

Best practices for small farmers in Cuba and Costa Rica in the Global Era (1990-2008)

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1. INTRODUCTION¹

This paper explores the evolution of cooperatives in Costa Rica and urban agriculture in Cuba as two cases of best practices for small farmers in small economies to engage in the process of agricultural development from 1990 to 2008². The article shows how both avenues have enabled small farmers to expand production and secure their long term survival under different agricultural models. The central message of the paper is that these channels might have the potential to create similar opportunities for small holders in other developing economies applying similar or distinct agricultural policies.

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1. There is no precise or universally accepted definition of smallholders. The most obvious measure is farm size. Several sources define small farms as those with less than 2 hectares of cropland with a low base of assets (NAGAYETS, 2005; HAZELL *et al.*, 2007; WORLD BANK, 2003). This paper defines small farms as production units that are based on family labour with limited access to basic assets (mainly capital), and between 2 ha and 20/30 ha in size, depending on regions, crops farmed and countries. The paper uses several terms to describe these production units, including small holders, small farmers, small producers, and peasants.

2. This paper coins the term «best practices in small farming» to describe spaces created for small farmers under different agricultural strategies to engage them in national and international markets in the global era (see BOTELLA-RODRÍGUEZ, 2012). The term was coined during the fieldwork developed in Cuba and Costa Rica from 2008 to 2009.

There are a number of commonalities between Costa Rica and Cuba that make the comparison between the two cases of small farming appealing. The two countries are small developing countries with similar patterns of social development and historical development of agriculture. In terms of agriculture GDP, per capita GDP, public expenditures in social services (health and education), Cuba and Costa Rica present similar settings³. More importantly, both economies have also experienced relatively similar historical patterns of agricultural development since the early 1900s. Small farmers had a significant social and economic role in producing traditional and diversified crops for export and national consumption (in the case of Cuba until the early 1900s and in the case of Costa Rica until the late 1970s). Both countries developed persistent export-led strategies based on monoculture during the 20th century (sugar in Cuba; bananas in Costa Rica). Moreover, Cuba and Costa Rica were greatly influenced by changing external relations when designing their agricultural initiatives during the 20th century. External shocks (1990 in Cuba and the early 1980s in Costa Rica) forced the two countries to rethink their agricultural policies⁴. In terms of differences, both countries can be considered «paradigmatic» cases of distinct agricultural development strategies in the context of globalisation. Whereas Cuba is a unique experiment of inward-looking development⁵, Costa Rica is generally seen as a successful case of agricultural diversification, agroindustrial development and non-traditional agrarian exports (NTAEs) promotion⁶.

The paper is organised into four sections. Section two discusses cooperative development in Costa Rica as a mechanism to ensure the long-term survival of small farming production in the dairy and coffee sectors, two traditional sectors. The section explains the reasons for the success of two cooperatives, the channels that promoted small farmer insertion into these ventures, and the implications of the two cases for cooperatives in other developing economies. Section three investigates urban agriculture as a mechanism to expand small farming production based on decentralised food markets and commercialisation structures under the Cuban non-capitalist context. This section explains how the

3. See Appendix I.

4. In 1990, Cuba shifted to organic agriculture, family farming, internal liberalisation and land decentralisation as a necessary answer to the crisis that followed the collapse of the Soviet Bloc and the tightening of the US embargo. In the early 1980s, Costa Rica began to implement export-led growth and agricultural conversion programmes (outward-looking development). In 1990 Costa Rica became a member of the General Agreement on Tariffs and Trade (GATT/World Trade Organisation, WTO), therefore liberalising agriculture to a greater degree, further promoting NTAEs and attracting FDI (and thereby TNCs) in agriculture, agroindustrial development and service related activities.

5. This paper defines inward-looking development as an agriculture strategy based on three pillars: 1) low-input and sustainable technologies based on small farming with little reliance on external inputs, machinery and imported technology; 2) food import substitution; and, 3) improved access to land and domestic markets (via redistributive agrarian reform).

6. See Appendix II and III for a more detailed description of the cases.

programme has become one of the best examples of inward-looking development implemented on a national scale. Urban agriculture has successfully promoted more environmental and socially inclusive food production systems in Cuba's urban and suburban areas. The last section summarises some of the achievements and challenges of these two strategies, providing some useful experiences for agricultural development in other low-income economies.

The paper is based on fieldwork undertaken in 2008 and 2009 and a wide range of recently published materials⁷. By drawing on these sources the analysis is able to capture contemporary developments in Costa Rica and Cuba and provide useful examples of agricultural development based on recent events.

2. COOPERATIVISM IN COSTA RICA: AN OPPORTUNITY FOR SMALL FARMING⁸

Cooperatives can benefit producers engaged in the same sector by integrating, partially or totally, their farming activities⁹. They can be useful mechanisms to face structural inequalities in accessing basic assets to compete in national and international markets in developing economies. Cooperatives can also spread new technologies, production mechanisms and skills, and reinvest part of their surpluses to improve their services and become more competitive (INFOCOOP, 2008a, 2008b). In the case of agricultural and agroindustrial cooperatives, they can also create important forward and backward link-

7. By developing inductive and in-depth knowledge of two cases of agricultural development, this paper adopts a qualitative approach because of the advantages it provides for understanding processes of change. Specifically, qualitative comparative case studies enable a much higher level of knowledge and in-depth understanding of a specific reality than studies based on quantitative methods. Specifically, in this investigation much reliance was placed on both secondary quantitative data and qualitative information (BRYMAN, 2004; CROTTY, 2004; RAGIN, 1994).

8. According to the 6th Agriculture Census (2015) average farm size in Costa Rica is 25.9ha; Guanacaste presents the highest average size with 54.6ha versus Cartago with the smallest average farm size of 9.7ha. The census also shows the legal situation of farms owners: 87.1% are physical owners (individuals) and 11.7% are managed by different types of societies. In terms of land use, individual owners manage 54.7% of total cultivated ha and societies 42.5% (INEC, 2015). SÁEZ-SEGURA (2006) differentiates two types of family farmers: 1) a more traditional *peasant sector* that gathers low-income farmers living in former agrarian frontier zones and in rural settlements created by the Agrarian Development Institute (IDA); and, 2) an important group of *commercial farmers* that produce both traditional crops (coffee, bananas, sugar cane) and non-traditional crops (tropical fruits, vegetables, ornamental plants).

9. INFOCOOP defines cooperatives in Costa Rica as an organisation of associated individuals to face particular socioeconomic problems. The principles of cooperativism are union, individual effort, mutual assistance and human solidarity (INFOCOOP, 2008a; CONACOOOP, 2008).

ages with local markets and services (IICA, 2008). These local markets provide access to inputs, credits, food and equipment for small local producers (IICA, 2008).

In the case of Costa Rica, agricultural cooperatives have a long tradition. In the early 1940s, the cooperative movement gained relevance enhanced by Law No. 861 (*Ley de Fomento de Cooperativas Agrícolas o Industriales*) in 1947 (IICA, 2010). Successive reformist governments after the 1948 Civil War supported the creation and expansion of cooperatives throughout the country (Huaylupo, 2003a). Through Law No. 861, The National Bank of Costa Rica became the motor of cooperative enhancement during the 1940s and 1950s (IICA, 2010)¹⁰. In 1954, Law No. 1644 created the Department of Cooperatives of the National Bank. During the 1960s, the National Bank of Costa Rica promoted cooperatives through the Department for Cooperative Development and the System for Rural Credit Organisations (Huaylupo, 2003a, 2007).

With the passage of time, Costa Rican cooperatives increased their contribution to national production. During the 1960s, they became an important instrument in the process of wealth distribution, with particular impact in rural areas and traditional crops (IICA, 2008)¹¹. The 20th of February 1973, Law No. 5185 created the National Institute for Cooperative Enhancement (*Instituto Nacional del Fomento Cooperativo, INFOCOOP*). This institute continued the work developed by the National Bank until the early 1970s (INFOCOOP, 2008a, 2008b).

Cooperative development in Costa Rica was mainly supported by the significant number and relevance of small farmers (CADETI, 2003; González-Mejía, 1997). Until the 1960s, Costa Rica's economic growth was driven by an agro-exporting economy highly dependent on a few agricultural products, with coffee and banana accounting for almost 90% of the total value of exports (Bulmer-Thomas, 1987; Mesa-Lago, 2000). This economic strategy was based on small farming and traditional crops such as coffee, sugar and basic grains, which were vulnerable to price fluctuations in international markets (Ro-

10. In the late 1940s a great array of cooperatives was established (Coope Victoria created in 1943, Cooperativa de Productores de Tabaco, Cooperativa de Productores de Leche and Cooperativa de Productores de Papa). The National Bank of Costa Rica for instance launched the Rural Newsletter with a specific section *Cooperar*; since 1948 the National Bank began to publish the newspaper *el Cooperador Tico* (IICA, 2010).

