

CHAPTER 14

ORGANIC CACAO CHAIN FOR DEVELOPMENT

The case of the Talamanca Small-Farmers Association

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Abstract. In de Talamanca region in Costa Rica cocoa production was abandoned in the late 1970s when yields dropped to zero due to Monilia. In the early 1990s, the Talamanca Small-Farmers Association (APPTA) gained success in promoting its revival. By creating contacts with buyers of organic cacao in the United States, APPTA was able to certify a significant area of cacao and to start exporting to the USA. Organic cacao had positive effects on farmers' income and on the environment. Recently a number of problems occurred: the USA buyer has withdrawn, the price of conventional cacao increased and the amount of organic cacao has increased as well, making it very costly to pay a premium for organic cacao. Costa Rica and Panama both produce only small volumes of organic cacao. Some cocoa producers started production of organic banana. APPTA has to cope with market instability due to excess supply and with low local production due to biological threats. APPTA has to find a reliable buyer and either to increase the volume of cacao or to pool its production with the production realized by COCABO in Panama. This latter option will lead to a number of associated challenges such as harmonization of quality, organizing logistics, tracking and tracing, elaborating contracts between cooperatives etc. Developing new commercialization channels towards Europe reveals three options: APPTA sells beans directly to a Dutch buyer; APPTA sells beans to a Costa Rican processor who in turn exports semi-manufactured products to Dutch producers; or beans are processed by Costa Rican industry and APPTA commits to selling semi-manufactured products to Dutch producers. Each of these three options has different repercussions on labelling, quality, environmental impact and profits. Additional options to improve livelihood of cacao farmers consist of diversification of the production at farm level and developing alternative sources of income, such as eco-tourism. The real challenge facing APPTA is to determine how to bring stakeholders with different interests and competencies together in an effective way to improve chain performance and to enhance farmers' livelihoods.

Keywords: organic cacao; marketing; chain performance; market instability; low productivity

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INTRODUCTION

The production of cacao in Costa Rica, particularly in the region of Talamanca, has gone through different periods. Cacao was produced and commercialized in this region during colonial times. Intertribal wars and colonial uprisings, however, hindered long-term agricultural settlements. It was not until 1860 with the emergence of banana production that agricultural development started (Somarriba and Beer 2003). Cacao came soon afterwards to replace banana plantations wiped out by *Fusarium oxysporum*. Cacao reached its peak in the 1920s and became the most important crop between 1940 and 1970 (Somarriba and Beer 2003). Cocoa prices soared in 1977-1978, but *Monilia (Moniliophthora roreri)* appeared in the late 1970s and production dropped to nearly zero (Somarriba and Beer 2003), depriving farmers of their only source of cash income. As a result, farmers abandoned their cacao plantations and shifted to subsistence crops such as maize, beans, rice and guinea grass. By the early 1990s, they lived mainly from these subsistence crops and poultry, selling only a very low proportion of their production on the market. Others kept their cacao plantations, although maintenance was poor, and combined them with trees such as avocado, citrus, cedar and laurel.

In the early 1990s, after quite a long interruption of cacao production in the region, the Talamanca Small-Farmers Association (APPTA) gained success in promoting its revival. With the support of ANAI, a non-governmental organization of US origin, APPTA reorganized the commercial aspects of cacao and established the conditions required for promoting and implementing organic production. By creating contacts with buyers of organic cacao in the United States, APPTA was able to certify a significant area of cacao and to start exporting to the USA. After this initial success, APPTA also made efforts to sell other products (especially banana) grown by its members under the rainforest and often mixed with cacao, but which were also used for consumption by the family. As a result of these efforts, APPTA obtained organic certification for the bananas produced by its members.

Recently, however, APPTA and its producers are being confronted with new challenges related with the optimization of the cacao chain in response to world market developments. An important issue is the complexity of selling organic cacao. A recent considerable increase in the price of conventional cacao in the global market is making it difficult to obtain a premium for organic cacao. Likewise, the supply of organic cacao has increased worldwide, putting even more pressure on prices. As the former buyer of the association has withdrawn, APPTA is now faced with the task of finding a new reliable buyer that will pay the premium and buy the total amount that is organically produced. In addition, the currently produced volume is low, mainly due to poor plantation management and continuous phytosanitary problems (fungal diseases). Processing possibilities in Costa Rica are limited and only a few comply with certification requirements. Substantial improvements are needed in these fields, especially as new buyers have both quantity and quality demands. APPTA also has to deal with the costs of certification.

