# Organizational structure and commercialization of coffee and cocoa in the northern amazon region of Ecuador

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## Abstract

The cultivation of coffee and cocoa is the main source of income for small farmers in the northern Amazon region in Ecuador. As border area, they have been beneficiaries of multiple public and private institutions, principality designed to reactivate the production of coffee and cocoa. The goal was to improve the quality of life of local population threatened by poverty and characterised by high level of immigration from Colombia. The current study was carried out to outline the main obstacles faced by producer associations in order to identify policy measures to address these. This study show data of organisational structure, initiatives for marketing under partnerships, and storage infrastructure with an estimate for the production of coffee and cocoa, based on primary and secondary information. It also implies that the government could play a bigger role supporting peasant organisations in different aspects like: capture of added value by peasants; associative commercialisation with a focus on a popular and solidary economy; and offering flexible credit. All of this would encourage participatory, sustainable rural business ventures. Finally, we present different alternatives for improve the implementation of public agricultural policies, about of organisational structure of the producers, commercialisation processes and environmental concerns.

**Keywords:** Amazon Region; associative commercialization; coffee-cocoa production; public policy.

## Estrutura organizacional e comercialização de café e cacau na região norte amazônica do Equador

## Resumo

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O cultivo de café e cacau é a principal fonte de renda para agricultores da região amazônica no Equador. Como a área de fronteira, tais agricultores foram beneficiários de múltiplas instituições, principalmente para reativar a produção de café e cacau. O objetivo era melhorar e aumentar a qualidade de vida da população ameaçada pela pobreza e caracterizada pelo alto nível de imigração. O presente estudo foi realizado para delinear os principais obstáculos encontrados pelas associações de produtores com o propósito de identificar as medidas de políticas para enfrentá-los. Este estudo mostra os dados da estrutura organizacional, iniciativas de marketing, e infraestrutura de armazenamento com uma estimativa para a produção de café e cacau, com base em informações primárias e secundárias. Também implica que o governo poderia desempenhar um papel maior apoiando organizações campesinas em diferentes aspectos, tais como: capturar o valor agregado pelos campesinos; comercialização por meio de cooperativa; e oferecendo crédito flexible. Tudo isso encorajaria ações participativas, empreendimentos rurais sustentáveis. Finalmente, apresentamos alternativas para melhorar a implementação de políticas públicas agrícolas, no que diz respeito à estrutura organizacional, comercialização de processos e aspectos ambientais.

**Palavras-chave**: Amazônia; cooperativa comercial; produção de café-cacau; políticas públicas.

## Estructura organizativa y de comercialización del café y cacao en la Amazonía norte de Ecuador

### Resumen

El cultivo del café y cacao es la principal fuente de ingresos para los agricultores de la Amazonía norte del Ecuador. Como zona fronteriza, ha sido beneficiada de múltiples instituciones, con proyectos diseñados para reactivar la producción agrícola. El objetivo fue mejorar la calidad de vida de la población amenazada por la pobreza y caracterizada por un alto nivel de inmigración. El presente estudio se realizó para analizar los principales obstáculos que enfrentan las asociaciones de productores, con el fin de identificar posibles políticas de mejora. Este estudio muestra datos de la estructura organizacional, iniciativas de comercialización asociativa e infraestructura de almacenamiento disponible, con una estimación de producción de café y cacao, basada en información primaria y secundaria. También sugiere que el gobierno podría desempeñar un papel más importante de apoyo a las organizaciones campesinas en diferentes aspectos como: la captura de valor agregado por los agricultores; La comercialización asociativa; Y ofrecer crédito flexible. Todo esto alentaría a los emprendimientos rurales participativos y sostenibles. Finalmente, presentamos diferentes alternativas para mejorar la implementación de las políticas públicas agrarias, la estructura organizacional de los productores, los procesos de comercialización y las preocupaciones ambientales.

**Palabras clave**: Región Amazónica; comercialización asociativa; producción de café y cacao; políticas públicas.

## Introduction

Coffee and cocoa cultivation in the northern Amazon region of Ecuador began when colonists originating from different areas of the country settled in the Amazon, encouraged by the Law of Agrarian Reform and Colonization, passed on July 11, 1964 under Decree 1480 by the military Junta then in power (VITERI, 2007). The severe droughts in the south of Ecuador

and the beginning of regional oil exploration during the seventies were also factors that contributed to migratory movements (MALDONADO, 1979) (LITTLE, 1992) (GONDARD and HUBERT, 2001).

