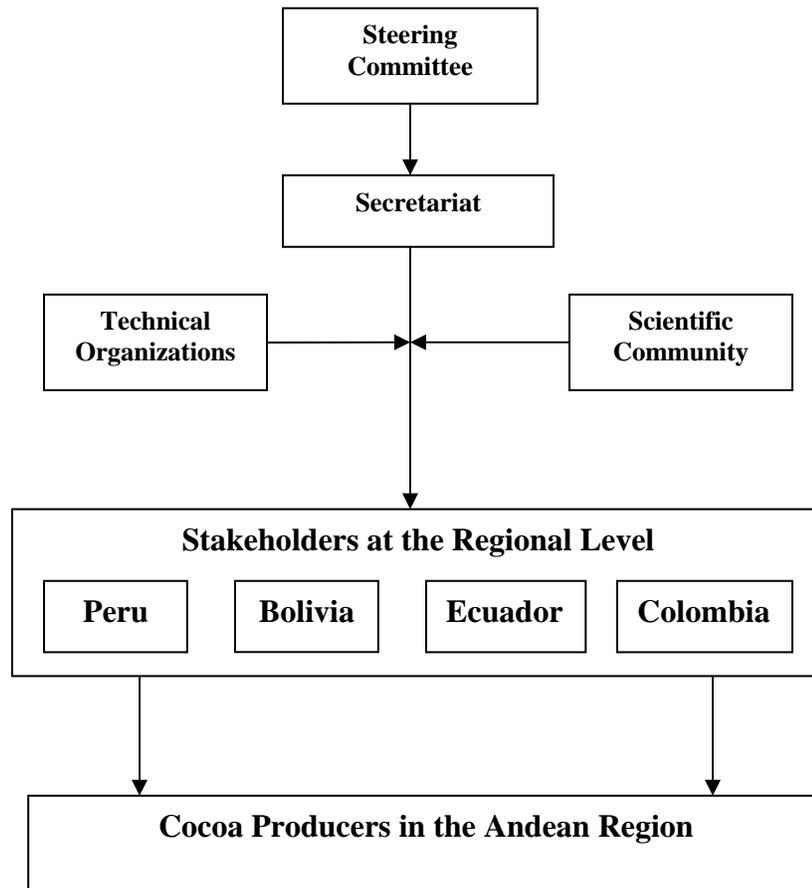
identified in this document, and the development of the cocoa subsector in the medium and long-term.

The secretariat would collect and maintain scientific and technical information for its analysis and dissemination among the different stakeholders in the region; would serve as a forum for the discussion and exchange of technical and scientific knowledge through the organization of conferences and workshops; support marketing by organizing fairs and facilitating access to market information; and seek financial resources that could be channeled to specific activities or to achieve financial sustainability.

The location of the secretariat would be selected between Peru, where USAID has expressed its preference for location; and Ecuador, because of the dimensions and relative importance of the subsector, and the interest of the chocolate industry to purchase fine cocoa. The team only proposes the possible options; a final decision should be made by USAID leaders. In the selected country, the secretariat would be hosted by a reputable international organization with presence in the member countries, and, preferably, with experience in the development of the cocoa subsector in the region.

The operations of the secretariat would be governed by a steering committee consisting of representatives of the donors (USAID, USDA and WCF), representatives of the participating governments, other participating international organizations such as CICAD-OAS, representatives of the local industry and producer organizations, and representative of the hosting organization.

The secretariat would consist of a regional coordinator, who would report to the representative of the hosting organization in Ecuador. This representative would oversee the operations of the secretariat, by delegation of the steering committee, and would be responsible for providing technical and administrative support to its coordinator. To facilitate the activities related to exchange of scientific and technical information, as well as the dissemination of market information, the secretariat will develop and manage a web site with links to all the sites that can be relevant to different stakeholders in the subsector. The secretariat would carry out its activities maintaining contacts with institutional members, including producers' organizations but would not have direct interventions at the level of individual producers. See proposed structure in Figure 1.

**Figure 1. Proposed Structure for Regional Secretariat**

The consultants are aware that many organizations may have the qualifications and institutional capabilities to host the regional secretariat. However, a wider identification and institutional analysis effort was impossible, given the time limitations for the field work. During the mission, however, two organizations expressed interest in hosting the operations of the secretariat; therefore, we are presenting them as options for the consideration of USAID and the US-based chocolate industry, which would eventually make the final decision. The final decision could be based on the results of an open international bidding process. A brief description of the institutions that expressed their interest to the consultants is discussed below. Their order of appearance does not necessarily represent the preference of the consultants.