The way these new challenges are solved depends to a large extent on the capacity of APPTA to readapt itself to this new context.

ORGANIC CACAO CHAIN

During the phases of formation, organization and implementation of the organic cacao chain in Talamanca, the outstanding player has been APPTA, which has promoted, fostered and supported the whole process. The history of organic cacao will be discussed, focusing on two aspects: first, a description of the cocoa production chain with information about actors and volumes; and second, a description of its impacts on farmers' livelihood and on the environment.

Cacao production in Talamanca

Producers of organic cacao and banana in Costa Rica are mainly located in Talamanca County, which is part of the Province of Limón in the south-eastern part of the country. The county is characterized by a tropical climate with an average rainfall of 4,000 mm and an average temperature of 25.6°C. It includes lands between 40 and 1,500 m above sea level in two main well-defined areas: the highlands and the valley. The highlands account for about 82% of the total area and 20% of the population, while the valley accounts for 18% of the area and 80% of the population. Hilly areas have substantial constraints for agriculture, with low fertility and high risk of erosion. In contrast, the valley receives less rain, has slopes of less than 13%, and moderately fertile soils, although these are being at high risk from flooding. This area, not surprisingly, has been more intensively used for agriculture, with basic grains, cacao, guinea grass and fruits being the most important crops (Damiani 2001).

In term of social composition it is important to mention that Talamanca houses two of the largest Indigenous Reserves in Costa Rica. Originally established as a single reserve in 1977 with a total population of 6,500 inhabitants, the separate Indigenous Reserves of Bribri and Cabécar were established in 1982. The Indigenous Reserve of Talamanca (IRT) Bribri covers an area of 43,690 ha, while IRT Cabécar possesses 22,729 ha. Together they account for 23% (664 km²) of the area and 45% of the population of Talamanca County. They are both part of La Amistad National Park and the Talamanca-Caribbean biological corridor (Damiani 2001).

Farmers in Talamanca grow cacao as part of a production system that includes shade trees and rainforest. Most of the organic-cocoa producers in Talamanca are smallholder farmers who usually grow a mix of crops cultivated under the rainforest. After the diseases of the 1970s farmers abandoned their cacao plantations; many slashed and burned the areas with cacao and started to grow subsistence crops such as maize, beans and rice. For cash income they depended on timber, fishing and hunting. Others maintained their cacao plantation and combined cacao with trees such avocado, citrus, cedar and laurel. This production system required little work and farmers still harvested and sold some cacao at the end of each year. No labour was invested in phytosanitary or soil fertility measures.

APPTA (Talamanca Small-Farmers Association)

Costa Rican farmers and farmers' associations started organic cultivation of crops in several places at the same time in the mid-1980s, in response to crop diseases, high costs of pesticides and health problems caused by chemical inputs. The initiatives were unrelated but had in common that farmers started to experiment with organic fertilizers and pesticides.

ANAI, an NGO of US origin that started working in Talamanca in the mid-1980s, promoted reforestation activities among indigenous communities. Later on, its role was crucial in the creation of APPTA. ANAI encouraged farmers to create an organization that could serve collective interests such as collective marketing of products and attract foreign donors interested in the implementation of projects that involved the preservation of the rich environment of Talamanca. The Asociación de Pequeños Productores de Talamanca (APPTA) was created in 1987 and has since played a key role in the growth of organic agriculture in the region and in the access of small farmers to organic markets.

The first collective task that APPTA undertook was building and opening an input supply store, which is still operating. In addition, APPTA worked with environmental organizations and NGOs to promote rainforest conservation. Soon afterwards, it received support from the Inter-American Foundation, enabling it to strengthen the association by constructing buildings and purchasing equipment.