11. The III National Cooperative Census (2008) of Costa Rica showed the significance of cooperatives in the national economy as a whole. While in 1963 Costa Rica had 67 cooperatives and 15,654 members, in 2008 the country had 530 cooperatives with 777,713 associates (INFOCOOP, 2008a). These 777,713 cooperative members represented 18% of total population of the country and 37% of the economically active population in Costa Rica (21% men and 16% women) in 2008 (INFOCOOP, 2008a).

dríguez, 1998). The ISI strategy aimed to modernise traditional activities by promoting agricultural diversification. Yet, the need for foreign exchange to pay for extra-regional imports and sustain the process of industrialisation meant the economy continued to be heavily reliant on revenue from traditional export agriculture and small farming (Bulmer-Thomas, 1987; Mesa-Lago, 2000; Rovira Mas, 1987; Seligson, 1977)¹².

Costa Rica currently has 101 cooperatives directly or indirectly engaged in traditional and non-traditional crops with 38,760 associates. IICA (2008) defines these cooperatives as amplified agriculture sector cooperatives (AASC). They are one of the most common types of cooperatives in contemporary Costa Rica. Nineteen per cent of these cooperatives develop agricultural production, 0.17% agroindustry, 40.79% commercialise agriculture products (crops and inputs) and 0.14% rural tourism. There are seven cooperatives in the credit sector also linked to agriculture activities (INFOCOOP, 2008b).

More recent data on cooperative development in Costa Rica show the potential of these entities to integrate small farmers into NTAEs. Cooperatives have, for example, helped small farmers to engage in the production of African Palm (for example Coopeagropal R.L.) and pineapple (e.g. Coopepueblonuevo R.L.) (IICA, 2008; INFOCOOP, 2008b)¹³. However, cooperatives have become even more important in supporting small farmer production of traditional crops. Traditional crops cooperatives produce 90% of processed milk of the country (INFOCOOP, 2008a); 37% of the national production of coffee (e.g. CoopeVictoria R.L or Coopeagri R.L.) and 17.13% of the national sugarcane output (e.g. Coopeagri R.L) (INFOCOOP, 2008a).

In this context, the following sections discuss two outstanding agricultural cooperatives in Costa Rica: Dos Pinos and Coopeagri¹⁴. These two cases can be considered best practices for small farmers to engage in agricultural development. They have created livelihood opportunities for small farmers in Costa Rica since the early 1960s. They have also survived to other cooperatives during the 1980s and 1990s when traditional crops were

12. Although total spending on agriculture decreased compared to other sectors (e.g. funding of manufacturing development), agricultural policy placed priority on traditional export crops and small farming (coffee, bananas, cotton, sugar and beef) (BRENES, 1990; BULMER-THOMAS, 1987). During the 1960s, Costa Rica regularly channelled 50% of all credit to agriculture towards coffee. During the decade, national-bank credit also offered a great array of funding to promote sugar, livestock, cotton, and tropical fruits.

13. Interview with L.G. Coto, Confederación de Cooperativas de Centroamérica y El Caribe, San José, 16 June 2009.

14. The author visited these two cooperatives during her fieldwork period to understand the extent to which cooperative development is able to create economic, social and sustainable opportunities for small producers engaged in traditional crops.

placed in a secondary place in the agriculture agenda. They have been able to combine competitive and diversified production with other social achievements for small farmers¹⁵. In sum, Dos Pinos and Coopeagri provide valuable insights on how to become competitive in traditional crop production (in specific regions and areas) within the context of trade liberalisation, NTAEs promotion and agriculture conversion programmes.

2.1. Dos Pinos R.L: opportunities for small/medium milk producers

Dos Pinos R.L. is probably one of the most successful examples of cooperative production in Latin America. In 2009 it was declared the company of the 21st century in Costa Rica¹⁶. The cooperative was founded on the 26th of August 1947 when 25 small producers supported by the National Bank of Costa Rica decided to organise and integrate the different milk production phases: production, transformation of dairy products, and direct sale. The original 25 associates aimed to obtain higher prices for their milk, better access to inputs and promote industrial and commercial development in Costa Rica, especially in deprived milk production areas (e.g. in the Brunca or Atlantic Huetar region). Since the mid 1950s, the cooperative has progressively improved prices and commercialisation channels for small and medium milk producers throughout Costa Rica (Dos Pinos, 2007, 2009). The cooperative currently processes and commercialises 300 million kilograms of milk per year. This represents approximately 85% of the industrialised milk production of Costa Rica which is produced by 1,382 associated producers, who range from very small peasants to highly successful medium-sized producers (Dos Pinos, 2009). In 2008, Dos Pinos' sales reached US\$466 million, while dairy exports amounted to US\$44 million. Operating in 12 countries, Dos Pinos products are currently exported to USA, Mexico, Panama, Dominican Republic, Trinidad and Tobago, and the Colombian island of San Andrés. In 2008, the cooperative accounted for 1.7% of the national GDP (Dos Pinos, 2009).

Dos Pinos has also increased small/medium milk producers' contributions to national food security (in terms of milk consumption). Influencing nutritional patterns, the cooperative has converted Costa Ricans into one of the main consumers of milk per capita throughout Latin America. Dos Pinos milk has contributed to an average per capita consumption of 200 litres of milk (and related products) per year (CONACOOB, 2008). Costa Rican levels of consumption are much higher than other larger nations with com-

15. Appendix II describes Costa Rican regions with further detail.

16. Interview with L.G. Coto, Confederación de Cooperativas de Centroamérica y El Caribe, San José, 16 June 2009.

petitive milk sectors such as Colombia (where per capita consumption of milk is 150 litres per year) or Chile (with 143 litres per year). In terms of consumption, Costa Rica is only surpassed by much bigger Latin American countries like Argentina (with 233 litres per year) (CONACOOOP, 2008)¹⁷.

2.1.1. The reasons for Dos Pinos' success

There are a variety of factors that explain why Dos Pinos has been successful in comparison with other cooperatives in Costa Rica and abroad. The conditions of the dairy sector in Costa Rica and the channels through which Dos Pinos supports small farmers are fundamental to understand the success of the cooperative. In particular, five different factors should be considered to understand Dos Pinos' unique trajectory:

1. The specific characteristics of the dairy sector in Costa Rica partly explain the success of Dos Pinos. Costa Rica's dairy sector is a significant activity that generates incomes, employment, 10% of agricultural value added and almost 50% of livestock value added (Angulo, 2007). Managing a great amount of resources and inputs, milk production is developed in a large geographical area where the cooperative model has been a common strategy to organise and integrate farmers in dairy production (Angulo, 2007)¹⁸. The dairy sector exhibits particular characteristics compared to other traditional crops in Costa Rica. Dairy production is the most protected sector in Costa Rica's primary sector. Import tariffs, which are approximately 52% for imports from outside the Central American region, have encouraged technical upgrading. The sector also enjoys special preference within the

17 Comparisons of per capita consumption in the region are complicated. Ethnical composition and physical characteristics in different countries such as Mexico or Brazil should be accounted (e.g. milk tolerance between different ethnical groups).

18. See the map of Costa Rica's regions in Appendix II. According to MAG estimations (MAG, 2007), almost 40% of milk production in Costa Rica is produced by informal producers. 75% is devoted to traditional cheese production (ANGULO, 2007). Different regions present better ecological conditions for milk production, especially high areas in the Central Valley. The Central region produces 14% of milk in the country; especially Turrialba and other volcanic slopes with a great number of small producers, many of them in the informal sector (ANGULO, 2007). In Cartago, Alajuela and Heredia producers with a high degree of technological innovation deliver their milk productions to Dos Pinos a other companies (e.g. Grupo Sigma) (ANGULO, 2007). In the Western Central Region, producers find different companies to place their milk production (e.g. Dos Pinos, Coopeleche, Coopebrisas and other much smaller plants). The Brunca region produces 13% of national milk production, mainly in extensive double-ending systems (ANGULO, 2007). Finally, the Huetar Atlantic region produces 10% on national milk production. A high percentage of this production is delivered to Dos Pinos. The rest is sold in the informal market. The majority of these systems are double-ending cattle (ANGULO, 2007).

DR-CAFTA negotiations with much longer tax deductions periods to liberalise the milk market (Angulo, 2007; CONACCOOP, 2008).

2. Integration of the production process. The cooperative has achieved a high degree of integration in the production process. In this context, internal and external consumers have played a significant role. The management scheme controls the different phases of the value chain from production to commercialisation of milk and dairy products¹⁹. The point of departure is that the market determines the daily demand of different Dos Pinos products; it establishes the volume of fluid milk required in the industrial phase and the amount and quality that should be produced (Angulo, 2007; Dos Pinos, 2007). Dos Pinos' value chain has a competitive functioning based on a stable network of providers, economies of scale in milk purchases (as fixed production costs spread out higher milk volumes) and savings on the common use of productive assets (such as input and services provision to associated producers).

3. Dos Pinos offers competitive and varied products for diversified markets. The cooperative produces 545 varieties of dairy products with 2000 farms supplying milk on a daily basis. The cooperative draws on research and development to diversify and create new products, which range from fluid milk and animal feeders to veterinary products (see Table 1). Dos Pinos has also developed 20 veterinary stores that offer more than 5,000 varieties of products, raw materials, animal feeders, agrarian inputs, seeds and milk equipment to their associates at competitive prices²⁰. In terms of market diversification, by 2008 the cooperative had extended milk commercialisation to other countries. It established two processing plants in Guatemala and Panama and operations in 12 different countries (CONACCOOP, 2008)²¹.

