

Distr.  
RESTRICTED

LC/R.1663  
8 August 1996

ENGLISH  
ORIGINAL: SPANISH

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E C L A C

Economic Commission for Latin America and the Caribbean

**AGROINDUSTRY AND SMALL-SCALE AGRICULTURE:  
A COMPARATIVE SYNTHESIS OF DIFFERENT EXPERIENCES**

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96-8-746



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## **Abstract**

In contrast to the industrial sector, there are generally speaking no great economies of scale in agriculture and, given the high costs of supervision, it may even be argued that for labour-intensive crops requiring great attention to detail there are diseconomies of scale. For these crops then, and from the point of view of production costs alone, the ideal solution would be a contractual arrangement between agroindustry and small and medium-sized growers relying mainly on family labour.

However, diseconomies of scale are often counterbalanced by transaction costs, especially when dealing with small producers scattered over areas which are either physically remote or are lacking in communications infrastructure. As a result, preference is given to market-based transactions, vertical integration or vertical coordination agreements with large producers, even in the case of crops which can evidently be grown more advantageously by small producers, in terms both of production costs and of product quality.

The high incidence of imperfect markets (for land, credit, technology, information and others) in developing countries, combined with "imperfect services" (lack of transport, communications and irrigation infrastructure; inadequate levels of education; unreliable power generation and drinking water, and others) oblige operators to carry out transactions and enter into coordination agreements with partners who are not the optimum ones. They also force agroindustry to carry out activities which are not part of its specialism (acting as lender for instance), and producers are obliged to enter into a relationship which they would not have chosen in other circumstances. The linked transactions carried out can lead in turn to a lack of transparency in cost accounting and in the distribution of risks.

Where there is a weak and unreliable institutional framework, or past or present experiences which bring about a lack of mutual trust, the parties involved are discouraged from entering into potentially fruitful vertical coordination arrangements. The same thing happens with violently fluctuating market prices and undemanding consumers.

Because a great many government institutions providing credit, technical and marketing assistance have been restructured, weakened or dismantled – whether due to budgetary restrictions or to the prevailing market philosophy – new gaps have appeared in markets which were already highly imperfect. Agroindustry can fill some of these gaps and play an invaluable role as an (interested) intermediary between agricultural producers, markets and rapidly changing technologies.

Governments have a new, important role to play in facilitating vertical coordination agreements. The primary objective of the measures concerned would be to remove market imperfections and reduce transaction costs (improving the laws governing contracts and strengthening the institutions responsible for ensuring compliance; improving market and price information systems and making this information more widely available; promoting the establishment of quality standards, among others). In addition, they have a continuing role in developing infrastructure and services or in providing the incentives necessary for the private sector to share in this role.

## **A. THE ECONOMIC AND LEGAL BACKGROUND TO THE PROJECT CASE STUDIES**

Well over half of the farm properties in the region are small or medium-sized. Jamaica, for instance, has around 100,000 small producers (with holdings averaging some 2 hectares in size), generally situated on slopes and having relatively infertile soil. In Trinidad and Tobago, the 1982 census found that of a total of 30,500 farms, 86% were less than 5 hectares in size. In Guyana, 60% of farms are considered small (less than 4 hectares).

In El Salvador, changes to the structure of land tenure are adding to the already large numbers of small producers. In fact, the 1992 Chapultepec Peace agreement has led to estates of over 245 hectares being confiscated and transferred to the beneficiaries of agrarian reform and to ex-combatants. Lack of credit has impeded the necessary modernization of both farming and agroindustry, and bad debts have meant that large tracts of land are lying fallow, due to the impossibility of obtaining fresh credit for use as operating capital.

Peru – where 78% of all holdings have an area of less than 5 hectares – liberalized the land market in 1992. The new law stipulates that the size of a unit resulting from any transaction cannot be less than three hectares of irrigated land or the equivalent in unirrigated land. Uncultivated land belonging to the state can be purchased for agricultural use with a maximum of 1,000 hectares on the coast, and greater areas if they are intended for agroindustrial use. Lacking sufficient working capital of their own, and without access to credit to cultivate their property (due for example to the Banco Agrario being closed down and to the lack of title deeds on their land – this last now seems set to be resolved) many farmers have rented out some or all of their land, generally with a preferential option to work on it as a salaried employee.

In some countries a proactive policy is in force for the farming or agroindustry sector. Thus, in Jamaica, the agroindustry sector was recently identified as a key sector in the Government Recovery Programme, and a number of initiatives have been put in place to bring together government bodies and the private sector in order to take co-ordinated action to encourage development oriented by market forces. Likewise in Colombia, since a new law covering the farming sector and rural development was passed in 1993, the government is once again playing an active promotional role in respect of the small producer and agroindustry, after some years of following a "neutral" policy.

By contrast, in Trinidad and Tobago the government has had to change its policies for the farming sector due to its accession to the Structural Adjustment Programme. These were: security of the food supply through self-sufficiency in food; employment of the farming population at a reasonable level of remuneration; provision of raw materials to the industry and generation of currency through exports. Despite the change in policy, a number of products are still heavily subsidized. This is the case with sugar, cocoa, dairy products, rice and poultry.

In Ecuador meanwhile, the Industrial Promotion Law was repealed in 1992, and 1995 saw the abolition of the section of the Ecuador Industrial Development Centre (CENDES) involved in project evaluation. At the same time, with a view to promoting exports and obtaining direct information on requirements and changing conditions within markets which import the country's products, the Ecuador Ministry of Foreign Affairs and private firms in the country are jointly sponsoring the establishment of an *Ecuador Trade Centre* in a number of countries. In the farming sector, the 1994 Agrarian Development Law particularly encourages training programmes for small producers and the provision of agricultural credit.

In El Salvador, the government has been taking a series of measures since 1989, the thrust of them being to liberalize markets, establish macroeconomic balances and privatize or redefine the role and structure of state bodies. In Trinidad and Tobago, trade liberalization policies came into force in 1995 and agricultural imports are expected to increase substantially.

In a number of countries a substantial proportion of agroindustrial businesses were set up with domestic capital and oriented towards the domestic market in the 1970s, encouraged by promotional laws. There are of course also agroindustrial businesses with mixed capital and multinationals. The large-scale agroindustry sector is strong (for example in sugar and rice) as is the new technology sector (for example, frozen fish products, palm and pineapple preserves, fruit-flavoured ice creams and breakfast cereals), both concentrating on export markets. Nonetheless, most agroindustrial businesses are relatively small by international standards, although nationally they represent an important sector due to their not inconsiderable contribution to manufacturing employment and output. Many of them operate at a low level of technology, with obsolete equipment and idle production capacity, and sometimes they compete among themselves to produce similar products. Generally speaking, the agroindustrial businesses and technology institutes of the region carry out little research and are not very innovative. Virtually the entire sector is faced with problems in terms of credit, technology, road infrastructure, limited drinking water networks, uncertain electricity supplies, insufficient knowledge of food technology and high packaging costs. As regards farm output, the crucial factors acting as a brake on the development of non-traditional crops are primarily lack of credit, the lack of formal education and high average age of small producers, lack of technological research and market information, high transport costs and lack of infrastructure for storage and refrigeration, labour shortages during peak periods for highly labour-intensive crops, etc. As for exports, the appreciation of national currencies has undoubtedly proved an additional complication.

In general, it is true to say that most of the raw material used in agroindustry is obtained in the following ways: through the market (where what is purchased is often the leftover produce that remained unsold on the fresh food market, since farmers often fetch higher prices for fresh produce than those paid by agroindustry); by means of vertical integration (for fish, oils and fats, sugar, cardboard and paper pulp) or through imports, either because domestic output is insufficient, or because imported raw materials can be obtained at lower prices. Contractual relationships exist in only a relatively small number of cases, and even where they do they have tended not to be honoured either by the producers or by the agroindustry. This is due in part to large price swings, which provide an incentive to divert products to the highest bidder. For small producers, there is scarcely any way of marketing their produce except through middlemen.

Nonetheless, the 1980s did see a rise in the export of non-traditional farm products as well as a more demanding approach from consumers and stricter legal provisions, the characteristics of which have been such as to encourage greater vertical coordination between agroindustry and farm producers, including small and medium-sized producers.

