Family Agriculture Program for the Production Chain (PAF CP)

El Salvador Family Agriculture Plan

IICA Report

By sowing innovation we are reaping prosperity

Inter-American Institute for Cooperation on Agriculture

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5 000 years ago, humanity learned to sow crops and rear animals on the land; today, we will have to learn anew to sow crops and to rear animals in order to overcome the challenges of food security and climate change, but already, there are not only animals in the fields, but also innovation in the minds of the people.

Foreword

Photo: Communications Office / IICA El Salvador

FOREWORD

In the second semester of 2010, the Ministry of Agriculture and Livestock (MAG) was preparing to launch one of the greatest programs for El Salvador's agricultural sector in recent decades: the Presidential Family Agriculture Plan, PAF. Its purpose: to execute a differentiated, comprehensive intervention plan, with rapid results, which would restore a sense of dignity to hundreds of thousands of families who were subsisting in situations of social and economic poverty.

This intervention was based on the premise that the farmers themselves could overcome their isolation and exclusion, if they were given access to technological innovation, entrepreneurship, formal markets, networks and knowledge management structures.

The Production Chains component of the PAF defined actions to increase food availability. By means of a technification process and better practices, the program sought to achieve a significant increase in productivity levels and agricultural profits and, in turn, promote a process of coordination and capacity building in the areas of marketing and business management. Ultimately, the program would develop the competitive capabilities that would allow farmers to increase their incomes, thanks to greater and better insertion in local markets.

The immense conceptual, analytical and deliberative effort involved in the design of the PAF did not compare with the enormous and complex challenge of putting it into operation, of creating the necessary conditions for its launch and addressing major constraints such as the *minifundio* system - small plots of land – and dispersion which affected hundreds of thousands of producers, whose production scale was so low that it practically prevented their products from entering the formal marketing channels and did not foster the development of innovation processes and increased productivity.

It was clear that sowing innovation to harvest prosperity was the correct approach, since it focused on the transfer of knowledge for thousands of families; however, there were limiting factors, such as the advanced age of many farmers, migration, the lack of young people in the countryside and the exclusion of women, all combined with low levels of schooling and widespread illiteracy among large sectors of the rural population. These constraints greatly complicated the PAF's intervention, but, above all, forced it to adopt effective methodologies and specific tools suited to that situation. The idea was that innovation on farms would be geared toward marketing, maintaining a vision and actions that would create sustainable linkages which, in turn, would generate value; furthermore, this value was to be equitably and appropriately distributed throughout the different links of the chain.

As a reflection of the productive structure of agriculture, the linking of thousands of producers to markets has been extremely irregular; this means that the modest resources generated end up in the hands of intermediaries, who generally take the lion's share, both in the sale of products

and in the purchase of inputs for thousands of individual producers.

The limited capacity for intervention of the public agricultural institutions and their low level of credibility among most rural farmers were other obstacles that the PAF had to overcome.

All these challenges required a titanic effort. It was essential to make an impact on production, productivity, quality, volume, prices and on the seasonal availability of products from the different chains in order to competitively supply the demanding, large and formal domestic markets, which El Salvador fortunately has in abundance. At the same time, it was necessary to create favorable institutional conditions by strengthening the Ministry of Agriculture and Livestock (MAG), the CENTA (National Center for Agricultural and Forest Technology) and the ENA (National School of Agriculture). Moreover, this was to be accomplished as soon as possible, in order to guarantee the appropriation of the Program and its effective management by those institutions, in subsequent years.

In general, when one decides to apply a policy or an intervention program to resolve these types of problems, or to take advantage of opportunities in rural areas, there are two options: either to implement autonomous projects executed by NGOs, but unconnected to any public institutional framework (which means that when the execution period concludes, the effects also come to an end), or to strengthen public or semi-public institutions that face major constraints, which prevent them from being effective, since they do not have the capacity to sustain innovation processes that allow them to eliminate the structural restrictions or "bottlenecks" that afflict them.

In this experience, the option chosen was to strengthen the public agricultural institutions so as to implement actions that would promote and develop the competitiveness of the production chains.

In order to take advantage of its experience in the western hemisphere, the Ministry of Agriculture and Livestock (MAG) entrusted the Inter-American Institute for Cooperation on Agriculture (IICA) with the joint technical execution of the Production Chains Program (PAF- CP) during the first two years of implementation. This meant that the Institute would assume responsibility for eight (8) agricultural production chains: basic grains, honey, dairy products, aquaculture, vegetables, fruits, cacao and coffee.