While APPTA was quite successful in attracting international funds for the conservation of the rainforest in a region with indigenous communities, by the late 1980s several members were arguing that it needed to change its focus towards more sustainable activities. These discussions marked the beginning of a more active role in the search for possible markets for their products, which eventually led to contacts with buyers of organic products. APPTA played a key role in achieving access to organic markets in three major ways:

- Identifying the possibility of organic certification for the dominant production systems among small farmers in Talamanca. In fact, organic production in Talamanca did not involve a substantial change, in contrast to production in other regions. This was because, when looking for market opportunities, APPTA made contact through ANAI with buyers of cacao in the United States who were looking for regions in developing countries where cacao plantations had been abandoned for several years due to pests and diseases, and who were promoting the idea of obtaining organic certification for these plantations.
- Organizing the marketing of organic cacao and banana. Due to the high cost of transactions involved in negotiations with single farmers, the presence of APPTA was instrumental for the organic-cacao buyers, as it was able to organize an efficient marketing system, purchasing the product from farmers and delivering to buyers in a timely, economic and convenient manner.
- Setting up and managing a monitoring system to ensure that all farmers use organic technologies. This has been the most important task carried out by APPTA. The association was able to organize an efficient system that is decentralized and based on members' participation. In fact, instead of organizing a central team of technicians who permanently visit farmers, as is done in many

farmers' associations elsewhere, APPTA created 'local committees' in the different villages. These committees have worked very well because other members of the community recognize their roles and their decisions are fully respected.

So far we have considered the role of APPTA as promoter of organic cacao production in the region. The results of its other activities are even more impressive. By 2000, over 1,000 members of APPTA had obtained organic-producer certification for more than 2,000 hectares of cacao and banana (Damiani 2001). In the same year APPTA exported 210 tons of organic cacao, of which 160 tons went to the USA and 50 tons to Europe. By 2001 the export of organic cacao through APPTA had increased to 300 tons. In the same year about 2,300 ha was certified by APPTA, and cacao – either with or without banana – was grown on this area under rainforest (Damiani 2001). In 2003 there were already 1,170 organic producers in 50 communities in the Talamanca region. In the same year cacao farming was practised on 3,016 ha, with an average farm size of 10 ha (3.6-134 ha). Cacao plantations within these farms were on average 1.3 ha. The average cacao plantation is now 21 years old (1-80 years), with an average annual yield of between 100 and 200 kg/ha. In good years the total cacao yield of APPTA farmers is about 300 tons, although in bad ones it can drop to as low as 40 tons, as was the case in 2001. To date one third of all Costa Rican cacao comes from Talamanca.

Other relevant actors

There are other important stakeholders (Andrade and Detlefsen 2003) besides APPTA in the cacao chain. Although most of them are not exclusively related to Talamanca and do not solely trade in organic cacao, their role within the production and commercialization process of products from Talamanca is essential.

The cacao that is processed in Costa Rican cacao chains is not only produced within the country. An important portion comes from abroad, in particular from Panamá, where small cacao producers are organized in the Cooperativa Cacaoterra Bocatorena (COCABO). Conventionally produced beans are collected by COCABO and undergo processing into liquor blocks by the Costa Rican Cacao Products Company (CCP) or by FINMAC, a Dutch cacao farmer. The FINMAC liquor blocks are processed by a local company, Gallileto, into chocolate for Costa Rican consumers. This chain is based on conventional cacao because Costa Rican consumers are not willing to pay the premium for organic cacao. The liquor blocks from CCP are sold to the USA in the conventional cacao chain. Organically produced beans from Panamá also go through COCABO to CCP in order to be processed into liquor blocks. These blocks used to be sold by Organic Commodity Products Inc. (OCP, which recently withdrew from the chain) in the US market for a premium. Organically produced beans from the Talamanca region in Costa Rica are collected by APPTA and formerly followed one of four routes: 1. direct sale of beans to European buyers; 2. direct sale of beans to OCP (in USA and further sale to USA buyers); 3. processing at CCP into liquor blocks and sale through OCP to US buyers; 4. processing at CCP into liquor blocks and direct sale to European buyers.

Since the withdrawal of OCP from the chain, two of the more common alternatives no longer exist. Figure 1 summarizes the different actors in the chain and their relations.