In the northern Amazon region of the country, special attention is given to the cultivation of Robusta coffee (*Coffea canephora*) and *national*[2] cocoa (*Theobroma cacao*). *Coffee* and *cocoa* make important contributions to the country's economy via international trade (ACOSTA, 2006). Between 2002 and 2011, they represented 7.0% of non-petroleum exports of Ecuador (BCE, 2012). For decades, these crops have been a source of employment and foreign currency for the nation. Traditionally, production had been concentrated in Manabí Province. Currently, it is distributed throughout the country. According to data from the latest National Agriculture and Livestock Census, published in 2002, 320,664 hectares are dedicated to Arabica and Robusta coffee production, including both the monocultural and intermixed plantings that make up 105,000 Agricultural and Livestock Production Units (UPAs)[3] at the national level. This last figure indicates that an equal number of households are directly linked to this activity, while there are about 500 large-scale marketers (SICA, 2002). In the provinces of Orellana and Sucumbíos, there are 13,858 UPAs, 97% of which cultivate coffee and, in smaller proportions, cocoa (MAG, 2002). The number of UPAs dedicated to coffee and cocoa production in the Amazon region in northern Ecuador exceeded 20,000 in year 2009 (INCCA, 2009), and 46,292 hectares in year 2012 (SINAGAP, 2016).

The national cocoa is classified as "fine aroma" and is used in the manufacture of high quality chocolates and in mixtures. Currently, this crop is been threatened by the introduction and expansion of an improved clone version of cocoa, named CCN51[4], which is more productive and which is grown under monoculture conditions (MELO and HOLLANDER 2013). The improved strain does not have the same level of acceptance in the international market, though. The consequence is that its price is lower than that for the national (BIOTRADE FACILITATION PROGRAMME – ECUADOR, 2005).

In the case of coffee, its quality is measured by distinctive aspects, such as aroma, acidity, body, and flavor. Robusta coffee is considered to have better body than Arabica (ROMANO, et al., 2014). It also has a greater content of caffeine and less market value. Even

[2] Ecuador grows a unique variety of cocoa known as "national." This cocoa variety is characterized by its post-harvest processing, during which there is a short fermentation period which results in a mild chocolate with good flavor and aroma and which is known internationally as "fine aroma cocoa" (QUINGAÍSA and RIVEROS, 2007).
[3] UPA "is a landholding of 500 square meters or more, totally or partially dedicated to mixed agricultural and livestock production. . ." (MAG, 2002).
[4] In 1965, the Ecuadorian researcher Homero Castro developed a cocoa clone from the double hybridization of genetic material from the *Trinitario* and *Forastero* varieties of Amazonian origin (CCN51). It is resistant to fungal diseases and gives high yields (INTERNATIONAL PLANT NUTRITION INSTITUTE, 2014).

though Robusta is considered to be of less quality, it is frequently blended with other coffee beans to take advantage of its qualities and thus maintains its niche in the coffee market (COFENAC, 2005; BERTONE, et al., 2016).

In Ecuador, small coffee and cocoa producers—those with less than five hectares of cultivated land—base their economy on the production of these crops. Their main problem is marketing their products and the influence of intermediaries that reduce, to a significant measure, the income derived from their production in comparison to the other options of commercialization, like fair trade (PODHORSKY, 2015). Many international aid agencies that carry out projects in the northern Amazon have focused their action on the reactivation of production, the strengthening of cooperative associations and, to a lesser extent, on commercialization. A number of associations of producers have been created and stockpile centers have been constructed to handle post-harvest distribution. However, at the moment, there are few organizations that have become involved in sustainable commercialization processes.

This research portrays the current situation of associative commercialization that predominates in Orellana and Sucumbíos provinces. It also identifies the main problems faced by farmers and their organizations and proposes public policies to tackle these problems and make the production of coffee and cocoa a sustainable activity. The main problem encountered in our research was the lack of access to existing information. There are several studies conducted by public and private entities, but most of their information has not been made public and is zealously guarded. Moreover, during field work, little willingness was found among participants to share information, presumably due to concerns that the information would be used for taxation purposes.

During the past decade, several development projects linked to coffee and cocoa production have been implemented in this region, sponsored by different public and private organizations. The Ministry of Agriculture, Livestock, Aquaculture, and Fisheries (MAGAP) has operated in most of these provinces under its Initiative for Reactivating Agriculture in the Provinces of Orellana and Sucumbíos (PROERA), which took place between 2003 and 2010. PROERA helped approximately 21,000 families involved in coffee and cocoa production, covering around 80% of the farmers in these provinces (INCCA, 2010).

A large part of the projects implemented in this zone have focused on production, ignoring the challenges of commercialization, although both of these activities are distinct but connected segments in the same food and agriculture chain. Hence, it is important to link these two aspects when analyzing farmer participation and acknowledge their important role (SAG-

IICA, 2002; MELO and HOLLANDER, 2013). To make the connection, we must design sector-based policies that offer specialization options and weigh the interaction between production and the environment. Until 2003, few indigenous or colonist organizations in the Ecuadorian Amazon have adopted associative commercial processes or have seen the necessity to do so (ORTEGA, 2003).

The objectives outlined for this study include to: 1) describe the situation of associative commercialization for coffee and cocoa production; 2) identify the main problems that rural farmers and their organizations face; and 3) disseminate information that proposes public policies to tackle the identified problems. This study is motivated by the fact that there is no published information that documents what goes on with coffee and cocoa production in this region and because agricultural workers frequently cite commercialization as one of their main challenges.