## **B. THE MODERNIZING POTENTIAL OF LINKAGE BETWEEN AGROINDUSTRY AND SMALL AGRICULTURAL PRODUCERS**

The GTZ/ECLAC/FAO project: "Promotion of the economic and social integration of small and medium scale farmers into agroindustry" set out from the premise that, under certain circumstances, agroindustry can act as an agent of technological change for small and medium-sized farm producers, allowing them to increase yields and participate in socio-economic development.

The term "agroindustry" has to be understood in a broad sense, since the range of operators employing vertical coordination mechanisms with farmers has tended to grow as, on the one hand, both legal and consumer standards have risen in respect of the labelling, appearance and quality of products and their ingredients and, on the other hand, products have become more highly differentiated by brand, size and quality. For the purposes of the project, then, we need to extend the concept of (processing) agroindustry to mean an operator requiring a certain volume of agricultural products with more or less precisely specified conditions of quality, volume and time of availability. This operator, then, may be an agricultural processing business, a producers' cooperative, a packager of fresh products, a broker, a marketing board, a chain of supermarkets, or even a tourist complex. It is in this extended sense that the term "agroindustry" will be used hereafter.

Agroindustry may generate larger earnings for the producer by offering a market which previously did not exist (possibly the products simply perished) or by appearing as an additional purchaser and thus increasing competition for the product. In this case, both large and small agroindustrial firms may play a similar role. Nonetheless, the case studies make it clear that an agroindustry needs to be of a certain size and be subject to certain quality requirements if it is to act as an initiator of modernization at the farm level. It transpired that none of the cottage and craft industries studied fulfilled this role.

What also emerges fairly clearly from the case studies is that the modernization in question is most likely to be achieved when a system of cooperation is established by means of a formal buying and selling contract and when, furthermore, the agroindustry takes on an active technology transfer role. In other cases where verbal agreements and buying and selling contracts exist, a lesser degree of modernization is achieved. Where buying and selling is carried out on the market (through intermediaries, on the wholesale market, on the farm or at the factory), as well as where other types of relationship exist (land rental, contracting of labour in the factory or on the land of the agroindustry) it is not achieved or is achieved more slowly.

The boxes and examples in the text show that it is possible for small and medium-sized producers to modernize through their association with an agroindustry, and that this can be highly successful. It also shows that producers apply the new techniques of cultivation, irrigation and pest control that they have learnt through their relationship



with the agroindustry to their traditional crops. In several cases a considerable improvement can be seen in earnings and in the demand for family and contract labour, resulting in a drop in migration and even in the return of former migrants, especially in regions where plantations of new labour-intensive crops such as vegetables have appeared. On the other hand, there are other regions where the number of people (especially young people) migrating and working away from the property, and the effects of remittances from the cities and abroad, have led to shortages in the amount of labour available or willing to work, which has made it difficult to establish new crops or has increased wage costs to levels which are unacceptable to agroindustry or are uncompetitive.

Because of its relatively large size and its more direct access to information on technological change and new requirements and developments in demanding markets, agroindustry is generally the transmitter of technological innovation at the farm production level. It is also true that as producers become more specialized and gain in experience they become less dependent on the ongoing technical assistance needed when the relationship commences, with consequent cost savings for the agroindustry.

It should also be mentioned that a greater tendency towards monoculture is giving rise to a number of problems related to the appearance of pests and a greater need for fertilization, which cause environmental problems and ever-increasing costs. These factors could in the end act as a drag on production, making it environmentally unsustainable and economically untenable.

One example of a successful link-up between small producers – natives in this case – and agroindustry is the case of the Cuatro Pinos Cooperative in Guatemala. As it has already been cited by several sources, we shall just stress a few points. The cooperative was established in 1979 with 21 members. Its objective was to produce vegetables for export and it grew rapidly. At present, the cooperative has 1,900 members. It has 800 hectares for export and processing capacity sufficient for around 150 tonnes a week. It also owns refrigerated warehouses and has sufficient infrastructure to provide its members with ongoing training. Furthermore, Cuatro Pinos is a marketing cooperative which obtains supplies for its members at low prices. However, it has also had to overcome serious problems. For example, the removal of tax breaks and other benefits which it enjoyed at the outset, along with internal administrative difficulties, seriously affected the progress of the cooperative for a time. As in the case of El Salvador, described in box 1, and many others set out in this document, the region in which the cooperative operates has changed from being an exporter of labour to a magnet for it, and former migrants to the cities are returning to their communities. This is due to the fact that the activities of the cooperative relating to export crops have increased the demand for labour by 45% and that, thanks to these products, farmers have seen their earnings increase substantially. In fact, net profits per unit of cultivated land are five times better for snowpeas (the main export item of the cooperative) than for maize, the most important of the traditional crops grown by the small producers of the area.

### **Box 1**

#### **The transformation of small-scale Salvadoran producers of staple crops into an important link in international horticultural chains**

The small producers now associated with the company Del Tropic Foods traditionally confined themselves to growing staple grains. It was due to the encouragement of this company – and to the subsequent signing of a contract – that they began to grow okra and cowpeas, which Del Tropic Foods now exports frozen to the United States (95%) and Europe (5%). Annual exports are 5,000 metric tonnes by volume. 30% of the area supplying the company belongs to small and medium-sized producers.

Generally speaking, the small producers tied to this company are individual smallholders working on a cooperative basis, that is to say members of a cooperative formed as a result of the 1980 agrarian reform. The average holdings of these producers vary between 1.0 and 1.5 hectares.

The contractual link has produced the following results:

1. The farmers have diversified their output. The new crops complement the staples, thus increasing land use and the incomes of the producers. Employment, both of family members and people from the district, has also increased.
2. Innovations have been introduced as the producers have found themselves required to work to a strict cultivation timetable, with staggered sowing dates, and to adopt the use of fertilizers and pesticides, involving some technological proficiency, in accordance with the conditions specified in the contract they entered into with the agroindustry. They have also acquired scientific knowledge on pest control, which can equally be applied to traditional crops. They have applied the experience gained through growing cowpeas to the cultivation of other traditional pulses.

The following considerations provide the producers with a strong incentive to maintain the contractual relationship:

1. Price stability, prices being fixed ex ante in the contract, established by the agroindustry on the basis of prices prevailing in the international market.
2. The opportunity to obtain credit or backing from the agroindustry.
3. Access to fertilizers supplied by the company at prices lower than those obtained in the market.
4. The provision of ongoing and flexible technical assistance.

As contracts have been signed year after year, producers have moved towards specialization and gradual technological independence, resulting in lower costs for the company.

**Source:** Liudmila Ortega, "Las cadenas agroindustriales y diversificación agrícola en El Salvador" (LC/L.983), Santiago, Chile, ECLAC, 1995.

Tourism (or "inward exports") could also open up possibilities for small farmers and at the same time for agroindustry and farm produce concerns. It is a fact that one of the forces which stimulate greater use of technology in production and better coordination between the different links in the agroindustrial chain is the existence of demanding consumers who discriminate by quality and are ready to pay a good price for this, and who have the purchasing power to do so. In the absence of, or as a complement to, sufficient numbers of sophisticated local consumers, the tourist industry can play an important role here, and can also act as a springboard for exports by providing the preliminary apprenticeship necessary and generating foreign demand.

So, for example, the growing numbers of tourists visiting the islands of the Caribbean are opening up a valuable opportunity for the development of agricultural and agroindustrial activities. In order for tropical and semi-tropical fruit and vegetables to be produced to meet the demand from hotel and resort chains in the Caribbean, agricultural and agroindustrial processing activities have to be organized on a new basis, with considerable repercussions due to the forward and backward linkages involved. High levels of technology are required to meet the demanding quality requirements found in this market segment, and the sector needs to be in a position to ensure regular supplies to tourist centres. It has proved to be more efficient to produce fruit and vegetables – products whose quality depends to a great degree on proper handling – from small farming units using family labour than from larger estates that have to contract labour from outside. This particular state of affairs opens up the possibility of linking up the output of small family producers with highly quality-conscious markets ready to pay attractive prices. At the same time, given that this demand is generated inside the country concerned by demanding consumers from high-income countries, the produce is to all intents and purposes being exported to markets within the national frontiers. Once this step has been accomplished, there should be nothing to stop produce being exported to those countries from which the greater part of these tourist flows originate.