4. Development of forward and backward linkages in milk production areas of rural Costa Rica that contribute to the survival and growth of the company. Dos Pinos has performed an important role in distributing income from urban to rural areas which has in turn reinforced cooperative production. The cooperative has three plants for pasteurised

19. The value chain of a company is the combination of activities that a producer develops to compete in the industrial sector. These activities contribute to increase the value added and they can be grouped in two distinct categories: primary activities that include production, commercialisation, delivery and post-sale service; and supporting activities that embrace human resources, technology, inputs and infrastructures to support other activities (PORTER, 1985).

20. Interview with R. Fernández, Tax Advisor of Dos Pinos, Alajuela, 22 June 2009.

21. In the international arena, Costa Rican dairy exports go to its main trade partners such as Guatemala, Honduras, Nicaragua, El Salvador y Panama. Milk production has been promoted by trade agreements under the WTO framework. Costa Rica also sees as potential partners those countries under free trade agreements (e.g. Chile, Mexico, Canada and CARICOM) (ANGULO, 2007).

products, ice cream and aseptic package production in rural Costa Rica. It also has a cheese production plant and a drying milk plant in Ciudad Quesada, San Carlos²². These plants have connected several milk production areas in the Northern region, the Atlantic region and Guanacaste to input distribution and services companies. They have also generated new sources of income and employment in rural areas, stimulating rural non-farm activities (RNFA) connected to milk production, processing and commercialisation (CONACOO, 2008). In Zarcero, Sucre and Río Frio, Dos Pinos has become an important motor of rural development offering better livelihoods strategies for those small and medium milk producers successfully engaged in cooperative production (CONACOO, 2008)²³.

TABLE 1
Dos Pinos production plants and characteristics

Description	Dairy	Dairy	Other products
Location	Alajuela	Ciudad Quesada	Ciruelas
Area	210,000m ²	107,000m ²	13,000m ²
Built area	45,000m ²	15,000m ²	in construction
Workers	650	150	150
Maximum capacity of fluid milk (kg/day)	1,000,000	500	350
Variety of products	Fluid milk, ice cream, curdle milk, juices, cheese, butter, yogurt	Powdered milk, cheese	Animal feeders

Source: Dos Pinos (2009).

5. Dos Pinos has created diversified channels/resources to support small holders along the different phases of the value chain. One of the main factors behind Dos Pinos' success has been the milk prices the cooperative offers to their associate producers: US\$0.48 on average per litre of milk. Considering milk prices paid in developed countries such as USA or UE (US\$0.35 and US\$0.41) and less developed countries (US\$0.14 in Chile and US\$0.21 in Colombia in 2004), Dos Pinos has improved income opportunities for associate small/medium milk producers (see Table 2). Protection from international competition has contributed to the higher milk prices producers obtain in Costa Rica's

22. Interview with R. Fernández, Tax Advisor of Dos Pinos, Alajuela, 22 June, 2009.

23. ANGULO (2007) stresses the tensions between dairy production farms and industrialisation and commercialisation phases. Producers believe that milk prices are lower than in the past. 30 years ago milk extraction machines were paid with 48 milk litres. Today they need 260 litres to cover these costs. At the same time, the speed of intensive capitalisation in the dairy sector makes reinvestment surpluses not enough to cover capital invested. This forces many small/medium producers to survive with limited incomes (ANGULO, 2007).

dairy sector. However, increasing exports and international sales of competitive dairy products have also been key factors behind Dos Pinos' ability to pay producers higher milk prices.

TABLE 2
The evolution of milk prices, 2004-2010

Price paid to producers US\$/kg	July-August 2004	January 2008	August 2010
USA	0.28	0.43	0.35
UE	0.34	0.57	0.41
NZ	0.18	0.40	0.37
Dos Pinos	—	0.45	0.53
Ecuador	0.19-0.24	—	—
Chile	0.14	—	—
Colombia	0.21	—	—
Argentina	0.13-0.16	—	—

Source: Dos Pinos (2009); FAO (2008, 2010).

By providing a great array of cooperative services (e.g. credit lines, funding services, credit cards etc.), Dos Pinos has become the main supplier of inputs to Costa Rica's dairy and bovine production sectors. One of the main components of the value chain of the cooperative is service provision to its 1,382 associate producers involved in the primary phase of production. The cooperative provides equipment, inputs, milk transportation in refrigerated tanks, technical advice, funding, veterinary services and credit. Dos Pinos' credits cover different requirements during the productive process to achieve optimum standards of milk quality and technological upgrading (Angulo, 2007; Dos Pinos, 2007, 2009). In order to receive these services, its 2,000 small and medium associated farms must meet some quality requirements and constantly update their production systems. The formal organisation of producers also improves access to information on producers, markets and competition, which partly explains Dos Pinos' operative effectiveness (Angulo, 2007).

Finally, Dos Pinos has also developed channels to control commercialisation and ensure small farmers' positions in dairy markets. The cooperative has created significant connections to wholesalers, retailers, cooperative points of sale and also to external distributors (Angulo, 2007). Moreover, Dos Pinos directly controls distribution and commercialisation. Tankers collect the milk from 2,000 farms and transport it to different plants in San Carlos, Coyol and Limonal. In dairy plants, milk is stored, homogenised and pasteurised and later packed as fluid milk or raw material to elaborate the great va-

riety of products the cooperative produces²⁴. In doing so, the cooperative utilises 900 subsidiary plants, 400 trucks, 8,000 pieces of refrigeration equipment, 26,000 national points of sale, and 18 international warehouses (CONACOOOP, 2008)²⁵.

2.2. Coopeagri R.L.: opportunities for small coffee producers

The canton of Perez Zeledon in the Brunca region was one of the last areas to develop in Costa Rica. In spite of the building of the Inter-American road in 1946, coffee commercialisation was difficult and dominated by private companies²⁶. As stressed by Coopeagri founder, Rafael Ángel Barquero:

*Estábamos muy explotados, nuestro café lo compraban en la calle, donde les venía en gana o lo pagaban al precio que ellos querían, sin recibo alguno, perdieron así el derecho de recibir alguna preliquidación más. Estos compradores de café, la gran mayoría se lo llevaba para la Meseta Central, sin ningún control de nadie*²⁷.

The conditions in the valley were extremely demanding. The lack of access to public services, infrastructure and substantive economic activities, made rural conditions difficult for small and medium coffee producers in the region (Huaylupo, 2007; Morales & Sandner, 1982). Decreasing coffee prices in the early 1960s worsened the conditions for coffee producers in the Brunca region²⁸. The lack of opportunities in the valley provoked rural exodus and illegal migration to the United States (Huaylupo, 2007). During the 1960s, coffee industrialisation and commercialisation were concentrated in the hands of a few companies that reaped the benefits of coffee production in the Brunca region. While

24. Interview with R. Fernández, Tax Advisor of Dos Pinos, Alajuela, 22 June, 2009.

25. Dos Pinos has historically received significant cooperative incentives. One of the key of their success has been Dos Pinos marketing and commercialisation strategies to make national consumers able to identify the quality of cooperative products. Basically, Dos Pinos has been able to overcome potential competition since the early 1960s.

26. See Appendix II to identify the Brunca region in southern Costa Rica. This region presents good agroecological conditions for traditional crops such as coffee (produced in low areas), sugarcane, basic grains and double-ending cattle.

27. «We were in a really deprived position, our coffee was bought on the streets and they paid the prices they wanted, without receipt, we lost the right to get any kind of sale. Coffee buyers generally brought the coffee to the Central region, without any type of control». Interview with M. Rodríguez Muñoz, Coopeagri R.L., San Isidro del General, 25 June, 2009. Information archived during the author's visit to Coopeagri, 24-25 June 2009.

28. It should be noted that coffee production in the Brunca region presents lower quality (with much lower prices) than coffee produced in much higher areas (e.g. Turrialba and other areas of the Central region) of Costa Rica.

the population increased, the number of industrial plants decreased. Employment opportunities were limited and the rates of poverty in the region were high (Huaylupo, 2007)²⁹.

Small and medium farmers (principally engaged in coffee, sugarcane and basic grains production) are the main group of producers and one of the main activities in the canton³⁰. Yet, these producers face increasing competitiveness with more vulnerable conditions, and limited access to inputs, credit and markets. Land concentration and industrial production have both significantly reduced peasant organisations in the Canton of Perez Zeledon. This process has been accelerated by migration to urban areas and other countries. In this context, the cooperative model became an alternative to diversify production, create employment and production opportunities for small farmers in the region. Specifically, more than 40% of the population of Pérez Zeledón is related directly or indirectly to a cooperative model (Huaylupo, 2007).

Within this context, Coopeagri El General R.L. was created on the 25th of November 1962 in San Isidro General (Coopeagri, 2009). It was a social and economic alternative developed by 391 producers from the Brunca region. The producers realised the potential benefits of creating a cooperative able to integrate and commit small coffee farmers to face the dominance and proliferation of private coffee processing mills (Coopeagri, 2009). Coopezeledon (as it was originally named) was also an effort to promote cooperatives and peasant organisations in the canton of Perez Zeledón and to provide smallholding producers with more bargaining power (Barton 1989; Coopeagri, 2009; Fernández Fernández 1973; Huaylupo, 2007).