Option No. 1. The World Agroforestry Center is part of the global network of 16 Future Harvest Centers founded by the Consultative Group on International Agricultural Research (CGIAR). The center is an autonomous non-profit research and development organization supported by more than 50 governments, private foundations, regional development banks, and the World Bank. It was founded in 1978 as the International Council for Research in Agroforestry (ICRAF).

ICRAF's mission aims to improve human welfare by reducing poverty, improving food and nutritional security, and enhancing environmental resilience in the tropics. It carries out innovative agroforestry research and development, strengthen the capacity of its partners, enhance worldwide recognition of the human and environmental benefits of agroforestry, and provide scientific leadership in the field of integrated natural resource management.

Ongoing activities include the development of the Amazon Initiative, a consortium of major research and development institutions formed to help prevent, reduce, and reverse land degradation by promoting policies and technologies for sustainable land management in the Amazonian region. Specifically, ICRAF's involvement would facilitate the promotion of cocoa-based, diversified agroforestry systems. It would also include such topics, as:

- participatory evaluation of alternative cocoa-based agroforestry systems carried out by colonist farmers and indigenous populations;
- study and identification of ecological, economic, and socio-cultural indicators of sustainability for cocoa production systems;
- evaluation and enhancement of environmental services (biodiversity conservation, carbon sequestration, soil conservation, water regulation), provided by cocoa agroforests;
- strengthening of marketing channels for cocoa agroforestry products, i.e. in parallel to the similar activities planned for cocoa itself, with an emphasis on gender balanced initiatives;
- identification, domestication and improvement of fruit, timber and medicinal species suitable for cocoa agroforests;
- development of viable extension models for producers engaged in cocoa agroforestry production;
- training in tree domestication and propagation, aimed both at farmers and collaborating institutions; and
- documentation and dissemination of the program's experiences and findings, e.g. in one or more technical manuals and policy

ICRAF has a regional office in Belem, Brazil. It also has access to facilities of the members of the Amazon Initiative in the region.

Option No. 2. Inter-American Institute for Cooperation on Agriculture (IICA) is an international organization of the Inter-American System specializing in agriculture. Thirty four Western Hemisphere countries participate in the IICA, whose mission is to provide cooperation services for agriculture and to strengthen and facilitate Inter-American dialogue. IICA's ability to play a leadership role in regional agriculture is strengthened by the participation of the ministries of agriculture of each member country who direct the organization through the Inter-American Board of Agriculture (IABA). With 34 cooperation agencies and five regional centers, IICA offers a strong mechanism for supporting agricultural development throughout the Americas. Specific areas of support include:

- Providing a forum for discussion of agriculture-related issues, fostering understanding of the principles guiding production, trade and sustainable development;

- Help in facilitating trade negotiation processes by conducting training programs for negotiations, and developing trade information systems;
- Help in increasing economic opportunities for the rural poor, thereby stemming the flow of immigration into urban areas and other countries;
- Promotion of biological controls and non-toxic methods to control pests, increase food safety and protect workers and consumers throughout the hemisphere; and
- Develop strategic alliances with key organizations, thereby strengthening the role of agriculture in the hemispheric dialogue. It has cooperative agreements with USAID in Colombia and Ecuador.

Other strengths offered by IICA include its status as the coordinating body for the National Institutes for Agricultural Research, or INIAs in the Andean region, and its ability to mobilize local resources from government, producers and industry leaders. Also, as a member of the Inter-American System, IICA could have an effective coordination with, and take advantage of the experience developed by CICAD-OAS, another member of the system, which is currently implementing cocoa-related alternative development projects in the Andean Region. Furthermore, the secretariat would have access to the institutional infrastructure that IICA possesses in all the participating countries and the United States.

Financing of the secretariat would be the responsibility of the main donors, namely USAID Missions, the U.S. chocolate industry, USDA and in-kind contributions by the hosting organization. The initial funding would include the launching of the regional initiative and the secretariat, as well as its operations for the first three years. The estimated budget follows:

#### **Estimated Costs for the Secretariat**

Regional Coordinator	\$240,000
Travel expenses	\$120,000
Funds for pilot activities <sup>3</sup>	\$240,000
Subtotal	\$600,000

During this initial three-year period the members of the Steering Committee, the hosting organization, and the Regional Coordinator would develop a strategy for financing the secretariat's operations in the long-term.

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<sup>3</sup> These activities would include validation and transfer of improved planting material.

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