### C. THE IMPORTANCE OF ORGANIZATION

The smaller and more fragmented producers are, the more essential it is for them to be organized. There are a number of reasons for this, ranging from the need to collect together a volume which is sufficient to be of interest to agroindustry to the advantages of increased negotiating power, economies of scale and lower transaction costs.

The Cuatro Pinos Cooperative in Guatemala, the organic producers of the Cabo [Schejtman, "Agroindustria y pequeña agricultura: Alcances conceptuales para una política de estímulo a su articulación" (LC/R. 1660), ECLAC, 1996.] and the passion fruit producers in Colombia, illustrated in box 2, are cases which clearly demonstrate the importance of having a well-supported organization to start up new production activities, ensure their success and cope with the difficulties arising along the way.

## Box 2

### Organization and the switch to commercial operating methods: the case of passion fruit producers in Colombia

The passion fruit growers of the municipality of Urrao in the Province of Antioquia in Colombia decided to organize the Urrao General Cooperative in 1984 with the aim of avoiding the losses in profit margin they were experiencing as a result of their fruit being marketed through middlemen.

The first four years gave them a grounding in organization, but it was not until 1988 that a qualitative leap was achieved in the running of the cooperative with the adoption of a businesslike approach incorporating the following aspects: restructuring of administration and accounting on commercial lines; drawing up of a post-harvest management package; a search for new alternative marketing channels, including export.

Passion fruit had begun to be introduced in 1979 on the initiative of the region's farmers, as a response to the crisis which arose around that time in horticultural marketing, which formed part of the activity of the producers. Passion fruit growing was suited to their conditions and needs as it is a labour-intensive crop, it grows steadily all year round and prices do not in general fluctuate sharply, and because during the vegetative stage of cultivation (14 months) farmers can sow beans in between, which enables them to satisfy food requirements, obtain income and nitrogenate the soil.

Marketing of the product has passed through four stages: through intermediaries; by direct distribution in the nearest town; by establishing agreements with various marketing companies in different areas of the country, when volumes grew due to the admission of further members, and by means of contracts with supermarkets for sale in the domestic market and with exporters of exotic fruit. At the same time, the produce continued to be sold in the Wholesale Centre in Bogota.

The transition to the fourth stage was the culmination of the initial period of apprenticeship in the field of marketing, which led to marketing being approached as an activity in its own right. As a result a number of innovations were introduced in the system of post-harvest management, including the creation of a system whereby fruit is classified according to quality, something that is well regarded in export markets; labour force specialization to apply this system; the use of packaging incorporating the cooperative's own designs and logos, which has enabled the cooperative to consolidate its image in the market.

It is important to stress that at no stage in the introduction of the crop or its subsequent expansion was there any intervention by public bodies, although the cooperative is an indirect beneficiary of the favourable export environment put in place during the 1980s. It achieved what it did because it possessed a structure which allowed some management experience to be obtained. It also compensated the lack of public support in the area of research and technical assistance by entering into contracts with the National University and contracting an agricultural scientist. Thanks to its ability to meet demand promptly by bringing together the produce of hundreds of formerly scattered farmers, the cooperative managed to achieve a place in the market which it then went on to consolidate (with 800 hectares of fruit trees, it has a sort of "monopoly" in this area, as competition from other regions is minimal).

**Source:** Aníbal Llano G. and others, "Transformación productiva de la pequeña agricultura en Colombia", Bogota, February 1994, unpublished.

Agroindustry often looks askance at supplier organization, fearing that once organized they will be in a better position to negotiate the terms of agreements, and unaware that they themselves can benefit in a number of ways if suppliers are organized, not least by a significant reduction in transaction costs. Thus in Peru, for example, the original ASAGRO administration actively tried to prevent asparagus growers in the Santa valley from organizing, which they were doing in response to deep disagreements arising from the failure to adjust the price of asparagus in line with inflation and increases in interest rates. The second administration accepted it as inevitable that the producers should organize themselves and reaped the benefits of this in terms of improved coordination and discipline among the producers, which meant that production techniques and asparagus quality could be improved, this in turn being rewarded by higher prices in the destination markets and better credit terms.

In Jamaica, the poultry industry has also benefited from partnership among producers. The poultry industry is considered to be the most successful case of coordination between producers and agroindustry and produces some 45 thousand tonnes of chicken meat per annum. The two biggest processors, *Jamaica Broilers Limited* and *Caribbean Broilers*, are each linked with numerous small and medium-sized chicken rearers through complex contracts which detail the responsibilities of each party. These rearers are grouped into two associations, which gives them greater negotiating power, but which also means the processors can hold sustained dialogues with a single stable and responsible negotiating partner. Producers are paid in accordance with a scale which encourages the efficient conversion of food into meat. The system works well, although there is a constant need for negotiation due to changing conditions in the sector. It must be stressed that feelings of mutual respect and fairness need to be continually renewed and to predominate if these relationships are to continue to enjoy the same success as hitherto.

#### **D. THE IMPORTANCE OF DECENTRALIZING RESOURCES AND DECISION-MAKING**

In a great many of the countries of the region there is a growing tendency to decentralize administrative functions and devise projects on the basis of local participation. These trends are promising and open up new possibilities in terms of identifying problem areas and bottlenecks more effectively and resolving them more successfully. A neat example of this is the case of the bean growers of the Carmen del Viboral Municipality in Colombia (see box 4 in the following section on transaction costs).

Likewise, joint action at local level and "strategic alliances" between different local operators such as private firms, different public bodies, non-governmental Organizations and small producers can lead to novel initiatives for developing agriculture and agroindustry and linking up the two. The fact is that the actions of a single public or private entity, restricted by its mandate, its knowledge, its organization, working methods, interests or financial capabilities, are often inadequate to respond to the complex problems of rural development and fill in all the gaps that prevent productive activity from taking off. In many cases it is only thanks to alliances between different bodies, each one with its specific area of expertise, interests and contribution, that change can be achieved. The above can be illustrated by the examples of the yam and cassava producers in Colombia, set out in box 3.

### Box 3

#### **Concerted action turns farming sectors into innovative and successful businesses: the cases of yam and cassava producers on the Atlantic coast of Colombia**

In the case of yams, the factors which came together were as follows: the organization of small farmers in the Municipality of San Juan Nepomuceno on the Atlantic coast of Colombia into the COOSANJOSE cooperative in 1977; the experience of the company MAGU Ltda. in exporting agricultural products, assisted by the incentives given to export firms and, thanks to this, its success in penetrating new markets; the support of the public sector in: organization and training, credit through the Integrated Rural Development Fund (DRI)-FINANCIACOOP (100 million Colombian pesos from 1984 to 1990), rural marketing assistance through the DRI Fund, technical assistance for production through the Colombian Agricultural and Livestock Institute and the Municipal Unit for Technical Assistance in Agriculture (UMATA).

Once it had built up experience in yam marketing through contracts with other private bodies, COOSANJOSE linked up with the export company MAGU Ltda., taking an equal share in risks and profits. By so doing, it acquired knowledge of operating regulations and procedures governing exports, gained direct knowledge of trends in the international agricultural market, and was furthermore able to share in earnings in the form of Tax Refund Certificates.

In order to comply with the requirements of weight, product size (smaller and uniform for the foreign market) and quality demanded by the international market, the members of the cooperative introduced technological changes, based on their own research, into their sowing systems and post-harvest management. By so doing they went against a long tradition whereby anyone producing a product of great size and weight was regarded as an expert farmer deserving nothing but praise. In addition, the producers were in a position to replace the native yam promptly when it was decimated by an uncontrollable fungal disease, introducing in its stead the bush yam, in the cultivation of which more specific technological innovations are required, as are strict controls on sowing and the post-harvesting stage.

As for cassava, which is well adapted to low-fertility soils and does not require large quantities of agrochemical inputs, it is widely cultivated among the precarious smallholders of the Atlantic coast of Colombia.

In the 1980s, crop yields had been increased as a result of technical assistance, but farmers lost this advantage in the post-harvest stage, as the product perishes rapidly and there was not sufficient local demand for the crop, or infrastructure to process it.

An agreement signed between the public sector, private firms and non-governmental bodies enabled various ways of processing the cassava to be developed, with the aim of penetrating new markets. The solution consisted in promoting natural drying of the cassava so that it could be turned into a raw material for producing concentrated cattle feed.