Since the mid-1960s, the cooperative has secured better prices and commercialisation channels for 10,807 small coffee and sugarcane producers in the Brunca region. It has connected smallholders to national and international markets. Opportunities have been particularly significant for very small producers: 71% of Coopeagri coffee farmers produce less than 30 *fanegas*; and, 98% of sugarcane associates produce less than 250 metric tonnes per year (Coopeagri, 2010)³¹. In 2009, Coopeagri R.L. exported 133.600 quintales of coffee to USA, Belgium, Portugal, Japan and Canada. Direct exports increased

29. The Brunca region is one of the poorest areas of the country with old enclave structures and high levels of inequality. Yet, this context has generated cooperative opportunities to face inequalities and enhance agricultural production and employment in the region (HUAYLUPO, 2007). The southern region of Costa Rica faces a difficult dilemma between the model of export-led monocultures with high levels of investment versus small farming strongly dependent on non-remunerated labour force.

30. See footnote 8 for a more detailed description of small farmers in Costa Rica.

31. One *fanega* equals 55.5 litres.

from 87,720 quintales in 2004 to 133,600 quintales in 2009 (with a compound annual rate of growth of 8.77%) (Coopeagri, 2009)³².

Coopeagri has also generated income and employment opportunities in the region. It accounts for approximately 40% of the economic activity of the canton, demonstrating the significance of the cooperative in the economy and society of the Brunca region. In 2009, the cooperative grouped 10,807 active members in Coopeagri and 18,128 in Credecoop. In the same year, Coopeagri's income totalled 45.832 million colones and the cooperative generated 654 new employment positions. The cooperative also created 572 temporary posts during the coffee and sugar harvests and provided 950 contract-farming opportunities benefiting a great number of small coffee producers and workers in the region (Coopeagri, 2010; Huaylupo, 2007).

2.2.1. The reasons for Coopeagri's success

This section considers several factors that explain Coopeagri's success. The dimensions that have been required for the cooperative to survive in the long run, support small holders, and create social capital to adapt to changing conditions can be summarised as follows:

1. Importance of the sectorial and regional context. During the 1960s coffee was the main activity in Costa Rica and employed the majority of the agricultural population. The vulnerability of the sector made cooperatives the only realistic way to promote more equitable coffee purchases and social development in the Brunca region. Aware of the role cooperatives were able to perform in economic and social development, the state supported those cooperatives operating in the coffee sector during the 1960s. This provided Coopeagri with additional impetus during the initial phase of its development. In 2007, the canton of Perez Zeledon was still the main producer of coffee in Costa Rica. Coffee production embraces 18,100 ha, 59% of production in the Brunca region and 16% of national production. Coffee production and commercialisation are mainly developed by cooperative companies in the canton. At the same time, sugarcane is developed in 4,500ha (with average productivity levels of 9,000kg/ha); this means 9% of national production of sugar and 1,000 people with permanent employment in the sector. In these agricultural activity cooperatives have also placed an important role (Huaylupo, 2007).

2. Successful combination of social and economic sustainability. By distributing profits and generating dynamic production and exports, Coopeagri has been able to combine

32. Quintal is a unit of mass in the metric system that equals to 100 kilograms.

social and economic development (Huaylupo, 2003b, 2007). The cooperative has been able to become a successful company engaged in agricultural, industrial and service activities based on diversified and competitive production (Huaylupo, 2007). In 1972, Coopeagri began to diversify small farming activities by integrating sugarcane producers into the cooperative. In 1974, the cooperative installed the first sugar mill in the Southern region of *Peñas Blancas* with capacity to process 1,000 metric tonnes of sugar per day (Coopeagri, 2009). Throughout the 1980s, the cooperative further developed agroindustrial activities, increasing storage and delivering agricultural inputs in the area. In 1988, Coopeagri created the Department of Forestry development to promote responsible management of natural resources and forests while diversifying farming activities³³. During the 1990s, Coopeagri continued developing and diversifying activities in other economic sectors. In 1995, the Credit and Savings division of Coopeagri (established in 1990) was transformed into Credcoop R.L. The expansion and diversification of the cooperative have enabled poor rural families to meet their basic living needs and increased the opportunities for small holders in rural Costa Rica (Huaylupo, 2003b, 2007).

TABLE 3

Coopeagri direct exports of fair trade coffee and sugar in quintales 2004-2009*

	2004-2005	2008-2009	CARG (%) 2004-2009**
Sugar	11,52	13,56	3.31%
Coffee	420	8,125	80.84%

* One quintal equals 46 kg.

** Author's calculation.

Source: Coopeagri (2009).

3. Expansion to new market niches in developed countries. In January 1996, Coopeagri R.L created Procafé S.A. to produce and commercialise (nationally and internationally) roasted and processed coffee. The new product increased the value added captured by small coffee producers³⁴. Since the early 2000s, fair trade certification has been an additional channel to diversify Coopeagri production. During the period 2004-2009, fair trade coffee exports experienced a compound annual rate of growth of 80.8%, while fair trade sugar exports had a compound annual rate of growth of 3.3% during the same period (see Table 3). In 2009, 81.74 million colones came from fair trade coffee exports and 17.61 million of colones from fair trade sugar exports. In recognition of the significance of fair trade exports in the region, in October 2008, San Isidro was declared a global fair

33. Information the author derived from the cooperative archive during her visit to Coopeagri, 24-25 June, 2009.

34. Information the author obtained during her visit to Coopeagri, 24-25 June, 2009.

trade city (Coopeagri, 2010). The profits of these exports were invested in cooperative services such as technological innovations, inputs transportation and technical assistance for small producers.

4. Development of forward and backward linkages in the Brunca region to secure the survival and growth of the cooperative. Globalisation, trade liberalisation and progressive transnational corporations (TNCs) engagement in monocrop export-led fruits have hindered employment and income opportunities for small producers in Southern Costa Rica. Whereas TNCs generate few linkages with other productive activities and services, Coopeagri has promoted economic articulation between different economic sectors and geographic areas in the Southern region (Huaylupo, 2007). Through these channels, the cooperative has been able to promote solidarity and partnership among members and across sectors (McClintock, 1981). Coopeagri has also stimulated economic demand in the region (Arango *et al.* 2005; Hirschman 1984; Sudarsky, 1977). Members use their incomes to buy goods and services in the markets and shops of the region, distributing coffee profits to other sectors of the economy and promoting new secondary and tertiary activities such as agro and ecotourism projects (Huaylupo, 2007)³⁵. These linkages embedded the cooperative within the local economy and society and ensure its long-term viability in the Brunca region³⁶.

5. Coopeagri has become a collective entity able to promote public policy from below in the Brunca region. The cooperative has enhanced peasants' awareness and capacity to defend their political and economic interests (McClintock, 1981; Sudarsky, 1977; Tandler, 1983). More specifically, Coopeagri has promoted social capital which has enabled small holders to resolve and transcend public and civil society problems in the coffee sector of the Brunca region. The lack of public policy to support small farmers coupled with trade liberalisation and NTAEs promoted in the region during 1990s and early 2000s enhanced Coopeagri's capacity to promote small holders' participation in public affairs, involvement in public policy and engage in different management tasks of the cooperative (Hirschman, 1984; Sudarsky, 1977). Coopeagri has therefore become an alternative to protect small coffee farmers and secure their long-term survival³⁷.

6. Coopeagri provides a great array of channels and incentives to support small holders along the different phases of the value chain. Payments in advance for coffee and sugar

35. Information archived during the fieldwork period in Perez Zeledon, June 2009.

36. Foreign companies also play a significant role in promoting these agrotourism projects in different regions of the country. Sometimes the direct beneficiaries of these activities are foreign companies that organised visits to productive units.

37. One of the main characteristics of Coopeagri has been the long-term permanence of its managers.

production, access to credits, inputs, information, and other basic assets for small farming have been widely promoted by the cooperative. Cooperative services such as Credecoop, Procafé, Coopeagri supermarket, gas service station, input and sustainable practices departments cover producers' needs during the different phases of the value chain. The cooperative also offers a great array of production incentives to increase small producers' engagement in coffee and sugar production. These incentives increased from 26,180,528 colones in 2000 to 59,653,610 colones in 2004. During the same period, incentives for coffee production increased (by 17,511,252 colones); other special incentives for coffee production grew by 7,882,893 colones; seed loans more than doubled, and general productive incentives also expanded (see Table 4) (Coopeagri, 2005a, 2005b)³⁸.

TABLE 4
Coopeagri: economic incentives for its members and collaborators

Type of incentive	2000	2004
Incentive for coffee of altura	0	17,511,252
Special coffee incentive	0	7,882,893
Incentive extra-quota price	13,222,700	81,724,673
Seed loan	12,957,828	27,465,400
Productive incentive (collaborators)	0	25,069,392
Total	26,180,528	159,653,610

Source: Coopeagri (2005a).