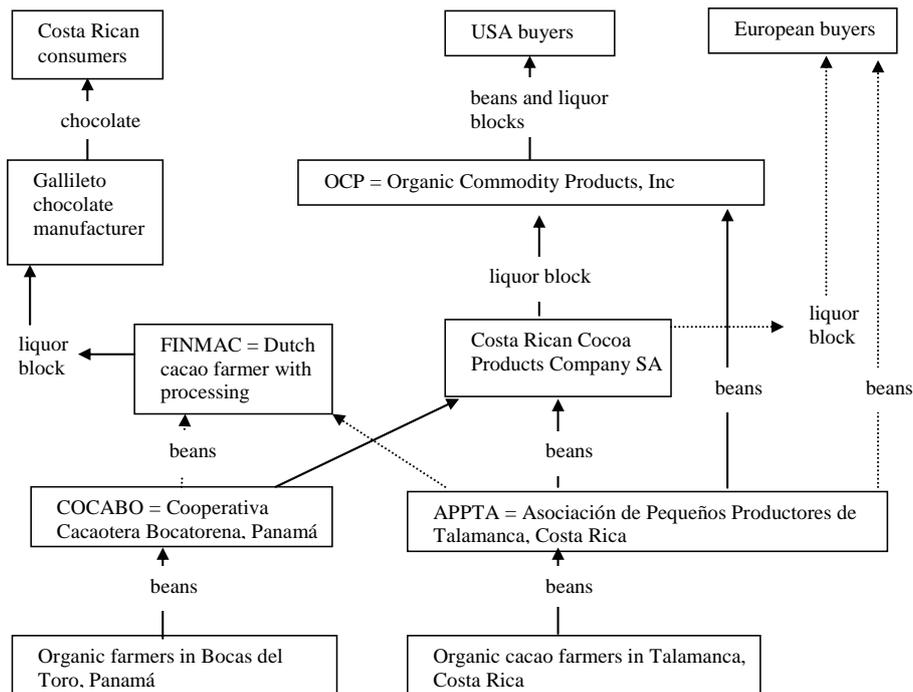


Figure 1. Cacao chain

Certification, grades and standards

For a country to be able to export organic products to the EU a number of minimum standards regarding 'organic' certification must be complied with. Until 1990, certification firms were based in Europe and the USA, making certification a costly affair. While laws and institutions allowing for locally based certification of firms were supposed to reduce the certification costs for farmers, trust relations with foreign certification firms dominated, obliging local firms to make partnerships with foreign ones, increasing costs again. Until 2001, Eco-Lógica was the only registered certifying firm in Costa Rica. Currently there are several additional national certification firms: Aimcopop, OCIA (US), BCS Öko Garantie (Germany), Ecocert (France), and Skal (The Netherlands).

Two types of labels are important at present: organic (O) and fair trade (FLO). Farmers from APPTA or COCABO regard both organic and FLO labels as valid.

Problems tend to arise within the chain when processing takes place, is done by FINMAC. The Dutch cacao farmers are not entitled to the FLO label as they are not a local smallholder themselves. Figure 2 depicts how certification flows through the commercialization chain.