The rest of the article is organized as follows: Section 2 analyzes associative partnership and commercialization in the context of rural production. Section 3 presents the field of study, the data used, and the methodology. Section 4 presents the current organizational situation of the region's farmers. Section 5 analyzes the main problems that the associations face. Finally, Section 6 offers some conclusions and recommendations for public policy that will improve coffee and cocoa commercialization in the northern Amazon region of Ecuador.

## Background: associative partnership and commercialization

Throughout their history, associative activities have felt the negative effects of changes, as they have been a component in a process of transition from a general household economy to a general market economy, part of the evolution from the domination of small farms to the domination of agribusiness. Hence, the forms that partnerships take are important. A society based on a cooperative movement is made up of producers that seek to define a common purpose for its members. In this sense, associations and cooperatives can take many forms, such as agrarian services for transformation or for community operations. Although these last are rare on a global scale, they are found most often in countries with communist leanings and on kibbutzim[5]. Service cooperatives are more common and dominate the global scene. They embody a cooperative doctrine based on three main concepts: equality, liberty, and solidarity (ACI, 2007). In reality, they—whether they are associations or cooperatives—are characterized

[5] A Hebrew word referring to association in an agricultural community in Israel. The kibbutzim were essential to the creation of the state of Israel. They were one of the most important communal movements in history. They were founded in a period in which private agriculture was not practical (KIBBUTZIM, 2013).

by and endowed with a natural, common good will, or a good will established rationally. Both are perceived as integral entities, as specific interest groups that establish themselves through association (TONNIES, 2009).

On the other hand, in associative processes the community plays an important role through the empowerment of activities that allow bottom-up institutional development. Wherever the government's role is active, it creates conditions under which social and community businesses prosper. The central government can foster contract opportunities with local governments, ongoing advice, business training, and access to easy and timely credit. There are factors that can limit empowerment and effective community participation, such as geophysical and environmental factors, the complexity of aid programs, cooperation, the nature of social and human capital, the community's attitude, the state of infrastructure, and socio-political conflicts, among others (CLARK, et al., 2007). In addition, progress can be limited by an unequal distribution of power, which may lead to conflicts over the use and management of resources. Such conflicts can provoke a weakening in the empowerment initiative, in participation, and result in development that is barely sustainable (MANCINI, 2013).

There are many forms of partnership and association. In Ecuador, there are two common forms. The first is association by contract as a means to direct commercial, agricultural production through agreements between farmers and processing and marketing firms, often at predetermined prices. Such is the case with Gatazo Zambrano[6]. The second is the *maquila* operation, a means of subcontracting in order to fulfill part of the production process outside of the organization. An example of this is the packaging of vegetables or other major processing operations. Kallari is an example of this type of association. It has joined with other businesses to manufacture chocolate bars (INIAP, 2010). Other types of associations include business networks, consortia, and collective action initiatives (IICA, PRODAR, FAO, 2006).

In those cases in which producers have not formed associations, the total value of their products in the market is reduced, mostly because they lack negotiating power. For instance, Guivant (2003), cited in Blanc (2009) has recorded cases in which the producers received only 14% of total product value while 31% went to intermediaries and 55% went to supermarket chains or other final distributors. Hence, associative partnership is important not only for improving income over the medium and long terms, but also for creating collective solutions by means of knowledge exchange among the various players, such as associates, researchers, technicians, and consumers. It can create endogenous social changes in rural environments,

[6] A small locality located in Chimborazo Province, Ecuador where, according to the Commercialization Project (IICA, 2006) organized producers have shown a 43% improvement, once they managed to associate themselves after they contracted with two broccoli processing companies.

based on native competencies and collective creativity. It can have an impact at the socio-economic level, where various forms of organization are found whose aims are to guarantee the structural and economic sustainability of those organizations (CUELLAR and CALLE, 2011).

Another key aspect of these organizations is their capacity to increase participation in the production chain, allowing participants to integrate themselves in value added processes. For example, through participation in organic or fair trade certification programs, they become more competitive and responsive to new market requirements. From its beginning, the organic certification process has included standards developed under first world consumer demands imposed in a top-down manner on the certifying bodies, with limited participation by farmers—a process that can hardly be characterized as "participatory." On the contrary, it is clear that current organic production represents an attempt to reestablish ancestral practices by small producers that, at the same time, serve the most demanding consumers. This direct channel adds value and thus counteracts the globalization trend in the food and agriculture system, a system in which direct sales of food products affect the final price that producers receive (GONZALEZ and NIGH, 2005). The cases of Orellana and Sucumbíos Provinces have not proved exceptional in this regard. Additionally, the fair trade label represents a "win-win" strategic choice. Producers can receive higher prices for their products than those offered in conventional markets, a profit that economists refer to as "differential revenue." Through these practices, producers can also increase quality, since they respond not only to physical and organoleptic properties, but also to cultural and ethical factors (RENARD, 2005). Despite these conditions, one must be on alert so that these production practices are not reabsorbed by the logic of the market, cornered by the dominant players in the food system who are attracted by their success and by consumer preferences. These are market dynamics that should be, primarily, of mutual benefit to consumers and producers (RENARD, 2003).