2.3. Lessons for other developing countries

Dos Pinos and Coopeagri have provided many small holders with long-term strategies for survival and growth for more than 40 years. They demonstrate that cooperatives may be a useful mechanism to support small and medium farmers in the global era as long as a series of conditions are met:

1. Cooperatives must be competitive and succeed in diversifying and controlling all phases of the value chain. From the starting point, Dos Pinos and Coopeagri aimed to reduce production costs, increase the prices paid to producers and enlarge the value added of their products. Sustained productivity increases coupled with other supporting mechanisms were crucial in enabling small farmers to engage successfully in the marketplace. Both cases also show the need to diversify and introduce new products and activities with more value added and find new market niches in developing and developed economies.

38. These practices are also applied by other cooperatives such as *Coope Dota*, *Coope Tarrzú*, *Coope Naranjo*. This is part of the cooperative movement.

2. Ability to adapt to a changing economic and political environment. Dos Pinos and Coopeagri have been able to combine economic profits and social benefits under different agricultural regimes. In the current context of globalisation, both cooperatives have been able to compete in traditional sectors. In the case of the dairy sector the state has protected production. Although coffee and sugar production progressively lacked state support, Coopeagri was able to create social capital to support small farmers. Under these circumstances and the specific conditions found in each sector, these two cooperatives have been able to diversify production and exports and enlarge support for their associates. Yet, the exceptional conditions and relevance of coffee production in the Brunca region and milk production in the different areas of the country should be accounted. These traditional productions do not present the same conditions in other export-led sectors and countries to replicate the success of the cooperative model in Costa Rica.

3. Successful efforts to combine economic and social goals: social capital creation. Both the social and economic dimensions of cooperative production should be integrated. Coopeagri and Dos Pinos realised that to become integrated into national and international markets, they should combine their social and economic goals. If cooperatives in other countries want to follow a similar path, a balance between social development and economic growth should be achieved. Cooperatives represent a viable alternative in regions which have seen export-led growth and large plantations of NTAEs create few opportunities for small farmers, workers and rural communities. This combination of economic and social goals is related to the concept of social capital enhanced by the cooperative model³⁹. Social capital decreases the costs of working together, while facilitating cooperation and lessening unencumbered private actions that result in resource degradation (Pretty, 2002). In rural areas, social capital affects rural people's capacity to promote development. Social capital helps groups to make decisions, mobilise resources and manage them; communicate with each other and coordinate their activities to resolve conflicts. These four tasks are key to sustain individual and community well-being (Uphoff 1986). Coopeagri and Dos Pinos have promoted these patterns for more than 40 years in rural areas.

4. Commitment to support small holders through different channels all along the value chain. The cases of Coopeagri and Dos Pinos show the relevance of providing inputs, technology and credit. However, they also demonstrate the importance of other key assets that

39. Social capital is «the structure of relations between actors and among actors that encourages productive activities» (PRETTY, 2002). Social capital refers to the institutions, relationships, and norms that shape the quality and quantity of a society's social interactions. Increasing evidence shows that social cohesion is critical for societies to prosper economically and for development to be sustainable (WORLD BANK, 2014).

are required to support producers along the value chain. For example, information on commercialisation and processing phases, production incentives and payments in advance to reduce the transaction costs small farmers face when engaging in the market.

5. Importance of state support and market competitiveness. In the case of Dos Pinos, milk production is one of the most protected sectors in Costa Rica's primary production sector. Protectionism has clearly broadened the opportunities for national milk producers (against European Union imports) to compete in the Central American market. In contrast to the opportunities created by outward-looking development, cooperative development in Costa Rica's milk sector shows the potential of cooperatives to involve small farmers in the process of agricultural development. Examples like Dos Pinos illustrate how traditional crops can be well-matched with NTAEs promotion in the current context of globalisation. The social programme of Coopeagri also shows how to face structural inequalities in deprived rural areas and connect small farmers to the market. When small holders lack state support in traditional activities, cooperatives can create social capital to protect small farmers in regions with deprived conditions and export-led agriculture.

3. URBAN AGRICULTURE IN CUBA: A LONG-TERM PRODUCTION STRATEGY FOR SMALL FARMERS⁴⁰

An experiment that the world should be watching
(Rosset & Benjamin, 1994: 7)

In the midst of the most severe crisis in its history, Cuba dramatically shifted from export dependency to inward-looking development. By substituting local food and inputs for imported technologies, decentralising land structures (imitating the values and practices of family farming) and progressively liberalising markets and commercialisation channels, Cuba became one of the few countries, if not the only one, that experimented with this type of development in the 1990s and early 2000s. Although agricultural reforms forced

40. The aim of this article is to evaluate the opportunities generated for small farmers in Costa Rica and Cuba from 1990-2008. For further information on Cuba's inward-looking development, including the different land reforms applied, the creation of UBPCs and the changes during the Special Period and the early 2000s see BOTELLA-RODRIGUEZ (2011, 2012). In the case of Cuba, Cuban small farmers are grouped in two distinct types of cooperatives: Cooperative of Agriculture Production (CPAs) and Cooperative of Credit and Service (CCSs). In CPAs small farmers own the land collectively, while in CCSs small farmers own the land individually. Usufruct and disperse farmers are also engaged in small scale production on an individual basis with much smaller plots than CPAs and CCSs. Specifically, private small farmers are grouped in CCSs and other usufruct and disperse units. Yet, there is not a standard size to define small holders in Cuba.

by the internal crisis of the early 1990s went only half-way in Cuba, market mechanisms introduced in 1993-1994 and the decreasing interference from government entities showed fast, even if partial, results (Gayoso, 2009).

The worst moment of the crisis occurred during the 1993 food crisis when average daily calorific intake declined from 2,908 to 1,863 kilocalories per person per day (Alvarez, 2004; Kost, 1998; Mesa-Lago, 2005; Nova, 2006)⁴¹. Within this context, the Cuban government was forced to declare the «Special Period in Peacetime» that put the country on a wartime economy style austerity programme. The programme implied a dramatic shift from dependent development (on Soviet Bloc trade relations) towards domestic options. The Cuban state was forced to ration food, fuel, and electricity (Castro, 1992; Nova, 2006). Demonopolisation, deregulation and decentralisation policies were also applied to improve the country's desperate foreign exchange position, diversify the economy (strongly based on export agriculture) and attract investment into different economic sectors (e.g. tourism) (Alvarez, 2004; Nova, 2006). Deregulation implied a new domestic economic policy based on liberalising foreign investment, the rules governing the possession of US dollars by Cuban citizens, and the granting of licenses for private work or self-employment in various activities (Mesa-Lago, 2005).⁴² Finally, decentralisation encouraged new forms of mixed companies (joint-ventures) in different economic sectors (especially in the tourist sector) and the restructuring of management institutions and the banking system (Alvarez, 2004).

Land decentralisation also enhanced food production. At the onset of the food crisis of 1993, Cuban inhabitants and small farmers in urban and peri-urban areas organised themselves to grow crops within and around cities⁴³. Making use of local resources with low transportation costs for inputs and products and working in their own neighbourhoods, this movement contributed to counteract Cuba's food crisis throughout the 1990s (Cruz & Sánchez, 2001, 2005; Murphy, 1999). Initially the programme was a sur-

41. Considering FAO recommended levels in the early 1990s (the minimum intake was 2,100-2,300kcal/person/day), during the food crisis of 1993 Cuba's minimum intake dropped significantly. The situation of those people most dependent on state rations (very old and very young people) was more dramatic. Their levels of nutrition fell to 1,450Kcal/person/day during the worst years of the crisis (ALVAREZ, 2004; KOST, 1998; MESA-LAGO, 2005).

42. FERNÁNDEZ-DOMÍNGUEZ, P. (2006): Interview with P. Fernandez, Ministry of Economy and Planning, Havana, Cuba, 20 June 2006.

43. According to FAO (2014) urban agriculture refers to small city areas (e.g. vacant plots, gardens, verges, balconies, containers) for growing crops and raising small livestock or milk cows for own-consumption or sale in neighbourhood markets. Peri-urban agriculture refers to farm units close to towns which operate intensive semi- or fully commercial farms to grow vegetables and other horticultural products, raise chickens and other livestock, and produce milk and eggs. In the case of Cuba, a detailed definition of urban and peri-urban areas can be found in page 29.

vival strategy to solve food shortages in Havana city. But it soon became official policy and a central component of Cuba's agricultural model in urban and peri-urban areas. In the late 1990s the Ministry of Agriculture undertook an unprecedented step, creating the first coordinated urban agriculture programme in the world. The programme progressively turned into an organised public plan implemented across all the Cuban provinces, linking small farmers surrounding urban and peri-urban areas to national food markets.

Today, urban agriculture can be defined as a local food production strategy based on a multidisciplinary approach. The programme integrates different forms of production coordinated by the Ministry of Agriculture, the Ministry of Sugar, the Ministry of Internal Affairs, the Armed Forces, and the Ministry of Education and Higher Education (Rodríguez Nodals & Companioni, 2006). The Cuban Association of Forestry and Agriculture Technicians (ACTAF) and the Cuban Association of Livestock Production (ACPA) also address urban agriculture development. Specifically, urban gardening is developed in roofs and quads close to avenues and balconies. The programme covers the city centre of the capitals of each municipality and province, within a 10 km radius from the capital city centre. In these areas, the programme is directly connected to urban structures, buildings, houses and other infrastructures. Although the programme is named urban agriculture, it is also applied in peri-urban areas, city margins and outlying neighbourhoods with less population densities. These areas are located within a 5 km radius from the centre of capitals of municipalities, a 2 km radius around population centres of more than 10,000 residents and local production for settlements of less than 1,000 people in all provinces across the island (Companioni, Ojeda & Páz, 2002; Fuster Chepe, 2006; GNAU, 2004).