This transformation of fresh cassava into dried cassava resulted in an increase in the area sown (almost 100% in the period 1985-1991), in price stabilization and in competitiveness in new markets, improving the incomes of the producers and enhancing their quality of life. As of 1991 there were more than 142 cassava drying plants along the Atlantic coast, of which 97 belonged to farming cooperatives and the remainder to private operators. Furthermore, this expansion in the number of cassava drying plants has increased the demand for labour, thus generating new sources of employment in the area.

**Source:** Aníbal Llano G. and others, "Transformación productiva de la pequeña agricultura en Colombia", Bogotá, February 1994, unpublished.

## **E. THE FACTORS IMPEDING LINKAGE**

### **1. Transaction costs**

A significant barrier in the relationships between different operators and small producers is constituted by the additional costs they have to incur if they are to deal with a great many small producers who are geographically dispersed and often isolated from the road and telecommunications networks. In other words, the transaction costs incurred by agroindustry, banking institutions, transporters, middlemen etc. are greater than those they incur when dealing with a few larger producers. These costs are rarely quantified, so few researchers take them into account when evaluating price discrimination (real or apparent) or other biased attitudes towards small producers.

The transaction costs involved in establishing contracts with small producers/communal land-holders have been summarized as follows by a Mexican agroindustrialist: i) the need for additional technical assistance, which requires more field visits; ii) the inability to call the producers by telephone, which means they have to be visited in order to communicate with them; iii) the need to lend or lease specialized machinery to them; iv) the need to advance operating or investment capital to them, which reduces the amount of capital available to the agroindustry; v) the greater difficulty of convincing them of the importance of using only the pesticides authorised in the quantities recommended, leading to infringements in the form of unauthorized pesticide use; vi) additional time spent and costs incurred at the factory in weighing and unloading products from small lorries, and vii) an increase in the number of accounting procedures and in administrative costs due to the large number of producers working under contract.

Although a wide range of successful examples of vertical coordination can be found, with small producers showing themselves capable of great flexibility and efficiency, it must also be recognised that in many cases coordination has not happened or has failed due to the high transaction costs incurred in dealing with numerous small producers. These can be reduced substantially when producers organize among themselves, thereby achieving economies of scale and creating a focal point for negotiations. Action by the state or Non-Governmental Organizations to take on some of these transaction costs or take the steps needed to reduce them could be the decisive factor which induces agroindustry to deal with small producers. The example of the bean growers in Colombia shown in box 4 speaks volumes about the kind of action which is possible, and its effects.

If transaction costs are left out of the reckoning, it is impossible to appreciate the extra effort that any operator has to make in order to deal with a large number of fragmented producers, an effort often made greater still by the existence of imperfect markets as well as of "imperfect services", the latter often directly attributable to the failings of government.

Lack of mutual trust is another of the factors preventing vertical coordination between agroindustry and producers from taking place, or preventing it from operating as well as it might and thus forcing operators to incur higher transaction costs to compensate. This lack of mutual trust is generally speaking more severe when the operators belong to different socio-economic classes or different ethnic groups.



#### Box 4

##### **Successful public sector intervention at the weakest link in the chain: the case of the municipality of Carmen del Viboral in Colombia**

In the course of a few years, the farmers of the municipality of Carmen del Viboral in Colombia, spread out in small rural villages and formerly confined within a subsistence economy, turned themselves into high-yield bean growers, with a substantial technical knowledge and market awareness. They now market more than 90% of their output.

These changes are the result of a public policy capable of identifying the factor hindering these farmers from participating in the market: transaction costs. This accurate interpretation of reality was made possible by the decentralization of public bodies down to the municipal level, carried out in Colombia from 1987 onwards. Various public bodies had already been working on the case of these farmers for ten years, seeking to organize them into cooperatives so that they could participate in marketing their own products and distributing agricultural inputs; but the results were always scanty.

The new public policy, implemented from 1988 onwards, achieved results by applying the solution in reverse: promoting marketing first so that the producers could organize later; identifying companies able to market the produce of small farmers on terms which would be attractive to the latter, whilst encouraging them to organize; constructing a central collection depot and setting up a regional market information system once the producer-company link was in place.

Now, this link-up between producers and marketers could come about only if it gave the latter some tangible benefit which would encourage them to take on the role proposed. This was achieved by offering official technical assistance to the firm identified, along with development credit to be used as working and investment capital in the rural economy (\$38 million at 20% interest).

The Cooperativa de Consumo y Mercadeo de Antioquía Ltda. (CONSUMO) [Antioquía Consumption and Marketing Cooperative Ltd.] in Medellín agreed to take part in the project to market the Cargamanto bean. The organization has 5,500 members and by 1988 it had 23 years experience in distributing staple products through a chain of six supermarkets. To make good its commitment, the cooperative changed its statutes and admitted the bean growers as members. So far 600 farmers have become affiliated; these are organized into 16 village councils represented in the Municipal Committee of producers, which comes to a mutual agreement with the organization, with no written contract. This agreement covers purchasing of Cargamanto beans from the member growers and distribution of agricultural supplies. During the period 1988-1993 the cooperative purchased an average of 420 tonnes a year, which represents 27% of the total output of the municipality.

The advantages obtained by the producers are: a market and better profit margins thanks to the establishment of the short marketing chain: producer/cooperative/end consumer, dispensing with the middleman; an increase of 75% in the price paid to individual member growers during the period 1990-1993 and, currently, a stable price despite high bean imports; price regulation, which also benefits growers who are not members, since the cooperative has 24% of the beans on the market and the CONSUMO purchase price is used as a reference point for trading; exact weight and payment in cash; access to the services of the Central Collection Depot, construction of which was financed jointly by the Municipality, the (state) Integrated Rural Development Fund and the cooperative; training services and supplies of agricultural inputs at normal prices.

**Source:** Aníbal Llano G. and others, "Transformación productiva de la pequeña agricultura en Colombia", Bogotá, February 1994, unpublished.



## 2. Imperfect markets

When markets are imperfect or do not exist and agroindustry fails to fill this gap, the impetus towards modernization and integration into the competitive production process is lost or is weaker than it might have been. In turn, the fact that agroindustry is supplying imperfect markets means higher costs on the one hand, but on the other hand enhances the attractions of a link-up with agroindustry for farm producers, in particular small and medium-sized ones, as it is they who face the greatest difficulties in gaining access to these markets. Successful composite agreements (buying and selling contract with the addition of technical assistance, provision of credit or supplies, etc.) can be afflicted by a number of problems characteristic of this type of arrangement, such as lack of transparency in cost accounting and risk transfer.

The case of asparagus in Peru is illustrative of the different forms that the relationships between agroindustry and the producer can take, and the effects of these. Thus, in the Ica valley, we have a case of vertical integration combined with coordination with medium-sized farmers (between 10 and 50 hectares) and the occasional involvement of small ones, all with a higher than average level of education, generally full secondary education. The demanding out of season market for fresh asparagus in the United States, which is where the produce goes, requires a high degree of technological and managerial proficiency. The company has taken care to ensure that its suppliers meet these requirements. In Viru-Chao (Trujillo and La Libertad) on the other hand, coordination is with small farmers (up to three hectares) who do not have access to irrigation, do not receive technical assistance, are lacking in management skills and have insufficient working capital. Lacking access to credit, they are unable to use the inputs necessary to achieve good production standards. The result of all this is that yields are low, quality is inadequate and post-harvest losses are high. As a consequence, their yields are four times lower than those in Ica and quality too is much poorer.

Another interesting example is the case of the sugar industry, a crucial one for Trinidad and Tobago since the colonial period, and still the most important agricultural activity in the country. The sector is dominated by Caroni Ltd., a state agroindustry which, in addition to operating the only two refineries in the country, a distillery and packaging and storage facilities, produces half of all the sugar cane. The other half is produced at a low level of technology by small producers, 90% of whom have less than four hectares. The refineries have to have prompt and regular supplies if they are to work efficiently, which means that there is a natural interdependence between producers and the agroindustry. The company provides the growers with seedlings, builds and maintains access roads, sells draught animals, etc. The cane is gathered at 50 collection points around the country. In addition, the State – through Caroni – guarantees prices and pays a cash subsidy, provides subsidized pesticides and fertilizers and rents out land at low prices. Despite all this, the system is facing a great many problems. The price mechanism does not provide the producers with the necessary incentives and Caroni has little economic motivation to improve the productivity and efficiency of its services. In consequence, relations between producers and the company have not always been harmonious and the whole of the sugar industry, both the cane production side and the processing side, is inefficient and uncompetitive.