Improving income of producers via systematic processes to set appropriate prices for commercialized products is not a utopian goal. It is quite doable, but one needs to identify the pertinent global value chains (GVC) involved. These include international networks of producers, marketers, and service providers that interact by means of value added processes (PELUPESSY and JIMÉNEZ, 2009). Right now, commercialization operations that favor small producers cannot be sustained solely by direct government intervention, by the sale of fixed quotas, nor by the parental intervention of either public or private development organizations. Increasingly, what the producer and micro-enterprise organizations achieve by themselves is what counts. They are the ones that need to open venues in internal commercialization channels, including in agribusiness and exports. A commercialization blueprint for small

producers should include, among other things, a means for organization which will assure their participation and self-management, founded on an associative form rooted in their own community, and sustained support from a public or private institution for a determined period of time after the first day of inception. All actions taken in support of the producers' organization need to be efficient. Such actions will be more useful that any investment in infrastructure or formal training offered in an isolated manner (MENDOZA, 2007).

We want to reiterate that international cooperation has played a preponderant role in many cases, especially during the establishment and consolidation stages of the organizations. During the decades of the 80s and 90s and including the first years of the new millennium in Latin America, governments intervened less in public policies launched to aid the agricultural and livestock sector. The idea being that less intervention would promote greater participation by individuals in the activities that, for a long time, the public sector was overseeing. Once this new approach was applied, activities related to basic research, technical assistance, training, commercialization, and subsidized credit were affected (SANTACOLOMA et al., 2005).

## Location, data, and methods

This study was carried out in the northern Amazon region of Ecuador in the provinces of Orellana and Sucumbíos, which were newly established nearly 30 years ago. Together, they cover 39,059 square kilometers of territory. Sucumbíos has seven cantons (municipal entities) and Orellana has four. According to data from the last national census in 2010, there are 312,868 inhabitants in the region. More than half (58%) live in "rural areas" (INEC, 2012). The dominant climate is tropical humid forest, with temperatures that fluctuate between 21 and 32 degrees Celsius. Average yearly rainfall is 2.600 mm (INAMHI, 2014; COFENAC, 2005). The current main agro-industrial activity in the sector is the cultivation of African palm (*Elaeis guineensis*) and other palms for the extraction of palm oil, conducted by a few large companies starting in the 1980s. These concessions displaced both indigenous people and colonial settlements and replaced them with large monoculture-style holdings (GRANDA, 2006).

We have been collecting data for this study since 2002. The data appearing in Table 1 represents the official figures published in the III National Agricultural and Livestock Census. After the census, PROERA was established. It is the largest reactivation program in the northern Amazon region. It has supervised the creation of more than 22,000 hectares of coffee and cocoa over the 2003-2010 period, a change that affects the official figures and about which we will have more to say later on.

**Table 1. Land use and economically important crops**

| Provinces | (ha./%) | Permanent main Crops | | | | Transitory crops: rice, corn, cassava, peanuts, etc. | Rest and fallow land | Natural cultivated pastures | Forest | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Coffee | Cocoa | Banana | Oil palm | | | | | |
| Orellana | (ha.) | 19,978 | 3,565 | 4,577 | 8,172 | 5,951 | 23,145 | 36,702 | 145,872 | 247,962 |
| | % / total UPAs Area | 8.1 | 1.4 | 1.8 | 3.3 | 2.4 | 9.3 | 14.8 | 58.8 | 100 |
| | % / total cultivated surface | 19.6 | 1.6 | 1.0 | 1.7 | 1.3 | 5.1 | 8.5 | 142.9 | |
| Sucumbíos | (ha.) | 29,411 | 4,186 | 4,086 | 5,743 | 5,489 | 25,831 | 59,419 | 217,61 | 351,775 |
| | % / total UPAs surface | 8.4 | 1.2 | 1.2 | 1.6 | 1.6 | 7.3 | 16.9 | 61.9 | 100 |
| | % / total cultivated surface | 21.9 | 1.3 | 0.6 | 0.9 | 0.8 | 3.9 | 9.4 | 162.2 | |
| Total | (ha.) | 49,389 | 7,751 | 8,662 | 13,915 | 11,44 | 48,976 | 96,122 | 363,482 | 599,737 |
| | % | 8.2 | 1.3 | 1.4 | 2.3 | 1.9 | 8.2 | 16.0 | 60.6 | 100 |

Source: Author's calculations based on data from MAG, 2002.

**Figure 1. Main zones of Robusta coffee and National cocoa production in Ecuador.**


Source: Based on (COFENAC, 2005; PLAN ECUADOR- AMAZNOR, 2009).