Both urban and peri-urban areas where the programme is in operation share the goal of supplying a daily production of 300 grams of vegetables per citizen. Within a specific radius of application, the programme follows the same production patterns and commercialisation principles in urban and peri-urban areas. These principles differ from production in rural and more isolated areas without specific goals, production patterns and distribution channels. Enhancing sustainable local food production, urban gardening has placed producers much closer to free farmers' markets in more urbanised zones. These production patterns have reduced dependency on rural areas to feed the urban population, one of the main problems Havana city confronted during the 1990s and also the starting point of urban agriculture (Carrobelo, 2010a, 2010b; MINAGRI, 2010). After 1993, urban gardens in Havana city province and other provincial capitals became central to solving some of the distribution problems and food deficiencies these cities historically faced. However, urban agriculture faces some problems in growing urban centres and more populated areas where available spaces are more difficult to find. The

programme depends on organic fertilisers from animal manure and also competes for water consumption in the cities where it has been implemented. Vegetables are also more likely to be polluted by wastes originated in urban areas, which are more exposed to cars and factories. In peri-urban agriculture the programme exhibits higher potential than urban gardening to increase food production and feed the population across the island. In terms of expansion, peri-urban gardening has reached a much larger number of small holders than urban agriculture in most provinces, especially in outlying municipalities that hold most small farmers (e.g. in Havana province). However, peri-urban areas also face some problems related to more indirect relations with consumers and greater difficulties placing production in the market. In this vein, the programme's connection between peri-urban and urban areas has helped to solve some of the problems producers find in outlying municipalities.

One of the most positive outcomes of urban agriculture in peri-urban areas has been the creation in 2008 of sub-urban agriculture that replicates the practices, methods and structures of the programme in rural areas. Sub-urban agriculture can be applied on a much larger scale and therefore may increase food production for national consumption. The programme also aims to connect rural producers to local markets not only in rural areas, but also in a radius of 10km around capitals of provinces, municipalities and small towns across the island. The extension of the programme to peri-urban and sub-urban areas that concentrate most small farmers and 75% of the Cuban population has higher potential to reduce food import dependency in Cuba than urban gardening alone (Rodríguez Nodals, 2008). As the following sections show, these patterns have further increased private small farmers' contribution to national food consumption.

3.1. The relevance of urban agriculture

Although urban agriculture began as a survival strategy, in the late 1990s the programme became an official policy and a key component of inward-looking development, enabling small holders to engage in national food production in close proximity to consumers in urban and peri-urban areas. There are several important dimensions of the programme.

First, urban agriculture embraces all the principles of inward-looking development in Cuba: food import substitution, alternative technologies, decentralisation of production, land distribution and internal market liberalisation. The coherent integration of all these principles has successfully inserted small farmers into national food production markets close to consumers for more than 10 years.

Second, urban gardening has been supported and developed by the state since the late 1990s. The programme was initially implemented in Havana city province to cover food shortages. With the passage of time, state support increased the potential of urban agriculture to improve national food security in the rest of Cuba. By 2000, urban agriculture produced 50% of the rice consumed nationally, 70% of the vegetables, and 39% of non-citrus fruits (GNAU, 2001; Granma, 30 January 2001; Pagés, 2006). In 2008, urban agriculture covered 12,588.91km², 14.6% of the total area of Cuba (Companiononi, Ojeda & Páez, 2002; Rodríguez Nodals, 2008).

Third, urban agriculture distributes and produces a constant flow of fresh food within and around urban and peri-urban areas on a daily basis. Following sustainable small farming, the programme has reduced the distance between producers and consumers in national food markets. In outlying municipalities and peri-urban areas that concentrate 75% of the Cuban population, the programme has reduced transportation costs and dependency on food production from rural areas. In doing so, the programme has performed a significant role in enabling the country to overcome the food shortages experienced during the Special Period⁴⁴. Demonstrating the impact of urban agriculture on national food production, Rodríguez Nodals (2008) notes that the programme fulfils the food production objective of 300g/person/day in 169 municipalities across 14 provinces with low-input practices.

Fourth, since the late 1990s, urban gardening has created employment opportunities and advantageous work conditions in the outlying municipalities, urban and peri-urban areas where it has been implemented. In 2000, the programme employed 201,000 workers (20,000 in Havana city alone) (Granma, 30 January 2001; Pagés, 2006)⁴⁵. In 2006, the amount of people working in urban agriculture in Havana city province was much higher than the number of people employed in other agriculture sectors such as Basic Units of Cooperative Production (UBPCs) and Credit and Service Cooperatives (CCSs) (see Figure 1).

Finally, during the last fifteen years, urban agriculture has provided a long-term strategy for more than 300,000 small producers to engage in national food production. This has been the case in Cuba's urban and peri-urban areas such as Alamar, San Agustín and Miramar in Havana city province⁴⁶. The «Popular Rice» and «Vegetables and Fresh

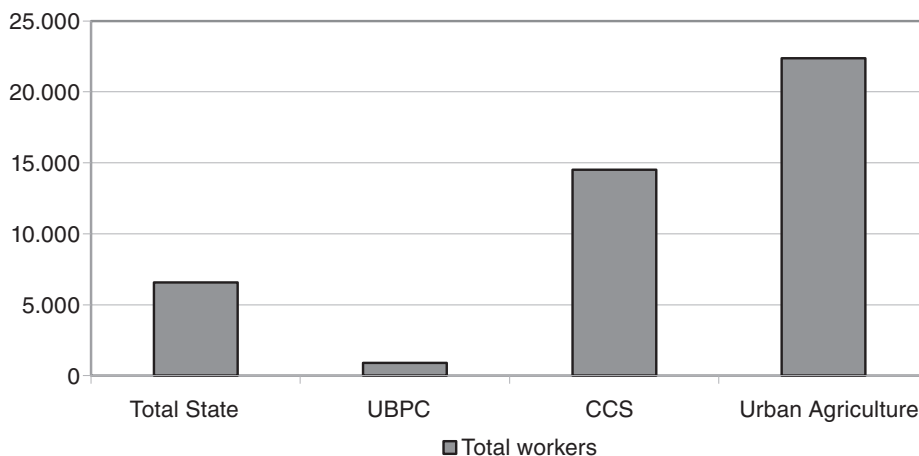
44. Interview with Mario González, Director of Urban Agriculture Programme, ACTAF, Havana city, Cuba, 9 Oct. 2008.

45. Information compiled during the fieldwork period in Cuba. MINAGRI/GNAU (2001-2010) reports of urban agriculture.

46. Interview with A. Rodríguez, Manager at Organoponic San Agustín, Havana city, 7 Oct. 2008. Interview with the UBPC manager, La Giralrilla UBPC, San Agustín neighbourhood, Havana city,

Condiments» sub-programmes have been particularly successful, providing outstanding results in terms of food import substitution throughout the island for more than ten years. The following subsection discusses the two sub-programmes in further detail⁴⁷.

FIGURE 1
Agriculture labour force per sector and company in Havana city,
31 December 2006 (total workers)



Source: Own elaboration based on Pagés (2006).

3.1.1. The Popular Rice and «Vegetables and Fresh Condiments» sub-programmes

Producing rice in large state farms following industrial patterns of production was the general pattern in Cuba for many years. Even during the 1980s, when a great array of inputs was available, national demand was not totally met and 40% of rice for national consumption was imported. Considering that high-input rice production was not able to cover national food demands at the beginning of the crisis, the «Popular Rice» sub-programme of urban agriculture emerged in the early 1990s as a self-organised, low-input agriculture and family farming movement (García, 2003). Initially, Popular Rice was a grassroots movement orientated towards securing food self-sufficiency in urban and peri-urban areas. In these zones, inhabitants began to produce rice on abandoned areas, small plots

7 Oct. 2008. Interview with BA. C. Arteaga, ACTAF, Havana, Cuba, 9 Oct. 2008. Interview with Ing. O. N. Argüelles, Organopónico San Agustín, Havana city, 7 Oct. 2008. Interview with J. C. Sotolongo, Manager at UBPC La Vereda, Havana city, Cuba, 9 Oct. 2008.