With IICA's support, implementation of the Program began in July 2011. In its first year, the program worked with 15, 918 families: 5,700 engaged in the production of basic grains, 2 014 in dairy products, 2 900 in fruits, 2,900 in coffee, 1,000 in apiculture, 449 in vegetables, 285 in cacao and 670 in aquaculture. During the first two years, the initiative also received cooperation from various Government institutions, which helped to create optimum conditions for the full implementation of the program.

In order to resolve the problems as soon as possible and take advantage of existing opportunities, it was necessary to obtain results quickly: to build productive economies of scale through competitiveness and associativity; to make an impact on the chains in order to supply the formal domestic markets; to transfer knowledge and good agricultural practices in post-harvest management and value added; to make use of a combination of simple methodologies and pedagogies in order to transfer

knowledge to farmers; and to encourage them to appropriate or "take ownership" of this knowledge , and promote their empowerment by encouraging the active participation of both men and women.

The first results came rapidly, though there was awareness that this was just the beginning, that this was a process that would take several years. The Program has already achieved increases in productivity ranging from 13% to 80%, depending on the product; production costs have been reduced, either through a more rational use of inputs or through a reduction in prices related to the purchase of inputs in most of the chains; and improvements are evident in compliance with the standards of formal markets, with "A" quality products such as honey, dairy products, fruits, vegetables and coffee, among others.

In addition, synergies have been achieved in mobilizing material and financial resources, ranging from 5 dollars per dollar invested (for example, in honey), to 15 dollars per dollar invested (for example, in aquaculture). With regard to additional remunerated employment per family, up to 3 permanent jobs per hectare have been created (for example, in vegetable production).

The improved use of resources has been associated with agricultural practices that protect the soil, water and forests.

The profits obtained from the plots participating in the Program have multiplied the net income per hectare. One hectare of plantain can generate up to 8,000 dollars in profits; cacao, up to 2,000 dollars per hectare. In honey, an increase of 1, 400 additional dollars was achieved for each apiary with 50 hives; in aquaculture, 1,600 additional dollars were generated per hectare annually; and in

dairy products an additional 1, 100 dollars per year was generated on an average farm with 10 milk cows.

The empowerment shown by producers – men and women- is remarkable, given that this innovation model is based on local social networks and on numerous linkages between the stakeholders of the chains, which makes it possible to multiply the flow of knowledge. Farmers often mention that whatever you have learned and understood "nobody can take away"; the seed has been planted, the harvests are being gathered.

In the area of institutional strengthening, the results are also positive. The process of transferring full responsibility from the Institute to government institutions began from the start of the Program, as a deliberate and planned strategy.

The "PAF Production Chains" initiative has received support from the MAG and from CENTA for the identification, selection and hiring of the Program's technical personnel and extension workers, a task in which they participated in an active and co-responsible manner. Similarly, nearly 70 technicians from MAG and CENTA were assigned to the different production chains (except coffee), as full time staff for the implementation of the actions. This figure represents nearly one-third of all the field staff.

It was also necessary to strengthen the MAG, CENTA and the ENA, an institution that trains young agronomists, and other civil society organizations, by rebuilding a platform of human resources, which consisted of 500 technicians and extension workers with transformative technical skills, who received training in the methodologies of Farmer

Field Schools (FFS) and a business training program for entrepreneurs called *Competencias Económicas para Formación de Emprendedores* (CEFE). In the MAG, CENTA and ENA alone, 160 technicians have received training.

At the same time, more than 300 professionals, technicians and extension workers who were contracted for the execution of the PAF-CP, were transferred to these public institutions to ensure the continuity of the actions after 2013.

The Program has also imparted a series of additional and complementary training courses to the staff of the MAG and CENTA for the management of the Technical Panels with stakeholders of the production chains; it also provides training in the design of business plans and investment projects, and in good practices - in agriculture, livestock production, manufacturing and marketing. More than 100 technicians from these institutions have been trained so far.

These ongoing training efforts are complemented with technical assistance from international experts, who have exerted a decidedly positive influence on the transfer of knowledge to the Program's receptor and executive structures. Their role has been effective, since they have been involved in the teaching-learning processes and the knowledge and techniques they have transmitted can be applied immediately. The participation of 19 experts from various countries, in 16 events, enabled more than 1,300 persons to access knowledge of the highest level.