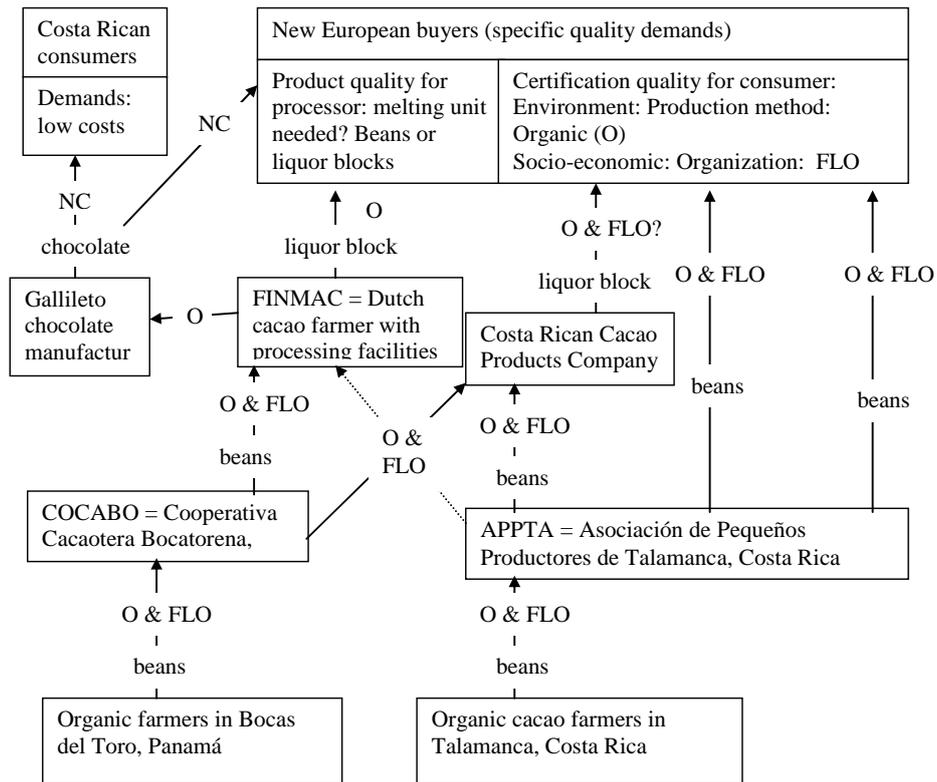


Figure 2. Diagram of organic (O), Fair-trade (FLO) and Non-certified cocoa (NC)

Effect of organic production on farmers' incomes and quality of life

Organic production in Talamanca has had significant positive effects on farmers' incomes and quality of life (Triana 2003). With the emergence and growth of organic production, farmers were able to start selling cacao again, and they obtained prices significantly higher than in the conventional market. This is important because Talamanca is one of the poorest regions in Costa Rica. In 2000, for instance, APPTA paid its members an average of 1 USD per kg of organic cacao against 0.40 USD per kg for conventional cacao. With the introduction of organic banana income became diversified. The combination was appropriate because, while cacao has two harvest peaks a year, banana can be harvested every two or three

weeks all year round. Cacao and banana together provide 32% of farmers' revenues with another 37% coming from forest products that are part of the organic cacao and banana production system (Damiani 2001). If only cash income is considered, cacao and banana represent 62% of the income. Organic cacao and banana have also proven to be a feasible alternative for preventing health risks related to conventional agriculture.

Nevertheless, although APPTA is FLO-registered, farmers still suffer from poverty as they generally have a low cacao yield (average of 150 kg per ha) and hardly any other source of income. It is certainly worthwhile exploring additional options such as ecotourism or the promotion of products from other components of the system. The transformation of cacao waste into a more valuable product would be a convenient task to pursue.

Effect of organic production on the environment

The effect of organic production on the environment (Triana 2003) has been very positive. It has helped to safeguard a highly diverse system. More than 90% of Costa Rican floral diversity is found in Talamanca, and so are 1000 of the 1300 fern species found in the whole country. Organic cacao and banana have contributed to protecting this system because plantations are characterized by a thick groundcover that prevents erosion and leaching, and they help to recycle residues within the system. Plantations also host an important number of plant and animal species (see Table 1). The area of organic cacao serves as a buffer zone between agricultural area and natural forest and therefore contributes to the conservation of the biodiversity in the Talamanca-Caribbean Biological Corridor (Martínez et al. 2003).

Table 1. *Plant and animal species in plantations*

System	Tree species	Mammals	Birds	Birds on CITES list
Natural forest	85	51	130	44
Shaded cacao	35	25	130	34
Shaded banana	14	9		

Sources: Giracocha (2000); Reitsma et al. (2001)

NEW CHALLENGES IN THE CACAO CHAIN

So far the organic cacao chain has gone through several steps: its formation, development, organization and implementation. It has even become properly embedded within a policy and legal framework. Training, research and extension supporting the chain are also in place. Nonetheless, world market conditions are changing continuously and all actors in any chain need to respond to these changes quickly to be able to maintain their presence and their results. To a large extent adjustments are achieved by optimizing the chain, yet remaining flexible.