The information used is mainly primary, result of an extended field work that included visiting all Storage Facility Centers and some peasant leaders contacted through on in-depth interview, which were visited in site, interviewed and to whom a questionnaire was applied. Furthermore, the five years of professional experience implementing the PROERA of the corresponding author was very helpful.

As part of our descriptive approach, we have identified the characteristics of the current commercialization model that now predominates in the area. The description includes important observations, document reviews, and interviews with the main participants in the process, such as technicians, politicians, administrators, and municipal and provincial leaders. We also conducted a document analysis, examining secondary information about the commercialization process with the goal of identifying the relationships, differences, and current situation.

## Results

## Characterization of rural organizations

## A description of peasant organizations

In 2002, the Ministry of Agriculture and Livestock, through the National Office for Peasant Development (Dirección Nacional de Desarrollo Campesino), recorded 5,749 peasant organizations at the national level. For 2008, the Ministry had records for 5,011 peasant

organizations in its database. Concomitantly, in 2009, the National Institute for Peasant Training (INCCA, Instituto Nacional de Capacitación Campesina), based on data collected by MAGAP, carried out a follow-up program in the field. They sponsored workshops in each province in which representatives of various sectors of the public and private organizations involved in the rural development of the provinces participated. This initiative was part of the National Training Plan, which recognized only 936 active organizations in the country. This means that only 21% of the recorded organizations maintained some level of activity. In the case of the provinces of Orellana and Sucumbíos, 48 and 41 active organizations were identified, respectively. After 2010, MAGAP launched two programs for encouraging organizations, which verified by field surveys that there were 80 active organizations in the research area in 2013, so the number continued decreasing. A detail of them is presented in Table 2.

**Table 2. Number of rural legal organizations identified in Orellana and Sucumbíos provinces**

| Province | Canton | Year | | | |
|---|---|---|---|---|---|
| | | 2002 | 2008 | 2009 | 2013 |
| Orellana | Francisco de Orellana | 12 | 58 | 21 | 14 |
| | Loreto | 0 | 8 | 3 | 4 |
| | La Joya de los Sachas | 7 | 28 | 23 | 11 |
| | Aguarico | 0 | 8 | 1 | 2 |
| Total province | | 19 | 102 | 48 | 31 |
| Sucumbíos | Sucumbíos | 1 | 2 | 0 | 3 |
| | Gonzalo Pizarro | 14 | 21 | 17 | 6 |
| | Cascales | 10 | 8 | 9 | 4 |
| | Lago Agrio | 17 | 25 | 14 | 11 |
| | Putumayo | 0 | 5 | 0 | 3 |
| | Cuyabeno | 0 | 3 | 1 | 9 |
| | Shushufindi | 3 | 5 | 0 | 13 |
| Total province | | 45 | 69 | 41 | 49 |
| Total research area | | 64 | 171 | 89 | 80 |

In Orellana, one finds more organizations in Francisco de Orellana and Joya de Los Sachas municipalities, possibly due to the concentration of oil extraction activity there. Such activity attracts the special attention of various agents, such as the oil companies themselves, the government, and NGOs. Another important factor to explain this fact is that, until 2007, the

main highway that connects the region to the sierra and coastal regions of the country followed the route Coca-Lago Agrio-Quito-Santo Domingo-Guayaquil. In addition, organizations have appeared in Loreto during the past few years. This change could be due to improvements in the roads connecting this area with the sierra via Coca-Loreto-Quito route, which favors settlements. In the case of Aguarico, organizational presence has dropped and this municipality finds itself isolated from the provincial capital, as its main access route is via river channels.

In the case of Sucumbíos Province, there are more organizations in the municipalities of Shushufindi and Lago Agrio, which could also be tentatively attributed to the presence of oil companies, improved roadways, and increased attention on the part of developmental aid groups and institutions. Another factor to consider is that the type of soils capable of sustaining coffee and cocoa are concentrated in these two cantons.

PROERA, the largest rural reactivation program for coffee and cocoa that the government had launched in the northern Amazon region, reached its peak period between the years 2003 and 2008. This was followed by a decline in 2009 and its dissolution in 2010. For sure, this affected the number of organizations, as their number grew from 64 to 171 (year 2008).

## Associative commercialization

We identified several specific initiatives for the commercialization of coffee and cocoa based on associative partnerships in the region, the most representative being the Asociación de Productores San Carlos (San Carlos Producers Association), Kallari, and Comité Empresarial Aroma Amazónico (Aroma Cocoa Business Association for the Amazon). These three associations share a common mode of operation. They all unite local organizations of primary workers that, overall, have a fairly strong organizational structure. All of them also have, at the least, a storage facility center or other warehouse facility where products can be stored for later distribution. They also lend technical assistance to their associates and own their own nurseries for plant reproduction. These three organizations have all made inroads in seeking organic certifications, working with small producers who control between two and three hectares of cropland, of either coffee or cocoa, which represent around US$ 1,250 annually in gross income for each producer (VITERI 2013).