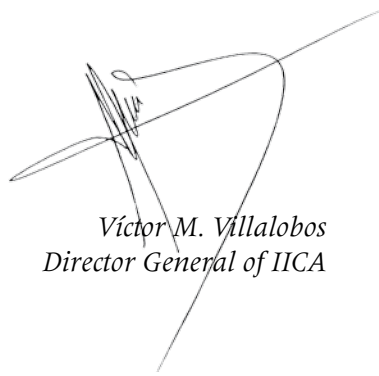
The organization of more than 100 field trips to areas in the country's interior made it possible to include a large contingent of producers – more than 7, 000 - in

this process to disseminate knowledge, as well as over 200 technicians from the participating institutions. International visits made to countries such as Mexico, Honduras, Guatemala, Nicaragua and Costa Rica, among others, delivered specific technologies to 380 persons. This task implied an important application of knowledge in each of the agricultural production chains and facilitated the training of MAG and CENTA technicians.

This type of experience requires support, not only of a hemispheric technical nature, but also of an administrative nature, making it possible to manage massive resources in an efficient, transparent, auditable manner and with comprehensive traceability.

For IICA, this has been an enriching experience and has enabled it to renew its commitment to work with the member countries and to fully comply with its basic objective: to support countries in their efforts to achieve agricultural development and rural well-being. This experience proves that its adaptation is viable in other countries and regions with shared, though different situations, according to the conditions and circumstances prevailing in each of those latitudes.

This book is a testament to a success story and is, in turn, a tool that can be applied in other countries of the Americas.



Víctor M. Villalobos
Director General of IICA

1

How to sow innovation for development

Frame of reference for the analysis

Photo: Communications Office / IICA El Salvador

1. How to sow innovation for development

Frame of reference for the analysis

1.1. Innovation for Development

The vision adopted for this cooperation initiative involving IICA and the Government of El Salvador, known as "Innovation for Development," provides the frame of reference for this report.

This vision primarily involves the different types of small-scale family agriculture that exist on our continent, and is premised on the idea that efforts to solve the food security problems of family farmers call for innovation processes based on systems that use a production chains approach at the territorial or local level, focused on the stakeholders (individuals, communities and institutions) and framed within inclusive, differentiated and targeted policies. In this way, innovation systems are strengthened by local innovation networks, complementing associations of a broader nature that may occur in regional and national contexts.

Under this system, innovation is more interactive and less linear, and competitiveness has more to do with the

pursuit of excellence in stakeholders' capabilities than markets. Thus, agricultural extension becomes an activity at the service of innovation; it acts as a catalyst and makes it possible to generate the changes needed, coordinate the activities of the stakeholders and incorporate crucial research. It encompasses not only technological change, but also cognitive change, in the stakeholders. Cognition is central to this vision, since it is the only thing capable of bringing about adaptation and change, and fostering learning and continuous improvement.

IICA has developed a conceptual framework for analyzing these types of initiatives through the identification, conceptualization and direct implementation of different models included in this approach, such as the PAF-Production Chains Program in El Salvador.

1.2. Conceptual framework

In broad terms, innovation is a collective process of negotiation and learning that seeks to add economic and social value to a given community, in order to use new knowledge or a new idea successfully. It is not a question of a mere "transfer" of information; rather, it presupposes interaction among stakeholders (individuals and institutions) in a process that in most cases is not linear, and occurs in individuals and organizations. As a process of learning and knowledge-building, innovation entails not only managing knowledge but also managing changes in knowledge to generate skills that will enable people and organizations to understand their context better and act differently (talent management).

One way of mapping and improving the management of innovation is by creating innovation systems. Made up of stakeholders, interactions and policies, these systems help to generate, disseminate and make use of new knowledge, technologies and practices (stakeholders, relationships and context). The stakeholders interact by means of information sharing, communication, dialogue and negotiation. This definition implicitly includes the learning and knowledge-building process that takes place among the stakeholders in the system. The same applies to the agrifood sector, since innovation and the production and marketing of a product cannot be accomplished by a single business or company, but only in cooperation with other agents and as a result of their interaction.