A final example showing the complexity of the linkages that can arise when there are several imperfect markets in the same place is the one described in box 5, dealing with the Ica valley in Peru.

#### **Box 5**

##### **Imperfect markets for credit, labour and technology lead to one-off forms of linkage: the case of the Ica valley in Peru**

The ways in which tomatoes are produced in the Ica valley reveal a great deal about the types of mechanism that arise when markets depart from the "Walrasian ideal", for here we find a tomato paste factory that has chosen to rent land from small producers who have less than four hectares, using an arrangement whereby they are then contracted to work their own lands.

Among the reasons why this unusual situation has arisen are the fact that the Banco Agrario has ceased to operate and there is no alternative market for credit, the labour market is segmented and offers few opportunities and the system for transferring technology is inadequate. This leads small producers to choose the option of renting out some or all of their land, in order to obtain resources sufficient to cover their consumption and production needs on the land not used for growing tomatoes, and at the same time to have guaranteed work.

Another reason why this type of organization arose was that the factory did not have the option of purchasing or renting larger tracts of land, and this system replaced the contract farming approach which it used initially, and which was unsuccessful. The factory abandoned this approach because loans which it granted to producers to buy pesticides were misused, and because the initial supervision required to ensure that the tomatoes were of good quality and delivered on time proved highly expensive. The new system has not proved entirely successful either, with growers complaining that, on the one hand, their land is being exhausted by the cultivation of tomatoes and, on the other, that the company has not paid its rents as agreed, and they are therefore reluctant to repeat the experience in future. As for the company, it has experienced severe problems in terms of organization and profitability.

It is worth asking whether, in this same context, if some public stimulus had been applied to cover the company's technical assistance and supervision costs at the stage when the project was getting underway and links with small producers were being consolidated, or if the producers had had access to technology and finance, it might not have been possible – with advantages to both sides – for a type of contract agriculture to function successfully, as has happened in other countries with the same type of product. In fact, several of the producers declared that they would be able to grow this crop if they had access to financing.

An interesting experiment, and one which may offer one possible way ahead in the process of restructuring small-scale agriculture, is an unusual system of renting found in the Ica valley, where medium-sized farmers rent land for a period of six years in order to sow asparagus. The asparagus plantation reverts to the owner of the land at the end of this period. In all probability, the renter will have been contracted as a worker on his own property, and thus will have acquired the knowledge necessary to continue operations and if required carry out resowing at the end of the 10 or 15 years that commercial production normally lasts.

**Source:** Adolfo Figueroa, *Pequeña agricultura en el Perú* (LC/L.975), ECLAC, Santiago, Chile, 1996.

a) *Credit*

Table 1 is self-explanatory in respect of the need to have access to credit when changing over from "traditional" to "non-traditional" crops. Although net earnings per hectare of "non-traditional" crops are ultimately many times higher than those for "traditional" ones, costs too – and therefore the need for working capital (and often fixed capital as well) – are much greater. The problems caused by lack of access to sources of credit to finance fixed and working capital are illustrated by the examples from Costa Rica and El Salvador contained in box 6.

Table 1

DOMINICAN REPUBLIC AND EL SALVADOR: AVERAGE COST AND PROFIT  
FOR VARIOUS CROPS

Product	Income/ tonne	Cost/ hectare	Net income/ hectare
<b>Dominican Republic (in US\$)</b>			
Coconuts		25	85
Beans	1 240	860	1 124
Industrial tomatoes	12.7	999	332
Rice	288	1 306	1 344
Bananas	207	1 850	2 290
Tobacco		2 048	1 165
Snowpeas (green beans)	640	3 281	5 696
<b>El Salvador (in Colons)</b>			
Maize		1 714	415
Sesame		3 517	847
Marigolds		6 000	4 483
Okra		9 747	1 225
Melons (Honey Dew)		10 746	11 382
Jalapeño chili		20 830	5 341

**Sources:** George Kerrigan, "Agroindustria y transformación productiva: el caso de la República Dominicana"; Las relaciones agroindustriales y la transformación de la agricultura, (LC/L.919), Santiago, Chile, ECLAC, pp. 605-684; Liudmila Ortega (cons.), Las cadenas agroindustriales y la diversificación agrícola en El Salvador (LC/L.983), Santiago, Chile, 1995.

**Box 6**  
**Lack of credit hinders small producers from linking up with agroindustry,**  
**and the latter from expanding**

**The case of PROPICA in Costa Rica**

PROPICA is a medium-sized firm which specializes in preserving and packaging chilies and peppers, and exports 100% of its output to a continually expanding market. However, lack of raw materials means that it can use only 50% of installed capacity.

The crops which the firm processes are highly suitable for smallholdings since they do not allow economies of scale, are labour-intensive and are highly profitable. The raw material is in fact supplied by small producers. For their part, these producers value their relationship with the firm highly as they have a contract and a guaranteed market for their produce, and the firm meets its payment obligations.

The difficulty lies in the fact that the farmers do not have their own transport to make deliveries to the plant and, in many cases, are equally lacking in working capital to purchase supplies and carry out irrigation. As a result of these obstacles the supply of raw materials fluctuates in volume and in quality. This reduces the export capabilities of firm, giving it less opportunity of strengthening its position in the market. It also raises difficulties in terms of relations with foreign markets and obliges the firm to resort to intermediaries for its marketing.

Agroindustrialists consulted in Costa Rica assert that: "rather than doubting the ability of producers to achieve quality, they are wary of the problems peasants or small farmers face in obtaining access to basic production factors such as credit and technical assistance. Companies are ready to maintain relationships with small producers provided they have the resources necessary to achieve stable output."

**The case of McCormick in El Salvador**

Some 700 Salvadoran smallholders have undertaken cultivation of vegetables, which are the raw material for the Central American company McCormick.

The successful link-up between these producers and the company dates back three years and is owing to the efforts of the Salvadoran Cooperative Educational and Advisory Institute (ISEAC), an organization which has helped this segment of producers to diversify their crops and integrate into the market by providing them with ongoing training and technical assistance.

As things stand, the farmers now have sufficient technical knowledge to pass on to the stage of processing the raw material, and thanks to an agreement with McCormick they have a guaranteed market, with room for another 800 producers. In view of this, ISEAC has invested in the construction of a plant to process the Tabasco and Jalapeño chilies produced by these smallholders. However, this project has run up against the difficulty of obtaining credit for machinery and working capital, with the result that opportunities to develop the factors, installations and experience already in place are being lost.

**Source:** Luis Fernando Fernández and others, "La participación de los pequeños productores de materia prima en el sistema agroindustrial costarricense", San José, 1993, unpublished; Liudmila Ortega, Las cadenas agroindustriales y la diversificación agrícola en El Salvador (LC/L.983), Santiago, Chile, ECLAC, 1995.

A fair number of case studies identify credit, even more than know-how, technology and market access, as one of the bottlenecks restricting the expansion of non-traditional crops, especially as regards the involvement of small and medium-sized producers, as they face particularly severe problems in gaining access to official sources of credit. The intervention of agroindustry, either as a lender or as an administrator of credit, is often an indispensable precondition if they are to become involved in growing non-traditional crops, and if the agroindustry/producer link-up is to be successful. (The ability to gain access to loans through middlemen is one of the reasons for their continuing role in rural areas, as is explained in the relevant section).

Official credit institutions do not generally speaking have sufficient information to work with in relation to crops, yields, production risks and marketing, and so require a high level of surety. The local infrastructure and staff costs required to supervise loans from near at hand are prohibitive, and repayments suffer. On the other hand, given that agroindustrial businesses know the producers they have dealings with, buy most of their output and generally provide technical assistance as well (which means frequent visits to their properties), a number of the problems which credit institutions face when they deal with agricultural producers are obviated. In fact, where agroindustry is concerned loans are negotiated locally, paperwork is reduced to a minimum (generally just an extra clause in the contract), disbursements are made according to requirements (another frequent criticism of bank loans), technical assistance staff are also given the responsibility of supervising loans, and repayments are deducted from the sales price, which means that transaction costs on top of those already incurred by reason of the vertical coordination relationship itself are minimal.