The San Carlos Producers Association is the newest organization. It operates mainly in La Joya de los Sachas municipality in Orellana Province. Its distinctive feature is the ownership of nurseries for the reproduction of “Super Tree” (“Super Árbol”) cocoa trees, a hybrid of CCN51

and national cacao. The Kallari Association operates mainly in Napo Province, adjacent to Orellana Province, from which it has extended its activities into this province, mainly in Loreto. Kallari's main strengths are working with native Kichwa associates, developing value added activities, focusing on cocoa processing, and producing chocolate bars with certificates of origin that are commercialized in the European and American markets. Thus, Kallari can pay its associates (providers) a higher price than the one offered by the local market, up to 20-30% more. In contrast, the Aroma Cacao Business Association for the Amazon played an important role during the years 2007-2012, when it dominated production in all municipalities located in Sucumbíos Province. It was formed under a strategic alliance of different base organizations, including organizations formed previously by the Fundación para la Educación Integrada y Desarrollo (FUNEDESIN). The Foundation for Comprehensive Education and Development helped the Corporación de Cacaoteros de la Amazonía (Cocoa Growers Corporation of the Amazon) through initiatives to preserve the environment and strengthen commercialization organization and infrastructure. Aroma Amazónico merged around fifteen coffee and cocoa producers' organizations, each one with its own storage facility center administered by its own organization. Nevertheless, Aroma Amazónico ceased activities in 2013. According to its directors, this move was only temporary to allow the process of re-organization of its structure, since it was experiencing financial problems.

## Storage Facility Centers

A review of bibliographic sources plus field verification was carried out, so that we could raise an inventory of the existing storage facility centers in the provinces of Orellana and Sucumbíos. The storage facility infrastructure included warehouses belonging to either individually owned or associations of producers.

**Table 3. Storage facility centers in Orellana and Sucumbíos**

| Province | Canton | Storage facility center type | |
|---|---|---|---|
| | | Individually owned | Guild |
| Orellana | Francisco de Orellana | 6 | 2* |
| | Loreto | 7 | 4** |
| | La Joya de Los Sachas | 10 | 6** |

| | | | |
|---|---|---|---|
| | Aguarico | 0 | 0 |
| Total province | | 23 | 12 |
| Sucumbíos | Gonzalo Pizarro | 0 | 0 |
| | Cascales | 0 | 2 |
| | Lago Agrio | 5 | 7* |
| | Putumayo | 0 | 1 |
| | Cuyabeno | 0 | 1 |
| | Shushufindi | 0 | 6 |
| Total province | | 5 | 17 |
| Total zone | | 28 | 29 |

(*) PROERA handed over two storage facility centers (one per province) for coffee and cocoa to the respective provincial governments that have yet to come into full operation. (**) There are four storage facility centers (Two in Loreto and two in La Joya de Los Sachas) belonging to producer associations that are not operational in Orellana.

In Orellana Province, storage facility centers belonging to individually owned predominate, being 23 out of the 35 available warehouses. In contrast, producer associations are in charge of just 12 facilities in the entire province, including those used by San Carlos and Kallari. The situation in Sucumbíos is different. There are fewer individually owned storage facility centers. Five out of the 22 individually owned warehouses found here are concentrated in Lago Agrio. The producer associations control 17 storage facility centers. The majority of those are involved in commercialization activities overseen by Aroma Amazónico, which currently delivers its produce via its own regional intermediaries to the city of Guayaquil.

## Estimating the Volume of Coffee and Cacao Production in Orellana and Sucumbíos Provinces

An estimate of coffee and cocoa production in this region is relevant to this study, since it has a direct effect on proposals for improving organizations that we will offer later on.

In order to measure the volume of dry national cocoa produced in this region, we must use two sources of information on areas under cultivation, while avoiding duplication in data. First, there is the information contained in the Plan Ecuador study (PLAN ECUADOR, AMAZNOR, 2009), based on records on organic certification efforts by Aroma Amazónico and Kallari. Secondly, there is another body of important data in the PROERA program database (INCCA, 2010), mostly regional data collected during the past decade. In the case of Robusta coffee, the production data derives from hectares cultivated solely under PROERA—the most important player in terms of coffee—commercialized mainly in a fresh state also called “cherry”.

In 2013, a 100-pound sack of dry national cocoa was marketed at US$ 105, while a 100-pound sack of “cherry” Robusta coffee sold for US$ 14, price paid at producer.

According to several consultancies conducted by MAGAP to which we had access, in order to establish coffee and cocoa storage facility centers in the Amazon, the minimum capacity necessary would be 12,000 sacks per year. Based on this analysis, the calculated production could stock around 31 stockpile centers, distributed by municipality and closely matching the production volume, as one can observe in the table below.