Innovation networks are the basic units of agrifood innovation systems (AIS). These networks are relatively informal, interrelated systems that may not require a great deal of effort to set up. If they prove efficient, they may last a long time; if not, they may be gotten rid of and reconfigured. They are organized around innovation (science-technology-transfer-development) and a particular product or market linked to the dynamics of the agrifood chains. They are also limited to a specific territory or area, a unique geographical, social, economic and political space. In other words, their organization and management is based on the technological demand from the chains (or products) and on the territory involved.

At this level, the process of innovation in the agrifood sector is driven by the producers' desire to make a change in order to solve a problem or meet a technological need. This calls for the organization or configuration of four elements: a network, an operating structure, a method of

learning and the means (and spaces) for communication, which will allow for interaction among the stakeholders.

Put simply, the organization, design or re-design of a network is the relationship among three components: a platform for channeling the demand, a platform for providing services, and a platform for monitoring and evaluation. The platform for the technological demand has to do with the producers' objectives (sale, on-farm consumption or both); the requirements of the product or chain of which the producers form part, or wish to form part; and the area or territory where the farmers are located. Analysis of these elements makes it possible to define a strategy that takes account of the demand and the problem to be addressed, as well as the requirements for arriving at the solution. The platform for services, on the other hand, links the stakeholders or agents who can provide what is needed to implement the strategy, which may not necessarily be technical services but rather those of a commercial or financial nature, or research. The monitoring and evaluation platform measures the progress achieved in meeting the requirements of the strategy by means of the services provided by the stakeholders.

The operating structure is the structural and operational representation of the relationships established within the network, its structures, processes, procedures, decision-making, roles, functions and the delivery of services, among other aspects.

In addition, there is the capacity to learn, to build knowledge and to adapt to the context, represented by the dynamics of the market and the territories, which

can only be present in the stakeholders of the network: in individuals and in institutions. For this to happen, there must be a learning method that ensures a change in practices and in the acquisition of new skills by the actors involved. This method is nourished, in particular, by follow-up and monitoring, which generates the lessons learned.

Finally, there must be methods and spaces for communication among the stakeholders to allow for the constant flow of information, dialogue and negotiation, and to provide feedback on their efforts.

2

Preparing the ground:

The context

Photo: Teodoro Romero / IICA El Salvador

2. Preparing the ground:

The context

Family farming is the main component of El Salvador's agricultural sector, as is clear from the Fourth Agricultural Census conducted in 2008. Hence, the importance of supporting rural families.

In 2011, the Government of El Salvador, through the MAG, decided to implement a comprehensive, efficient and differentiated program for the sector. Targeted primarily at vulnerable population groups, the program places emphasis on inter-sectoral actions, is being implemented in prioritized rural territories, and addresses the two types of family agriculture that exist: subsistence agricultural and family farming conducted on a commercial basis. Thus, on the one hand, it is increasing the amount of food and income available to families engaged in subsistence agriculture, as they develop the skills needed to integrate themselves into commercial family farming. On the other, it is benefiting commercially-oriented family farmers by improving their productive capacity and their access to more and better markets, thus enabling them to improve their competitiveness and incomes and promote the sustainable development of the economy of the territories involved.

As shown in Figure 1, this program is divided into four subprograms: The National Supply Program for Food and Nutrition Security (PAF-Food Security), the Production Chains Program for Family Agriculture (PAF-Production Chains), the Agricultural Innovation Program (PAF-Innovation) and the Links with Industry and Trade Program (PAF-Agroindustry).

The PAF-Production Chains Program focuses on strengthening technical capabilities in the areas of collection and marketing. It also seeks to strengthen the organizational and business management skills of rural families involved in various production chains, including basic grains, fruits, vegetables, cacao, dairy, coffee, aquaculture, honey, craft goods and rural tourism. The overall objective is to raise the net income levels of rural families by making rural businesses more competitive and promoting production linkages.

The target population identified for this program was 65,431 families classed as commercial family farmers, nearly all of whom managed to sell their products in the market.