Like many other actors in the chain, APPTA is now facing new and varied challenges regarding organic cacao. The present decade has brought new developments. In general there are two categories of challenges: market instability both in volume and in price due to excess supply, and low local production levels due to biological threats and poor management, which ultimately worsens quality standards.

Market instability

Volume and price are the two crucial factors endowing market instability (Hinojosa et al. 2003). On the world organic-cacao market many new producers have emerged, of which the relatively new presence of the Dominican Republic is notable, due to the large volume of cacao it produces. Not surprisingly, this event has led to a considerable increase in supply and a respective drop in prices. To solve this issue the buyers may consider focusing their efforts on increasing consumers' demand. In the case of APPTA, the challenge in this respect is greater due to the disappearance of a key chain actor, OCP Inc., a former organic-cacao buyer. The association needs now to ensure its relations with existing buyers and that prices are guaranteed even under current conditions. At the same time, it needs to find a new reliable buyer of organic cacao that will accept even larger volumes in a market that is rapidly becoming saturated.

The organic-cacao chain is also under pressure due to the increase in the price of conventional cacao. Political instability in Ivory Coast, the major producer of cacao in the world, has led to extremely low volumes of cacao during the last two years, resulting inevitably in booming prices. APPTA is now in a position of having to convince its organic-cacao producers to keep on producing organically even though the prices of conventionally produced cacao are now as high as the prices commanded by organic cacao. This situation is also encouraging farmers to focus on other crops like organic banana, making cacao only a second priority, and some are simply abandoning it. From an environmental point of view this is likely to be undesirable. From a farmers' income point of view it may be attractive in the short term to concentrate on banana alone. However, a diverse system with both cacao and banana is less vulnerable to market fluctuations.

At present Costa Rica has ample laws and institutions in place that give it preference with respect to the export of organic products to Europe, and therefore it is likely to have a relative competitive advantage compared with other providers. An increase in volume and improved performance in the chain can make APPTA even more attractive for big buyers.

Low production and low farmers' income

Besides price and volume fluctuations, low yields are the most important problem facing cacao farmers in the region. In Talamanca, production of organic cacao is extremely low per farm, per hectare and per tree. There are three main reasons. First, the number of cacao trees per ha is low and therefore the number of trees per farm is

small. Second, the age of the plantations is relatively high, and they are therefore no longer so productive. Lastly, most of the plantations are not well maintained, which facilitates the presence of pests and diseases, especially when the cacao trees are old and little fertilization takes place. APPTA needs to help farmers increase their cacao production, but without endangering the certification or the biodiversity at farm level.

DEVELOPMENT IMPLICATIONS AND FUTURE PERSPECTIVES

As described above, the challenges facing APPTA are considerable. Despite these circumstances developments are beginning to happen that should help to overcome current restrictions. APPTA is definitely not alone in its struggle. Support is present in the form of existing and proposed projects with other actors and stakeholders. Currently, for instance, new actors are entering the scene, trying to replace OCP Inc. and its USA-oriented chain with a chain towards The Netherlands.

CREM, a Dutch consultancy agency, has done some studies on organic cacao and on the Costa Rican situation. They are currently assisting APPTA in trying to find an appropriate and interested Dutch cacao buyer for Costa Rican organic cacao. The particular arrangement chosen will depend on many factors. Nevertheless the following three options have already been identified as possible ways forward (CREM 2002a; 2002b): first, APPTA sells beans directly to a Dutch buyer; second, APPTA sells beans to a Costa Rican processor who in turn exports semi-manufactured products to Dutch producers; and third, beans are processed by Costa Rican industry and APPTA commits to selling semi-manufactured products to Dutch producers. Each of these three options has different repercussions on labelling, quality, environmental impact and profits.

The latter options in no way exclude other alternatives. APPTA for instance is taking up other organic products and exploring other marketing strategies so that it can become involved in new product–market combinations. At the same time, APPTA's equivalent in neighbouring Panama, COCABO, represents an important opportunity for joining forces to improve the commercialization of their products.