**Table 4. Estimate of Robusta coffee and national cocoa production in Orellana and Sucumbíos**

| Province | Municipality | Production hectares (in thousands) | | Sacks (100 pounds) / Per year (in thousands) | | Income US$ (in thousands) | |
|---|---|---|---|---|---|---|---|
| | | Coffee | Cocoa | Coffee | Cocoa | Coffee | Cocoa |
| Orellana | Francisco de Orellana | 3.1 | 6.2 | 76.5 | 27.7 | 1,071.4 | 2,910.8 |
| | Loreto | 1.4 | 2.2 | 34.6 | 9.8 | 484.8 | 1,026.5 |
| | La Joya de los Sachas | 1.5 | 4.7 | 36.9 | 21.3 | 517.0 | 2,238.6 |
| | Aguarico | 0.1 | 0.5 | 3.1 | 2.1 | 43.1 | 222.2 |
| Total province | | 6.0 | 13.5 | 151.2 | 60.9 | 2,116.1 | 6,398.0 |
| Sucumbíos | Gonzalo Pizarro | 0.2 | 0.9 | 5.9 | 4.0 | 81.9 | 419.1 |
| | Cascales | 0.3 | 1.4 | 6.6 | 6.1 | 92.8 | 642.0 |
| | Lago Agrio | 1.3 | 7.1 | 33.1 | 31.8 | 463.8 | 3,339.5 |
| | Putumayo | 0.3 | 1.0 | 8.2 | 4.7 | 114.8 | 493.4 |
| | Cuyabeno | 0.3 | 2.0 | 7.8 | 8.8 | 108.5 | 922.6 |
| | Shushufindi | 1.0 | 3.8 | 24.3 | 17.1 | 339.5 | 1,793.7 |
| Total province | | 3.4 | 16.1 | 85.9 | 72.5 | 1,201.9 | 7,612.7 |
| Total zone | | 9.5 | 29.7 | 237.0 | 133.4 | 3,318.0 | 14,010.7 |

*100 pounds = 45.3 kilograms

According to our estimate, considering that this region has at least 21,000 UPAs as previously stated, each UPA would have an average of 1.86 hectares of either coffee or cocoa crops. In addition, each would achieve an average annual income of US$ 825 from the sale of these products.

## Discussion

### Challenges in coffee and cocoa Commercialization

From the analysis of the number of organizations created in the past few years, we assert that many of these organizations have been formed only to deal with short-term issues. Later, they weakened to the point of dissolution. Such failures could be due to the lack of organizational strategies for empowerment and enrichment that would have permitted them to become sustainable over time.

On the other hand, we have been able to identify a total of 57 storage facility centers and warehousing facilities at the municipal level. We have noted that 28 belong to individually owned while 29 belong to producers' associations. From these data, we can foresee that commercialization under a model of intermediation, mainly in Orellana Province, would be important, while in Sucumbíos we identify growth in the associative model of production, although the products themselves have not changed. Processing initiatives for coffee and cocoa are still limited, leaving the income derived from coffee and cocoa subject to international pricing for these "commodities." When coffee and cocoa prices fall—which occurred at the end of the 1990s and the early years after 2000—producers simply abandon their crops, waiting until prices rise again to reactivate cultivation. Of course, this style of interrupted management of produce affects yield.

The commercialization of coffee and cocoa is not only influenced by whether or not product stockpiles are sustainable by volume. Large capital investments are involved. This is a weak point for the producer associations, since many of them cannot obtain the financial resources necessary to maintain storage facility centers. According to a feasibility study conducted by PROERA—which helped organizing two warehousing centers, in Orellana and in Sucumbíos—the fixed capital required to establish each center was US$ 250,000. This estimate is taking into account that a warehousing facility such as those used in the study region would store Robusta coffee, national cacao, CCN51 cacao, and also corn during the months in which coffee and cacao production falls. This research shows that there is enough production to justify at least 30 storage facility centers. The revenue obtained by sales of national cocoa and Robusta coffee could amount to approximately US$ 578,000 per year. This shows there is a lack of coordination among the organizations for an optimized use of storage facility centers so that they can by-pass intermediaries.

This may be the result of the fact that among the registered associations, there are no big producers. The majority own only two to three hectares of cultivated land. This situation

implies that the associations need to count on a high number of producers in order to consolidate the volumes of coffee and cocoa needed. For producers, coffee and cocoa are the main source of income. Due to their reduced economic capacity, they have difficulties accessing credit, indicated in some cases by the lack of property titles to the land under cultivation. The majority do not use synthetic fertilizers and other inputs for their crops and few of them use bio-products, thus diminishing their actual yield with respect to its potential. Yield is also affected by the high incidence of diseases in this climate. Since low yields discourage producers from looking for better commercialization options—the effects of which we can see in the passive attitude producers take towards associations and the lack of a more active role in these organizations—we see signs of little empowerment by farmers, in contrast to the option for associative commercialization.