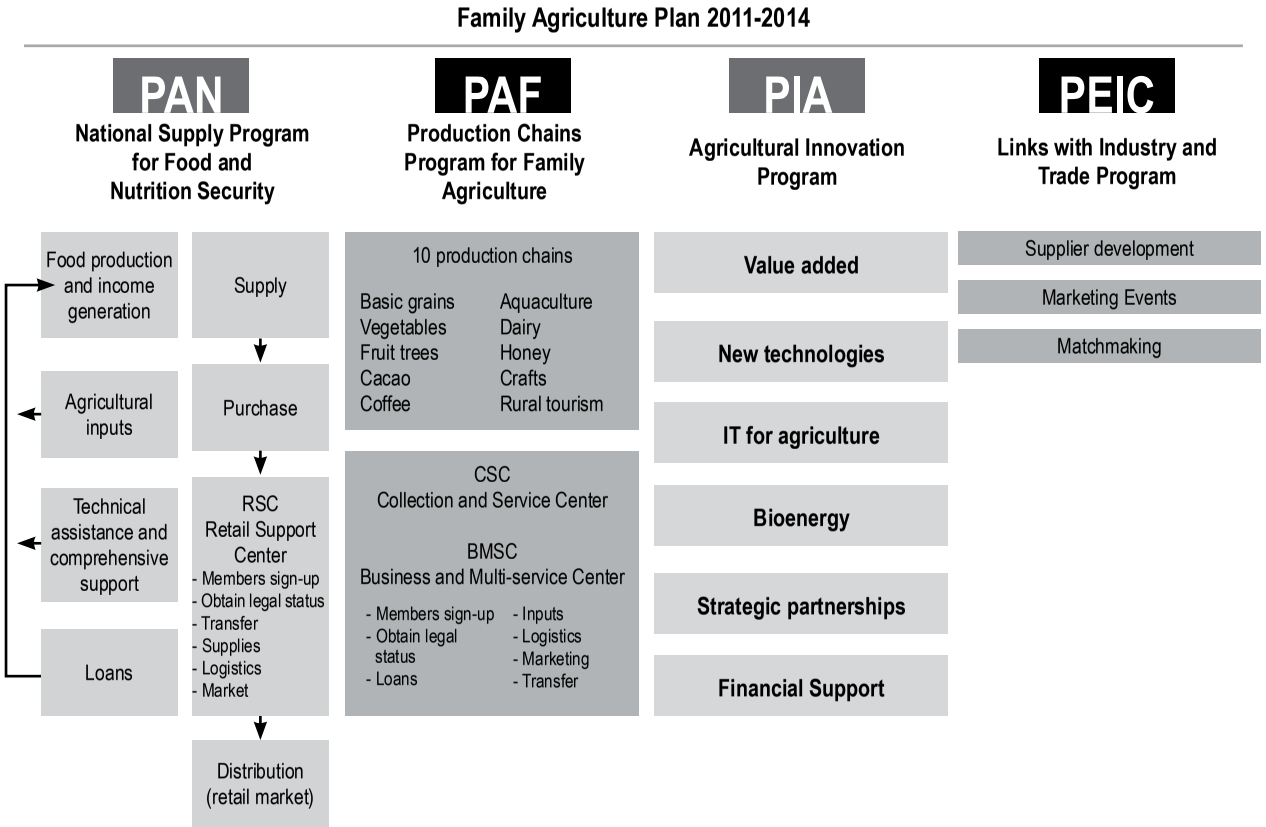
It was decided that the MAG should implement this program with technical assistance from IICA, with a view to institutionalizing the value chains approach to development.

Clearly, the first decisive factor in undertaking a program of this kind is the political will required to carry it out. In this case, both the Minister of Agriculture and Livestock and the IICA Representative in the country provided the necessary leadership. Finally, the program struck a chord among smallholders; as one farmer put it, “It is what we were waiting for.”

These words highlight the neglect that family agriculture has suffered for decades. They also show that, despite the adverse conditions, the determination of family farmers and their desire to tap the opportunities afforded by the domestic market have remained undimmed.

Initiatives aimed at the development of production face two types of constraints. Firstly, limitations such as the advanced age, low levels of education, technology and production, and limited marketing experience, and the large number of widely scattered smallholdings. The second type of constraint lies in the institutional sphere, where technical capabilities are weak, agencies' efforts are modest and largely ineffective, a paternalistic or aid-oriented approach has engendered passivity, external agents have replaced state-employed technical staff, and public institutions lack credibility.

Figure 1: Family Agriculture Plan and Subprograms



Source: Family Agriculture and Rural Entrepreneurship Plan for Food and Nutrition Security 2011-2014. MAG, 2011.

3

The Seed of Innovation:

The Intervention Model and its Components

Photo: Randall Cordero / IICA Social Communication Unit

3. The Seed of Innovation[1]:

The Intervention Model and its Components

In accordance with the previously outlined conceptual framework, the intervention model applied in the PAF Program-production chains are defined as a syncretic model of substantial innovation whose main content is examined below.