New opportunities are also on the horizon with regard to the problems of low productivity and pest diseases. CAB International is an international NGO active in Costa Rica and Panama. Together with CATIE (Tropical Agriculture Research and Higher Education Centre), it is carrying out projects on biological control of cacao diseases, on rational pesticide use in cacao, and on genetic improvement. A combination of cultural practices and biological control with an appropriate mixture of antagonists (mycoparasites) can significantly reduce losses due to pests. Likewise the project 'Organic Cacao and Biodiversity', managed by CATIE, has played a major role in the development of organic cacao production and commercialization in Talamanca. The objective has been to enhance sustainable production and biodiversity conservation of at least 300 indigenous farms producing organic cacao in Talamanca, favouring biodiversity conservation in the Mesoamerican Biological Corridor (Somarriba and Harvey 2003). The project has 4 components: on-farm biodiversity conservation; sustainable production and commercialization;

reinforcement of local organizations and on-farm biodiversity monitoring. It would be most welcome if this project could be continued for the coming years.

Efforts of other actors have been aimed at the promotion of new economic alternatives such as ecotourism (Díaz González 2004; CREM 2003). The idea behind such initiatives is to make the organic cacao system more viable by generating additional income from sources other than cacao.

Finally, Wageningen University is joining forces with CATIE and CABI to work at integrated supply-chain development, including options for quality improvement and monitoring, reduction in costs of certification, improved timeliness and volumes of delivery, appropriate benefit-sharing among stakeholders, etc. Additional options include transforming cacao waste into new products to generate additional income and exploring options with regard to the production of organic chocolate products within Costa Rica. For the latter option, organic ingredients other than cacao (e.g. milk) need to be available. Producing these ingredients might offer opportunities to develop new organic chains in other sectors.

Another path is the development of specific breeding objectives concerning disease resistance, at the same time taking into account consumers' and processors' wishes regarding quality. The working methods are fully participatory, including all stakeholders in meetings, training and capacity building of both individuals and institutions, and working with farmers' field schools to keep responsibilities as much as possible at the farmers' level.

CONCLUSIONS

The role of APPTA in the development of organic cacao in Talamanca has been outstanding. Its actions have not only helped cacao production to re-emerge, but also to widen the economic alternatives of Talamanca's local farmers. Organic production of cacao and banana has had a great positive impact on the incomes and quality of life of small farmers in Talamanca because both crops are important and complementary sources of cash income. Perhaps many inhabitants still live under adverse conditions, but they certainly have a platform from which to move forward.

The association has been successful in providing new opportunities for its members through certification of organic cacao and banana production and the establishment of new commercialization channels. APPTA has created economies of scale by managing higher volumes with lower transactions costs. It has also been successful in creating business relations with foreign firms and in creating a monitoring system that effectively ensures that all members comply with organic methods of production, one of the key requirements of the organic certification process for small-farmers' associations. APPTA provides intensive training to its members and in this way has attracted and maintained the interest of all its members.

Besides economic advantages, the role of APPTA as a promoter of organic production systems has also provided positive effects on the environment of Talamanca, which is one of the most diverse ecosystems in Costa Rica and at the same time one of the regions most affected by the expansion of commercial

agriculture in rainforest areas. Organic cacao and banana systems have contributed to the conservation of the rainforest and wildlife.

Despite all the positive benefits mentioned so far, as a result of the recent circumstances referred to in the second half of this article, APPTA is being forced to reinvent its own role to overcome the current challenges imposed by the market. The association has to find a reliable buyer able to replace OPC Inc. Likewise, it urgently needs to improve plantation yields and product quality, especially due to the emergence of new producers that probably have higher investments and better incentives. The presence of COCABO is certainly crucial in pursuing a bigger and better commercialization channel. A partnership between these two farmers' organizations is a goal that needs to be achieved in the short term for the good of both associations.

APPTA is definitely not alone in its struggle, however. It is receiving support through existing and proposed projects. Various actors (European and local) are interested in finding solutions to all current constraints. The real challenge facing APPTA is to determine how to bring stakeholders with different interests and competences together in an effective way to improve chain performance and to enhance farmers' livelihoods.

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