In view of this, contracts between agroindustry and producers in the Dominican Republic often include a clause whereby the agroindustry takes on a formal role as a bridge between the producer and a banking institution. Loans made under this type of arrangement average 3,300 dollars with annual interest of 10% (some agroindustries do not charge interest while others charge up to 24%). The loan covers the whole production cycle and (in 80% of cases) uses future production as surety. This average interest rate compares favourably with the 14% interest charged by the Banco Agrícola and the 20% charged to small producers by the commercial banks.

However, as was mentioned earlier, these composite arrangements (buying and selling contract with provision of credit and/or supplies) sometimes lead to unclear accounting, to costs being transferred from one item to another, and even to outright fraud. A study in Mexico showed that none of the small producers was capable of calculating the implicit interest charged by the agroindustry for the loan provided.

b) *Infrastructure and services*

In less highly developed countries or regions, agroindustry is sometimes required to make good "imperfections in services" affecting farm producers (as well as their own workers) who lack the necessary schooling (reading and writing, calculation, deductive logic, etc.). This means that the process of transmitting knowledge, technological applications and feedback about experience on the ground, which ought to work more efficiently and efficaciously through vertical coordination, becomes more difficult or simply too onerous.

Likewise, infrastructure deficiencies (roads, electricity, drinking water, irrigation, communications) restrict agroindustry in its area of operations and influence, limiting competition and excluding potential markets and producers further afield. Irrigation is often crucial if new technological packages are to be implemented properly and improved varieties are to produce good yields, or if homogeneous products of a certain size are to be obtained. Because of this, farmers who do not have access to irrigation are debarred from growing a number of crops under the conditions required. In other cases, this lack of access to irrigation means that growers have less time in which to produce and export, and so opportunities to increase earnings are lost. Box 7 shows the effect of infrastructure deficiencies in the cases of Guyana and the melon producers in El Salvador.

Statistics show that small producers generally have less access to infrastructure and services. This is also the case with irrigation infrastructure, due to the location of their properties and the cost of building and maintaining the irrigation infrastructure, and because there are costs involved in subdividing the infrastructure and controlling use.

c) *Research, technology transfer and training*

A number of studies have shown that research and technology transfer in agriculture are highly profitable. However, the efforts and investments made in this area are less than ideal, partly because "public property" is involved to a great extent. Furthermore, this area has features characteristic of an "imperfect market" where small producers clearly face greater difficulties in attracting and participating in research and gaining access to information. Agroindustry, on the other hand, can be an efficient agent of transmission, because it has a particular interest in achieving a positive result, both at the level of technology and in terms of farmers obtaining net income. An example of the role played by agroindustry in technological innovation on cacao plantations in Ecuador can be found in box 8.

Another "imperfect market" is the one for information about market opportunities. In this case too, where vertical coordination arrangements exist, agroindustry, if it is acting in good faith, can act as an efficient transmitter.

Generally speaking, it is easier to introduce improvements to crops already produced by the rural economy than new crops requiring inputs (water, capital, time for the investment to mature) and techniques (monoculture, know-how, rapid adaptability, passing the risk threshold) which smallholders do not have at their disposal, are unaware of, or are not willing to attempt. Nonetheless, the range of successful experiments already described in previous boxes illustrates the considerable learning ability of small producers, as long as technology transfer is tailored to their circumstances and is accompanied by an adequate effort, commensurate with realism, to tackle some of the other bottlenecks affecting them, in particular access to credit.

### **Box 7**

#### **The numerous infrastructure shortcomings impeding the development of the agroindustrial chain**

##### **The case of Guyana**

In Guyana, agriculture is still the country's main source of employment and foreign currency. It consists of a commercial plantations sector on the coast producing rice, sugar cane and coconuts and a smallholder sector in the interior of the country, producing around 40 varieties of vegetables and a wide range of fruits, tubers and roots (cassava in particular). Sugar cane and rice alone account for some 70% of agricultural GDP, which suggests that the contribution made by the smallholder sector is relatively modest.

However, it is not only the relatively low volume of production that explains the almost total absence of coordination relationships between agroindustry and small producers; there are also a great many obstacles hindering agroindustry from setting up in the country's interior or from transporting products to the coast. Most of what the small farmers produce is in fact highly perishable and as things stand thousands of tonnes are being lost due to lack of electricity, drinking water, storage infrastructure and know-how, and lack of roads and transport facilities. Furthermore, a series of policies (such as registration requirements) make it harder to process products at the smallholding level, and a consumption tax of 30% on processed products represents an even greater restriction on the growth of new agricultural processing activities.

##### **Lack of irrigation for melon growing in El Salvador**

Access to irrigation is vital if production is to be organized on a staggered basis, and vital therefore if Salvadoran producers and exporters are to take full advantage of the marketing window in the North American market, which lasts twenty weeks. It allows a solid presence to be established in the market, and flattens out the sharp price fluctuations which are observed when supplies from different countries are concentrated in particular periods.

This situation can be illustrated by the example of two companies, the Asociación de Productores Nacionales de la Empresa (APN) and Salvador Fresh. The first of these, which is supplied partly by cooperatives and partly from its own plantations, has drip irrigation facilities, and as a result is in a position to send consignments over a longer period and obtain a better average price. The second company is supplied by 340 small producers who have no irrigation infrastructure. This means that sowing and harvesting cannot be organized on a staggered basis, so that export volumes are concentrated in a period of no more than eight weeks. Prices may be good in this period; but it can also happen, and has happened on occasions, that the company finds that the prices it can obtain for its produce are below cost and has to stop exporting, which leads to serious losses for both the company and the farmers. Again, it has also happened that when prices improve, they do not have sufficient volumes to export. In other words, management takes on a fortuitous and haphazard character.

If this situation is to be turned around successfully the State will have to provide substantial support, either by building infrastructure or by means of regulation to allow the private sector to become involved, perhaps through the franchising method.

**Sources:** Ena C. Harvey, Linkages between agroindustry and small-scale agriculture in Guyana, 1995; Liudmila Ortega (cons.), "Las cadenas agroindustriales y la diversificación agrícola en El Salvador" (LC/L.983), Santiago, Chile, ECLAC, 1995.



#### Box 8

##### Innovation and small cocoa producers in Ecuador

As an export product, cocoa was of great importance to Ecuador in the past. For some time past, however, and to an increasing extent, Ecuador has been facing problems in the supply of cocoa due, among other things, to the gap existing both in research and in technology transfer, especially that aimed at small producers, who account for 95% of the national supply.

There is competition to purchase the cocoa production between those who export beans and the local industry which produces and exports semi-processed products such as cocoa powder, butter and liqueur. Due to the particular prevailing conditions, Ecuadorian cocoa is valued for its distinctive aroma, even when it comes from ageing and unproductive plants. This aspect, which is of great importance to the processing industry, is not the central concern of bean exporters, who have given priority to achieving high volumes rather than to obtaining better prices for aroma when selling in the international market.

Scarcity of the raw material has recently led exporters and industrialists to explore the possibilities of increasing the country's output of cocoa. One of the most promising ideas is to draw up and implement a programme to replace old plants with new clonal varieties offering substantially higher yields than are obtained at present. The University, in collaboration with producer Organizations, would take responsibility for the production and distribution of these new replacement clonal varieties, whilst the industry and exporters would set up systems aimed at encouraging and rewarding quality.

This opens up a significant opportunity to involve small producers in production activities at a higher level of technology, which would bring them substantial increases in their monetary income. Such producers generally keep a few cacao plants among their crops in order to have a reliable source of cash to meet costs incurred in maintaining the family unit and other productive activities. At the same time, bean exporters and processors would be assured of sufficient supplies to meet their commitments.

It is worth pointing out that Trinidad and Tobago also produces cocoa whose aroma is highly prized in the international market but which, for a number of reasons, among them the *Dutch Disease* due to the development of the oil industry, has suffered from a drop in output, yields and quality, and from ageing plantations. In this country, however, there is still no sign of any attempt to remedy the situation.

**Source:** Kléver Navarro, "Políticas alternativas que estimulen la participación del sector en el mejoramiento cacaotero del Ecuador", 1995.