3.1 Network configuration

Demand

Since its inception, the PAF has focused on demand. This meant being attuned to the needs of the producers, their production units, the market and the territories. This also helped to focus the intervention on really important matters in order to address this demand and avoid wasting labor and resources.

This position led to the conceptualization of a clear business strategy for the program's users which would address the issue of how much can be achieved with what is available.

1 All background information referred to in this document may be accessed at www.iica org sv/

- ***Producer Demand.*** From its inception, the Program focused on those producers whose main aim was access to market, in other words, they were either already selling most of their produce (but wanted to innovate and become organized) or they wanted to. It didn't matter whether they were men or women, youths or members of organizations or companies. From there on a description or profile of the Program user was created.

- ***Characterization of Territorial Production Initiatives and their Requirements.*** The tool which was used was the *"Guide to the Definition of Productive Initiatives and their Requirements"*, designed to outline the criteria for classifying initiatives according to their potential. This facilitated the selection of those initiatives on which the Program could begin its intervention, i.e., those beneficiaries who conformed to the proposed profile.

  The initiatives were classified according to their potential (high, medium, or low). As a result, 511 initiatives were classified and grouped into chains. The exercise allowed for the identification of those areas which required the most support, and moreover, to confirm whether the Program could provide such support. If this was not the case, then relevant information could be sent to other programs or projects to see whether they would be able to offer the necessary assistance.

  The areas identified were: technical assistance in production marketing, entrepreneurship, organization and credit management. The characterization also offered a first-hand view of

how concentrated or widespread the initiatives were, in relation to chains in the territories; it also facilitated linkages with other institutions and verification of the location of the country's production chains according to the geographical areas in which they were situated.

- ***Market Demand***. A survey was carried out among the different companies within the production chains using the instrument: "Questionnaire to Ascertain the Demand for Agricultural Products from Productive Chains". This instrument was sent to agro- processors in retail and catering in El Salvador, and it sought the answer to questions from its providers concerning the main requirements for purchasing, in terms of quantity, quality, and consistent supply of produce and whether or not they would be willing to buy produce locally from farming families.

  The findings, both in terms of the checks done with the producers, as well as research on the description of the chains, revealed that the failure to apply Best Practices for Agriculture/Livestock Farming (BAP) and Best Manufacturing Practices (BPM), as well as the lack of effective organization, stagnation in productive farming, and the absence of complete technological packages are some of the main "bottlenecks" facing this country's producers.

  One of the limitations that presents the most difficulty for small farmers' gaining access to formal markets relates to the quality and safety of their products. Buyers within the country, such

as the Walmart and Selectos, supermarket chains, restaurant chains, institutional markets (MINED and MAG), exporters and the agroindustry, all demand compliance with national health and safety standards, and normally have specifications for produce that provide information on quality based on size or quality, weight and presentation. Some of these entities have even begun to demand the use of BAP and BMP records. At the same time, in the area of exports such as honey, the requirements for quality and safety are becoming even more stringent.

- ***Sectoral Demand.*** This sector is represented by the Technical Panels by Chains which is always open to participation, dialogue and consultation between the MAG and the leaders of the productive chains, (producers and entrepreneurs or their representatives) who represent different links in the agro-production chains (pre-production, production, collection, processing, marketing, export).

  The objectives of these committees are to consult and exchange key information for the execution of the Plan ; remain abreast of the progress with respect to the implementation of the Plan in order to make recommendations for improvement; identify technical areas of common interest that may possibly become public policy proposals that will increase the competitiveness of the production chains; suggest the addition of new members to the committee; contribute to the formulation and implementation of the Framework Agreements for Competitiveness

(FAC) of each chain. The aforementioned are documents that describe an agreement among the participants of the various links for setting common goals and committing to enhancing the competitiveness of the chain.

The first phase of this process is the characterization of the chain which involves the description of its functions, and the identification of "bottlenecks" that hamper its competitiveness. The second stage constitutes the plan of action that is aimed at reinforcing the chain's ability to participate in the markets in a sustainable way. The final stage is the signature of the FAC. Reflected here are the macro or cross-cutting requirements for making the chain's enterprises more competitive. This calls for the enactment of public policy, in addition to the support or encouragement offered to the producer or the company. However, these are complementary to the more specific requirements of the previously described exercise and should be taken into consideration when drafting the strategy.