Another main factor at play in the border provinces of Orellana and Sucumbíos is that a great number of governmental (MAGAP-INCCA, ECORAE, PRONORTE, etc.) and non-governmental organizations (GIZ, USAID, etc.) have already intervened in the coffee and cocoa production here. This aid could have put pressure on the availability of land resources and the many protected areas that exist. The majority of organizations, both public and private, do not coordinate their efforts with the others. In many instances, they duplicate activities and get the producers used to paternalistic attitudes. That is to say, producers become passive, waiting for external resolutions. In this respect, several programs aimed at reactivating coffee and/or cocoa production frame the solution as follows: each producer would plant a certain area, generally one hectare. This plot is used as a control plot for the different aid organizations who might distribute various types of aid. No agency checked if additional lots were covered by aid from any other agency.

## Conclusion: A proposal to improve and change public policy

During our research, it became clear that there are a large number of peasant organizations, several of which have already become involved in associative commercialization, but that only few are focused on added value. This suggests that the government should play a bigger role in increasing and strengthening training programs, prioritizing effective participation of producers. The programs should empower farmers to develop self-management skills. These mentoring efforts would propel organizational development for innovation and, above all, would empower small rural producers, giving them the skills to manage their own crops with added value and achieve autonomy once training and mentoring programs end.

Another relevant point is that of by-passing intermediaries as their involvement reduces the cut that the producers receive for their coffee and cocoa. Given this situation, producers have already set up partnership organizations on their own. This makes government oversight necessary. The government should offer a plan for organizational enrichment that drives associative commercialization with a focus on a popular and solidary economy. This initiative should include small "progressive" groups of producers, providing them with the basic infrastructure for storage facility products. It should then integrate them into an associative network of producers and warehouses at the provincial level, nurturing the skills necessary to later become a second-tier organization. The consolidation would allow producers and distributors to process and market coffee and cocoa with higher added value, meeting the criteria for economic and environmental sustainability. This would also allow establishing processes that eventually meet certification requirements. Thus, organizations that already participate in associative commercialization activities could improve their management abilities, establishing strategic alliances with other groups, both local ones, in order to increase warehousing volume, and external organizations in order to obtain direct sales.

In both provinces, a significant percentage of the storage facility infrastructure is in the hands of producer associations. Under appropriate public policies, these resources could be integrated into a regional producers' supply network, which would allow producers to consolidate coffee and cocoa bids, improving their negotiating power and making them able to regulate prices in the face of both international and national markets. Producers also need to develop "certificate of origin" initiatives, a value added practice that the government must firmly support in order to fulfill its global strategy of advancing to another level in the market value chain.

The availability of sufficient economic resources to allow warehousing centers to operate has been identified as one of the main problems all commercialization operations face. In this context, public policies for the reactivation of farmland should consider offering flexible credit, accompanied by technical training for the administration of resources, encouraging participatory, sustainable rural business ventures.

The provinces of Orellana and Sucumbíos have zones of high biodiversity, a huge potential for organic production and meet the conditions for fulfilling "certificate of origin" requirements. Given this situation, the government should firmly and effectively control the encroachment of agrochemical merchants that, according to farmers' observations, have proliferated in the past several years. If the producers own between two and three hectares each, they are not currently able to generate sufficient income to cover expenses, which encourages them to make small "investments" in agrochemical products with the hope of

increasing yield. But these applications tend to increase incrementally in comparison with results, affecting biodiversity and possibly leading to the expansion of areas under cultivation with the aim of improving income. Faced with this situation, the central, regional, and local governments should implement programs that improve the income of farmers based on them joining in initiatives for associative commercialization and increased added value. Above all, government agencies should encourage current cultivation practices, most of which have been part of a traditional agroforestry system maintaining organic practices.

Since 2010, the government has started to accelerate the issuance of land property titles, as well as offering incentives for production. Yet, often small producers cannot access credit because they lack property titles or because they fear dealing with bank agencies. Hence, one sees the interest that producers show for associations that can help them with credit. When farmers seek credit, they should also be offered advice and an opportunity to obtain property titles, once they have complied with the requirements. In this way, the associations and organizations will become key players in credit distribution, serving as intermediaries between banks and clients and guaranteeing the appropriate use of funds.

Finally, public and private organizations that manage regional projects must exchange information in order to avoid duplication of efforts and resources. MAGAP and/or the provincial governments must systematically collect and process information about their projects—and those sponsored by other organizations that deal with the development of agricultural production—available to farmers. Access to such existing information has been one of the main problems for this research. Along the same line, the government must be consistent in the programs and projects it launches. Knowledge and data generated from earlier projects should be used in order to optimize the economic resources employed and the results obtained.

Only with changes in public policy, such as those presented here and others to be identified, will improvements in income levels derived from coffee and cocoa production for the rural populations of Orellana and Sucumbíos Provinces be achieved. These policies must work without damaging the environment or expanding the agricultural frontier, and especially without impacting the forested areas that, as was mentioned above, cover about 60% of the UPAs.

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