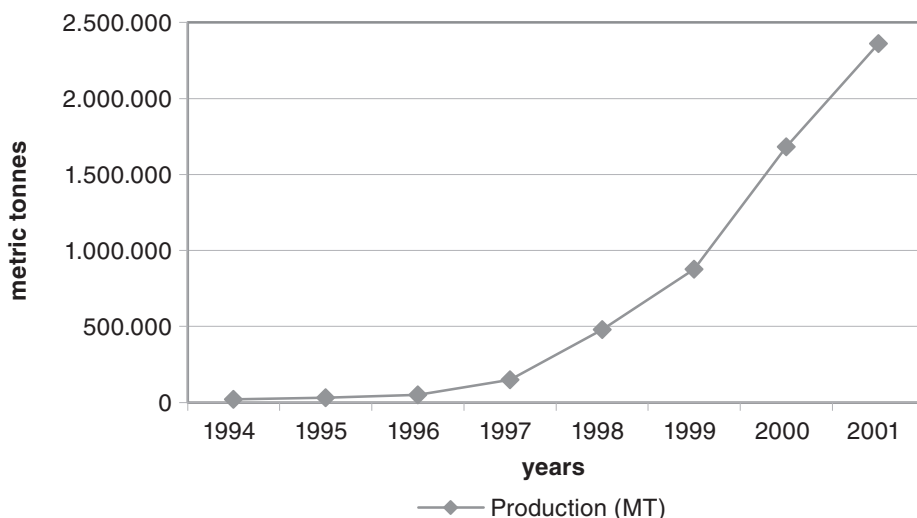
47. For further information on small farmers' contribution to national food security see BOTELLA-RODRÍGUEZ (2012). See also Appendix IV.

between sugar cane fields, road ditches and rubbish dumps. The programme became official policy in the late 1990s. Then, the Ministry of Agriculture supported the programme by distributing lands in usufruct to a significant number of people from cities and small towns, as well as workers on state farms and retired people to farm rice on a small-scale (Socorro, Alemán & Sánchez, 2002).

The movement expanded rapidly and achieved unexpected levels of production and productivity. Gradually, the programme connected small rice producers to national food markets with significant contributions to national food production. For example, in 1997 the Union of Rice Enterprises (large state farms), which was severely affected by the crisis of the 1990s, produced 150,000 metric tonnes of rice, while Popular Rice production reached 140,600 metric tonnes. The 73,500 small producers involved in the programme produced an average of 2.82 metric tonnes per hectare without the use of expensive imported inputs. In many provinces, small farmers surpassed the productivity levels conventional rice farms recorded during 1980s (a national average of 2-3 metric tonnes per hectare) (ANAP, 1992; EPS, 2008a, 2008b; Funes-Monzote, 2008; GNAU, 2001). More recent data show Popular Rice productivity levels of 5 metric tonnes per hectare in provinces like Sancti Spiritus in 2008 (EPS, 2008c).

FIGURE 2

National production of Vegetables and Fresh Condiments sub-programme

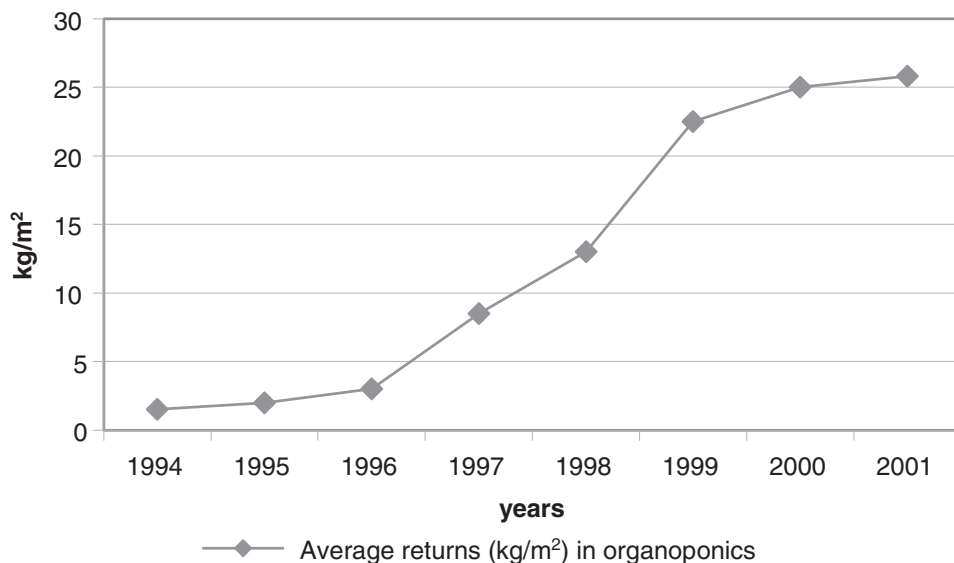


Source: Own elaboration based on MINAGRI (2002).

Popular Rice has become one of the most outstanding sub-programmes of urban agriculture. By engaging small producers in basic grains production, key to covering national

food consumption, the programme has achieved impressive outcomes in all the provinces of the island. In 2001, the total amount of rice produced with local resources reached 195,349 metric tonnes on small plots (93,474 ha). These returns were higher than those of Cuba's rice companies in the same year. In 2008 (before the three hurricanes struck the island), popular rice accounted for more than 50% of total domestic rice production (Funes-Monzote, 2008; García, 2003)⁴⁸.

FIGURE 3
Average returns of the Vegetables and Fresh Condiments sub-programme in organoponics



Source: Own elaboration based on MINAGRI (2002).

In the case of vegetables and Fresh Condiments, during the 1990s and early 2000s, the sub-programme became an outstanding example of local food production in all the provinces of the island (EPS, 2008c). The sub-programme connected small producers to consumers in local food markets in urban and peri-urban areas. During the period 1994-2001, national production of vegetables and fresh condiments increased from 20,000 metric tonnes to 2,360,180 metric tonnes. Average returns in organoponics also experienced important growth, rising from 1.5kg/m² in 1994 to 25.8kg/m² in 2001 (see Figures 2 and 3).

48. Soil fertility, seed variety and other small farming practices were other significant conditions that explain the relative success of government incentives to yield rice in Cuba during the 1990s and early 2000s (FUNES-MONZOTE, 2008).

In 2001, urban agriculture production of vegetables reached 2,360,180 metric tonnes, supplying 576 grams per day per inhabitant. These figures surpassed the objective of 300 grams per inhabitant per day established by the Cuban government in most of the provinces of the island (see Table 5)⁴⁹.

TABLE 5

National production of vegetables and fresh condiments⁵⁰

Provinces	grams/day/inhabitant 2001
Pinar del Río	681
Havana	706
Havana city	171
Matanzas	603
Villa Clara	551
Cienfuegos	1,259
Sancti Spiritus	1,063
Ciego de Ávila	1,144
Camagüey	631
Las Tunas	834
Holguín	489
Granma	542
Santiago de Cuba	415
Guantánamo	776
Isla de la Juventud	520
TOTAL	576

Source: MINAGRI (2002, 2009).

More recent data show that in 2008 small producers engaged in this sub-programme produced almost 75% of the vegetables and fresh condiments available for national consumption in Cuba (EPS, 2008c). An update on the performance of the sub-programme on the 31 December 2008 showed that, despite the three hurricanes that had struck the country that year, ten out of fourteen provinces accomplished the 2008 production objective of 300 grams of vegetables per person per day⁵¹.

49. Information gathered during the fieldwork period at MINAGRI and ANAP, October-December, 2008.

50. Incentives and agroecological conditions can explain different results of the sub-programme across the island. In Havana city urban agriculture development was much higher than in other provinces. Food shortages during the food crisis of 1993 were one of the forces to develop the programme in Havana city. Research institutes and their developments since the early 1980s in Havana city province were the other reason to implement the programme in these areas surrounding the capital.

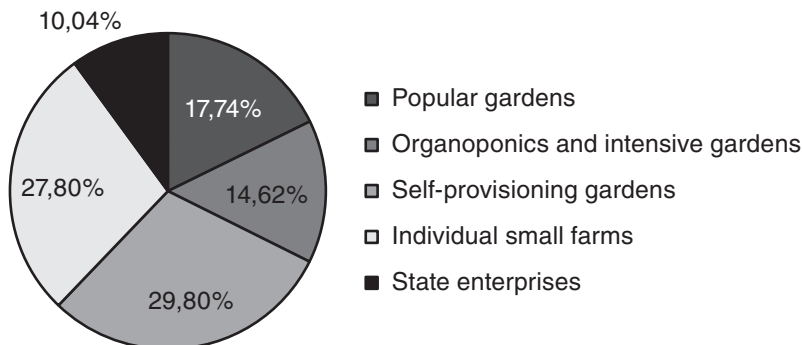
51. Interview with PhD F. Funes-Monzote, Havana, Cuba, 1 October-29 Nov. 2008. Interview with Dr. F. Funes, ACTAF, Havana, Cuba, 2-15 Oct. 2008. Interview with M. González, Director of Urban

3.2. The reasons for urban agriculture's success

There are different reasons that explain the success of urban agriculture and why it can be considered a long-term local food production strategy for small farmers. These reasons can be summarised as follows:

1. Direct channels of commercialisation with consumers (González Novo & Murphy, 2000, 2008; Murphy, 1999). State promotion of decentralised marketing schemes has been fundamental in establishing and securing connections between small farmers and markets. The programme has created various channels to improve connections between small farmers and local food markets: access to land, technical advice, research and development, and sustainable small farming techniques. Through these channels, the programme has connected small farmers to consumers in urban and peri-urban areas that hold more than 75% of the Cuban population.