There are also a number of fairly successful examples where technological innovation was passed on not through a formal process of technology transfer – whether by government or by agroindustries themselves – but through observation. This is the case with the Ica valley, where many of the technological innovations involved in learning to grow tomatoes, in irrigation techniques and hormone application were drawn from observations made by the producer himself or his children in neighbouring properties. In the case of tomatoes, there are examples of farmers whose willingness to attempt the cultivation of this crop stems from the experience or knowledge they have gained from



their position as worker-leaseholders for the agroindustry. Others, in the case of asparagus, have been given seedlings and advice by members of their families or by friends already cultivating this crop, while others again, having started out by observing what their neighbours did, have contracted the services of a technician to teach them the details they were unable to ascertain by watching and questioning their neighbours.

In some circumstances, agroindustries prefer to work with people who have no previous experience in a given crop or technology, as they find them more open to their suggestions. One such case was that of ASAGRO in Peru, which chose to introduce asparagus into the Santa valley precisely because the small producers there were inexperienced in dealing with irrigation and fertilization, and the company expected that this would make them more open to suggestions. Unfortunately, in this specific case, the company did not carry out a sufficiently careful study of what minimum size (or in other words, what minimum level of productive potential) was required to ensure both that loans would be covered and that the net incomes generated would be greater than those obtainable by the smallholders from other alternatives they might opt for. As a result, it had to bear the losses brought about by ill-conceived loans and, furthermore, initiate a "normalization" process to relieve the strains set up with producers in the process.

d) *Middlemen*

With producers so widely dispersed and faced with such high costs to bring their produce to the market (often combined with an ignorance of its workings), middlemen continue to play a crucial role in the rural economy. Although it is true that they take advantage of their monopsony position, it is also true that the costs of collecting small quantities in isolated places are very high. Furthermore, middlemen often play a crucial role as lenders in situations where formal credit markets are non-existent, inaccessible due to lack of surety, or expensive because of the procedures they involve. In this area too they take advantage of their monopoly position. It is precisely because they have this position that this informal market can work, as the middleman can ensure repayment by threatening to stop buying or lending in future. If agroindustry is unable (or has not realized the need) to offer financing on equivalent terms or if it is perceived as an unsafe option in the longer term, the producer may well prefer to continue dealing with the middleman even if the price on offer is lower than that offered by agroindustry, and even if the middleman charges very high interest.

One example among many others is that of the *higglers* or middlemen in Jamaica. The term undoubtedly comes from the verb *to higg*, "to bargain, to discuss for trifles". In this country, most fresh fruit and vegetables pass through the middlemen, who sometimes harvest the product, buy it, package it and transport it to markets in the urban centres. Furthermore, they often act as lenders. The more successful higgler own their own lorries and sell direct to retailers and supermarkets. The difference between prices at the farm and those in the market generally fluctuates around 50%, which covers the margin of the middleman, transport costs and the margin of the retailer. The middlemen tend to have a bad reputation, being accused of overcharging buyers and treating small producers unfairly, for example by delaying the purchase until the last moment, hoping that the producers will sell more cheaply in their despair at seeing their produce about to spoil. Despite these criticisms, however, the fact that 75% of domestic food products in Jamaica pass through their hands shows that, so far, no efficient way has been found for replacing them.

Box 9, dealing with the decentralization of marketing in Guatemala, provides an illustration of the mechanisms which are able to break the dominance of the middlemen and some of the effects that this can have on producers.

**Box 9**

**Decentralization of marketing brings a new dynamism to rural development:  
the case of Guatemala**

At the end of the 1970s, Guatemala City was the only place where wholesale transactions were carried out (in the "La Terminal" market). The various products left the production centres and were sent to the collection and processing enterprise in the capital. As a result of this situation, only larger producers with their own transport facilities or farmers located in the surrounding area were able to participate directly in the market. The great majority had to resort to middlemen to market their products, not just for reasons of volume and distance but because in many cases these middlemen had advanced money to them on condition that they deliver up the harvest.

For the farmers, this method of marketing through middlemen had the disadvantage of reducing their profit margins, as they had to sell their products at prices well below those of the market.

In the 1980s there appeared a considerable number of non-traditional export products of agricultural origin, chiefly vegetables, fruits, seeds (sesame for example) and legumes (snowpeas for example).

As these labour-intensive products came to be adopted in areas with a high population of small and medium-sized farmers (such as regions of the Altiplano), a productive transformation was achieved in the agriculture units, and new opportunities opened up. The siting of agroindustries near communities, combined with this whole process of agricultural transformation, led to the appearance of producers with a more entrepreneurial and innovative spirit and with a knowledge of the workings and organization of the market. A number of partnerships were set up by individual farmers in association, and these became active in seeking better ways to produce and market their products.

There are now 35 processing plants and collection centres spread around the different areas of production in the country, which means that farmers can have direct access to markets.

**Source:** José Ricardo Curruchiche, "Las relaciones contractuales y la transformación de la producción agrícola en Guatemala, in Las relaciones agroindustriales y la transformación de la agricultura (LC/L.919), ECLAC, Santiago, Chile, 1995.

e) *Risk*

The subject of risk and the way it is shared out between the different participants is a very complex one. A distinction can be drawn between the risk inherent in agricultural production (climate and plant health risk), commercial risk (fluctuations in demand, in supply – whether or not related to the vicissitudes of climate – and in prices) and the transaction risk involved in vertical coordination. In principle, the situation of least

risk for both the buyer and the seller is to be found in the case of commodities on the spot market in conditions of perfect competition (supplemented by futures markets and various forms of risk insurance). However, in the case of a more specific product, it would seem that as vertical coordination gives way to vertical integration, so the systemic risk diminishes, whilst the part of the risk inherent to agriculture which is taken on by the agroindustry increases. It is clear that the position of power which agroindustry generally holds, together with its greater access to information, allows it to negotiate contractual terms which, in addition to the agricultural risk, place a large part of the commercial risk (or all of it in the case of goods in consignment) on the agricultural producers. As far as these are concerned, it is generally assumed that the more precarious the condition of the agricultural producer is, the more averse he will be to risk, and that he would be prepared to sacrifice earnings in exchange for greater security. The rural unit would operate with a risk threshold determined in accordance with the quantity of assets that it owns, and would not accept risks that exceeded this threshold as this could endanger the very existence of the unit and its members.

An example of this is provided by the small melon producers of El Salvador. When they were offered three different payment options by the agroindustry, namely: a) price fixed ex ante, b) basis price plus profit share, and c) commission, the great majority of them opted for the price fixed ex ante and those that did not complained that they had come out of it badly.

The trust of the small producer in his relationship with the agroindustry can become one of the prime factors determining the success of vertical coordination. It leads to relationships becoming durable over time, and thence to specialization by the producer, and the effects of this are felt in turn by the agroindustry in the form of lower costs (of supervision, technical assistance to new suppliers, etc.). This sequence of events can be discerned, for example, in the case studies dealing with mango production for export in Piura, Peru, and with companies processing marigolds in El Salvador. Confidence in the security of payments becomes an economic incentive which leads to: commitment to honouring undertakings to supply the agroindustrial partner even though better prices may be offered by another occasional buyer along the way; an interest in raising or maintaining the quality of the product (a matter of vital importance if the produce is to be exported fresh); complying with technical regulations, etc. In cases where undertakings to producers have not been met, on the other hand, the contractual relationship suffers, with detrimental effects not only on the amounts but also on the delivery dates agreed in the contractual relationship.

Clearly, whether or not a company complies with the terms of its contract is determined to a great extent by the economic environment in the country concerned, but a very immediate factor is the existence or lack of clear and properly structured policies and mechanisms governing dealings between different parties. From the need to have a favourable environment for transactions it can be inferred that the attention paid by the public sector to the workings of the legal and financial systems and systems of credit, infrastructure, trade, etc. is a major factor in the development of secure contractual relationships for small producers, and hence in the process of incorporating them firmly into the marketplace.

A case where mechanisms to deal with excessive risk are absent and mutual trust between parties is lacking, and the negative effects this has on production, is described in box 10, dealing with the production of cassava bread in Jamaica.

**Box 10**

**Risk and lack of mutual trust to the detriment of increased prosperity along the chain: the case of bammy production in Jamaica**

The case of bammy production provides an example of lack of vertical coordination between small cassava producers and small agroindustries. Bammy, or cassava bread, is produced in a family or community setting, with women generally being in charge of operations while the men do the heavy work of grating and squeezing. There are estimated to be some 2,000 to 3,000 bammy producers who generally bake only once a week due to the scarcity of roots, whilst consumer demand remains unmet. To produce bammies, cassava of a specific size and degree of maturity is required, and this has to be processed within 24 hours of being harvested.

Farmers are reluctant to sow cassava; they consider the crop too risky, as it is highly perishable and it cannot always be guaranteed that there will be transport for it, and because they are not confident in the level of demand; there are no good instances of communication between producers and processors of cassava.

Faced with these circumstances, the producers and processors (possibly with the encouragement of the government) should collaborate to ensure a reliable supply of good quality produce at reasonable prices, without having an excess of supply during the peak periods for cassava production.

**Source:** Arnoldo K. Ventura, Agroindustrial Linkages for the Improvement of Small-scale Farming, 1995.

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# Appendix

## LATIN AMERICA: FORMS OF VERTICAL COORDINATION BETWEEN PRODUCERS AND AGROINDUSTRY

Product	Market	Vertical Coordination					Vertical Integration
		S.C.	T.A.	Cr.	Sup	Man	
Tomatoes for paste (Chile - I and E)		X	X	X	X	X	
Tomatoes for paste (Dom. Rep. - I)		X	X	X	X	X	
Tobacco (Dom. Rep. - I and E)		X	X	X	X	X	
Wheat, maize, vegetables seeds (Chile - I and E)		X	X	X	X	X	
Vegetables (fresh and for freezing) (Guatemala - E)		X	X	X	X	X	X <u>b</u> /
Tobacco (Chile - ?)		X	X	X	X		
Tobacco (Guatemala - ?)		X	X	X	X		
Vegetables (El Salvador - I and E)		X <sub>j</sub> /	X	X <sub>k</sub> /	X <sub>l</sub> /		
Citrus (Trinidad and Tobago - I)		X <sub>p</sub> /	X <sub>q</sub> /	X	X		
Chickens (Trinidad and Tobago - I)		X <sub>m</sub> /	X	X <sub>n</sub> /	X <sub>n</sub> /		X <sub>o</sub> /
Sugar cane (Trinidad and Tobago - I and E)		50%	X <sub>g</sub> /	X <sub>r</sub> /	X <sub>r</sub> /		50%
Pigs (Jamaica - I)	22%	68%	X	X	X		10%
Sugar beet (Chile - I)		X	X	X			
Coffee (Colombia I and E)		X	X	X			
Melons (El Salvador - E)		X	X	X			X
Marigolds (El Salvador - E)		X	X	X			X
Milk (Trinidad and Tobago - I)		X <sub>s</sub> /	X <sub>g</sub> /	X <sub>u</sub> /			
Barley for beer (Chile - I)		X	X		X		
Sunflowers and rape (Chile - I)		X	X		X		
Bananas (Dom. Rep. - E)		X <sub>g</sub> /	X		X		
Rice (Trinidad and Tobago - I)		X <sub>s</sub> /	X <sub>g</sub> /		X <sub>t</sub> /		
Sugar cane (Nicaragua - I and E)		50%	X		X		44%
Pigs (Colombia - I)	X	X	X		X		X
Barley for beer (Peru - I)		X		X	X		
Chickens (Jamaica - I)		X <sub>b</sub> /		X <sub>l</sub> /			
Potatoes (Jamaica - I)		X <sub>b</sub> /		X <sub>l</sub> /			
Coconuts (Jamaica I and E)		X <sub>b</sub> /		X <sub>l</sub> /			
Wheat and rice (Paraguay - ?)		X <sub>c</sub> /		X <sub>c</sub> /			
Sesame (Nicaragua - E)		X <sub>h</sub> /		X			
Sesame (Guatemala - E)		X					
Tomatoes for paste (Nicaragua - I and Central America)		X <sub>e</sub> /					
Vegetables for preserving (Chile - I and E)		X					
Milk (Jamaica - I)		X					
Milk (Ecuador - I)		X <sub>w</sub> /					
Cocoa (Trinidad and Tobago - E)		X <sub>s</sub> /					
Rice (Dom. Rep. - ?)		X					
Asparagus (fresh and for freezing) (Peru - E)		X <sub>x</sub> /					22%
Fresh pineapples (Dom. Rep. - E)		77% <u>f</u> /					23%
Cashews (El Salvador - E)	X	X					
Guava for pulp (Colombia - I and E)	X <sub>m</sub> /	X <sub>v</sub> /					
Fruit and vegetables (Ecuador - I)	X <sub>m</sub> /	X					

Product	Market	Vertical Coordination					Vertical Integration
		S.C.	T.A.	Cr.	Sup	Man	
Fruit and vegetables (Trinidad and Tobago - I and E)	X <sub>m</sub> /	X <sub>w</sub> /					
Fruit and vegetables (Guyana - I)	X <sub>m</sub> /	X <sub>w</sub> /					
Tomatoes for paste (Guatemala)	85%	15% <sub>y</sub> /					
African palm and coconuts for oil (Dom. Rep. - I)	X	X					X
Peanuts (Nicaragua - E)	X						
Cocoa (Ecuador - I and E)	X <sub>i</sub> /						
Tomatoes for paste (Paraguay - I)	X						
Cotton (Peru - I and E)	X						
Grapes for pisco (Peru - I)	X						
Grapes for home-made wine (Peru - I)	X						
Mangoes (Ecuador - I (E only 4,5%))	X						
Fruit for jams and jellies (Jamaica - I)	X						
Sesame (El Salvador - E)	X <sub>y</sub> /						
Ackee (Jamaica - I and E)	X						
Tomatoes for paste (Ecuador - I)	X						X <sub>a</sub> /
Peaches for preserving (Chile - I and E)	X						X <sub>a</sub> /
Sugar cane (Guatemala - I and E)							85%
Flowers (Dom. Rep. - E)							X
Grapes for wine (Peru - I)							X
Tomatoes for paste (Peru - I)							X

**Source:** Compiled by Martine Dirven, based on C. Ladrix, "The Linkage of Small and Medium-sized Farmers with the Market in Six Countries of Latin America and the Caribbean" (summary of case studies), *Agroindustrial Relationships and the Transformation of Agriculture*, ECLAC, 1995 (LC/L.919) and on case studies from the ECLAC/FAO/GTZ Project on Promoting the Social and Economic Integration of Small and Medium-sized Producers with Agroindustry. The authors of these latter were: Colombia: Edelmira Pérez; Ecuador: Rosa Jordán de Romero (fruit and vegetables), Héctor Valencia (milk) and Kléber Navarro (cocoa and mangoes); El Salvador: Liudmila Ortega; Guyana: Ena Harvey; Jamaica: Arnoldo K. Ventura; Peru: Adolfo Figueroa; Trinidad and Tobago: Ranjit Singh.

**Notes:** I and E: domestic and external market

S.C. : sales contract

T.A.: with technical assistance

Cr. : with credit (in cash)

Sup.: with supplies (in kind: seeds, fertilizers, machinery, etc.)

Man.: with managerial guidance (operating plans, etc.)

a/ for a small proportion of the total amount of raw material used.

b/ Producer cooperatives.

c/ With small ones.

d/ With large ones.

e/ The plant began operating on a vertically integrated basis; now it subcontracts with small producers.

f/ 44% coming from large producers having relatively loose links with the firm and 33% coming from small and medium-sized producers with stable links and contracts renewed from year to year.

g/ Written contracts with producers holding more than 30 hectares and verbal contracts with the smaller ones.

h/ Previously the relationship was through the market (purchasing on the farm by wholesalers).

i/ Only Nestlé gives technical assistance and then only to large producers.

j/ 60% with cooperatives and 30% with small individual producers.

k/ Agroindustry acts as guarantor.

l/ At less than market prices.  
m/ For the majority.  
n/ For most of their needs.  
o/ For the minority.  
p/ 40% of the members of the cooperative and 60% of the state firm.  
q/ Limited.  
r/ Subsidized.  
s/ It is not really a sales contract, rather the agroindustry has to buy everything that is delivered to it at a price fixed in advance as a result of negotiations with the State and not with the producers.  
t/ Seeds only.  
u/ Feed only.  
v/ Only for a few higher-quality producers, at prices above those of the market.  
w/ Oral agreement.  
x/ 10% of small producers and 70% of medium-sized to large ones.  
y/ Medium-sized to large producers have sales contract with the agroindustry, including technical assistance and loans.