FIGURE 4
Total production, by farm type, in 1997 in Havana city



Source: Own elaboration based on Grupo Provincial Agropecuario (1998).

2. Decentralised production structures. Urban agriculture is developed in different production structures, most of them following a decentralised scheme based on small farming. Urban agriculture is developed in popular gardens cultivated privately by urban residents in small parcels surrounding cities and towns; organoponics and intensive gardens in raised container beds, which can be run either by a state institution or by private individuals; *autoconsumos* or self-provisioning gardens that belong to workers and usually supply on-site cafeterias and restaurants at hospitals, factories, and schools; individual

Agriculture Programme, ACTAF, Havana city, Cuba, 9 October, 2008. Data gathered during the fieldwork period at MINAGRI, CEEC, ACTAF.

small farms; and finally, state enterprises (though there are today «New Type of Enterprises» run by the state, that exhibit significant decentralisation and autonomy, and are also based on small farming production) (Grupo Provincial Agropecuario, 1998). The different sectors of urban agriculture contributed to impressive food production in the late 1990s. Overall, small farmers and *autoconsumos* have achieved higher contributions than any other structures. In 1997, *campesinos* produced 27.8% of total food production and *autoconsumos* (mainly formed by small gardeners and producers) contributed to 29.8% of total food production in Havana city (Grupo Provincial Agropecuario, 1998).

Today, the most popular form of urban agriculture in Havana, popular gardens, (*grupos de parceleros*) is managed by small producers. These farms have made a significant contribution to national food production (González Novo & Murphy, 2008)⁵². In 2008, over 26,000 popular gardens covered 2,438.7 ha in Havana city and produced 25,000 metric tonnes of food each year. Many producers are organised into *Grupos de Horticultores* or gardeners' groups, which are voluntary organisations of farmers working in the same neighbourhood⁵³. In 2008, there were 908 gardeners' groups with a total of 17,900 affiliates engaged in urban agriculture (González Novo & Murphy, 2008).

3. Establishment of specific goals and targets. The specific goal of urban agriculture is «to produce food in the community, by the community, and for the community». The programme is committed to reach a daily production (of 300 grams) of vegetables per citizen in urban and peri-urban environments (Companiononi, Ojeda & Páez, 2002; Fuster Chepe, 2006; GNAU, 2004). Each sub-programme has specific guidelines and production goals established by the government each year.

4. Programme diversification into different production areas. Urban gardening is divided into 28 sub-programmes that embrace different aspects of animal and plant production (GNAU, 2004). There are 12 sub-programmes for agricultural activities, 7 for livestock and 9 for support practices. The programmes embrace distinct productive structures and producers and provide different technical assistance services and access to basic assets. As explained above, the results of the Fresh Vegetables and Condiments and the Popular Rice sub-programmes have been particularly impressive (Funes-Monzote, 2008; Rodríguez Nodals & Companiononi, 2006). Fulfilling production objectives, both of them benefit a large number of small farmers and connect them to consumers in local food markets. The programmes have created opportunities for small farmers to increase their production and productivity levels and go well beyond mere survival.

52. Interview with farmers of *Alamar* UBPC, Havana, 25 June 2006.

53. Interview with M. A. Salcines, *Alamar* UBPC, 8 Oct. 2008.

5. Growing state support. Successful results of urban agriculture have led the government to extend the programme to rural and suburban areas. The government launched Sub-urban Agriculture (*Agricultura Suburbana*) in 2008. The aims of the programme are to «produce more with less»; to create closer linkages between small farmers and vacant rural lands covered by *marabú*; to promote more sustainable use of transport and labour; and, to strengthen commercialisation channels. The initiative emerged out of the 2008 259 Law Decree which distributed lands in usufruct to produce more food based on local initiatives with less fuels and inputs in rural areas. Given that the basic structural model of *Agricultura Suburbana* is the *finca*, a small farm, most often in private hands (CCSs and disperse *campesinos*), this programme has enlarged the opportunities of small farmers located in an eight-kilometre-deep ring (between two and ten kilometres) from urban centres to produce food for national consumption (Carrobelló, 2010a, 2010b)⁵⁴.

3.3. Implications of urban agriculture for other low-income economies

The successful results of urban agriculture in Cuba show the potential impact similar programmes of local food production could have in other small developing economies. These types of programmes are particularly relevant in the current context of rising international prices and inputs and concerns over the ability of developing economies to provide healthy food for national consumption. In this vein, other developing countries may be able to rediscover and enhance the role of small basic grain producers in national food production. In an attempt to overcome food insecurity problems, many developing economies have introduced strategies to increase the role of small farmers in national food production (Botella-Rodríguez, 2012). However, what could be the pillars that guide the implementation of these strategies in other developing economies?

1. When local food import production is combined with market liberalisation, urban agriculture could make a significant contribution to national food production in developing economies. It could have a particularly significant impact in urban and peri-urban areas that are extremely dependent on food production from rural areas. Urban agriculture could be complementary to NTAEs promotion in other low-income economies where markets have already been liberalised. Although export-led growth is the most common strategy of agricultural development in developing countries, there are a great percentage of small producers in countries like Costa Rica and Chile unable to engage in NTAEs (Botella-Rodríguez, 2012). For these producers urban and suburban agriculture

54. This definition of sub-urban is based on urban agriculture territorial framework presented in previous sections.

may be an alternative to preserve their role in national food production and attain high productivity levels.

2. Small farmers should be placed at the forefront of the strategy and supported by several state mechanisms. In doing so, the strategy should become official policy and implemented and supported at the national level. Moreover, governments should implement complementary measures to make the strategy work and overcome the structural inequalities in accessing basic assets and inputs many small producers face. Improving access to land in outlying municipalities, providing technical assistance, establishing frameworks that promote fair prices, improving access to inputs and sustainable technology, and decentralising markets are some of the mechanisms governments in developing countries could use to promote urban and suburban agriculture programmes. The state should also define the goals of the programme, the areas of application, the type of producers and farmers involved and the practices applied. These regulations can successfully guide small farmers and engage them in local food production. Moreover, these supporting programmes (and specific conditions in developing countries) may determine how far developing economies can go in using urban agriculture effectively in the context of agricultural liberalisation.

3. If similar programmes are to work in other developing economies, they should involve a variety of actors, not only the state and small farmers, but also research centres, academics and institutions. In Cuba, the tightening circumstances of the Special Period, especially food shortages in Havana city, stimulated urban agriculture at the starting point. Yet, the programme owes its development to the structural changes implemented by the Ministry of Agriculture in coordination with local and municipal institutions. The efforts of research centres and national and international non-governmental organisations (NGOs) have also been crucial in promoting urban gardening. Although the real success of urban food production has rested on the great determination of the 382,815 small farms and one million of small producers engaged in urban and sub-urban agriculture (Rodríguez Nodals, 2008), the support provided by agricultural institutions (e.g. ANAP, ACTAF), research centres, and NGOs has been key to securing the success of the programme.

4. CONCLUSIONS

This paper has illustrated best practices for small farmers in Costa Rica and Cuba. Specifically, the analysis has explained the channels and conditions that have enabled small holders (in specific regions and areas) to increase agricultural production through coopera-

tives and urban agriculture. The paper has emphasised the need to explore the great array of opportunities that different strategies of agricultural development can create for small farmers. The analysis also begs the question why programmes such as urban agriculture are not actively promoted in other developing countries.

In the case of Costa Rica, the paper has explained how Coopeagri and Dos Pinos found ways to secure the long term survival of small producers and engage them in agricultural production in a context of increasing competitiveness and agricultural liberalisation. The paper also noted that some cooperatives have been able to engage in NTAEs like African palm and pineapple. In these sectors, a significant number of small and medium farmers have been able to shift from traditional to non-traditional crops. Yet, for other non-traditional crops, Costa Rican state policy has largely promoted export-led production and commercialisation by national and international enterprises. In this context, Dos Pinos and Coopeagir show ways to engage small farmers in traditional productions for national and international markets.

In the case of Cuba, since the late 1990s, urban agriculture has generated multiple opportunities to insert smallholders into decentralised food markets close to consumers, reduce food imports, and improve urban and sub-urban nutritional conditions. In considering the expansion of urban agriculture in other developing economies, the specific conditions of Cuba, a socialist country with a strong history of state intervention, and the specific situation of small farmers in the context of the crisis should be considered. In other developing economies with free market mechanisms, urban gardening should be understood as a complementary strategy to cover national food consumption for small subsistence farmers. This alternative should also be supported by a state policy able to reconcile internal food security and export-led growth.

Understanding the conditions and channels through which these strategies work in Cuba and Costa Rica may provide useful lessons for other developing economies that currently do not implement them. Yet, the specific conditions of small farming in Costa Rica's coffee and dairy sectors and Cuba's urban and sub-urban agriculture should be accounted when thinking about similar strategies in other developing economies. In both cases, state support to either cooperative production or urban agriculture has been one of the keys to enhance these best practices for small farmers. In this context, state support, internal market functioning and land structures should be considered when thinking about these experiences and their viability in other Latin American economies. Therefore, the strengths and weaknesses of the cooperative model in the region should be also accounted.

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APPENDICES

The additional material of this article can be consulted at the web address: <http://historiaagraria.com/>

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