Business Strategy

With the information gathered, a cross-cutting business strategy was developed to ensure access to the market of the productive initiative that are users of the Program. The first element of the strategy may be referred to as "the three C's" : quantity, quality and continuity. That is to say, the way to enter the market was to improve the quality of the produce, achieve an amount that would appeal to buyers, and provide a continuous supply over time in terms of volume and productivity. This general

approach could vary for each productive chain in terms of emphasis on any one of the three conditions.

The second element of this strategy, which is directly related to the first, relates to the approach to the entire agro commercial chain, that is, at the level of agricultural and livestock production and marketing, as a means of guaranteeing quality, quantity and continuity. At the production level, this strategy is supported by the Product Development Center (PDC), while marketing is done, through distribution and business, via the Collection and Services Centers (CSC) and the Business Services Centers and (BSC). The PDCs contribute to increased productivity through the transfer of technology. The CSCs promote links with the markets and add value through logistics and marketing. The BSC is a cooperative enterprise for trading and is certified across cooperatives, with a director who may be drawn from either within or outside of the organization.

The final element of the strategy was associativity as a tool for accessing markets. The CSCs and BSCs contribute to associativity, to legalizing and to strengthening the capacity for entrepreneurship and marketing, by consolidating the supply of produce from the chain, the demand for supplies and services, value-added and sustainability of the enterprise, as well as its business plan.

Another step was the establishment of a specific strategy for each production chain based on the general strategy that was previously discussed. This approach enabled the increase in productivity and income from sales emanating from the grain chain to be determined. In the case of the vegetable chain, the objectives were to become more

competitive via agreements with providers of supplies (equipment, irrigation, greenhouses etc.), staggered production and crop rotation; increased volume and improved quality (storage and packaging centers) and transport of produce; and links to the formal or informal market. In the case of the cocoa chain, attention was focused on the fine aromatic cocoa segment, in order to improve quality (genetic composition) and volume (planting new areas). For its part, the coffee chain centered its strategy on increasing coffee production and quality, and also on improving the capacity to manage technical and business innovation, as well as on ensuring sustainable access to the market and to knowledge.

Articulation of services

Once the strategy had been outlined, and based on the information gathered, the regulations required for its implementation were determined. In this regard, the first act of 'building structure' is extension (technical assistance or technology transfer)[2]. Extension is linked to other services required for farm management in order to gain access to markets. Finally, as we shall see in the following section, extension is an essential part of the learning process of participants and is carried out through applied methodologies. Each one of these functions is linked to specific instruments and tools.

2 It is considered as "building structure" because it not only provides the traditional technical support but also ''translates'' (better word than "transfer") the requirements of the strategy for accessing the market ,"adjusting" them for each producer's farm, which facilitates its subseqent follow-up.

Extension Service

This service is embodied in the Agricultural Field School (AFS). The AFS, a methodology originally created by the FAO, has been adapted by IICA in three areas:

- Introduction to associativity
- Focus on cognitive changes by the facilitators (change in attitude and mindset)
- Focus on entrepreneurship, i.e., moving beyond the producers' farm (AFS with respect to production, marketing or trading, business and institutional management[3])

In the AFS relating to primary production, participants gain practical knowledge of innovations and technologies for increasing productivity, while preserving the natural resources, which are indispensible to sustainable production. Similarly, participants' ability to undertake research and unearth information is developed. These AFSs are held in Product Development Centers (PDC), and consist of groups of about 25 persons, who are facilitated by an experienced technician and two junior extension officers.

The PDC may be the farm of one of the participants, or a regional center that is voluntarily offered by a farm as a learning hub for training and practical demonstrations. Training is held every 15 days, lasts four hours, and covers the entire cycle of cultivation or livestock farming. Additionally, field visits are made to verify the use of

3 The institutional framework of the AFS is described in the chapter addressing administrative and institutional management.

the technology and to address any areas of uncertainty among farmers.

In the first sessions of the AFS, a *participatory diagnostic test* is administered to ascertain the producers' level of knowledge (baseline). This diagnostic tool makes use of the "box test"[4] which is applied again in the final sessions to ascertain the progress made. In order to assist in addressing the needs identified, a curriculum for training and technology transfer is developed jointly, based on the particular characteristics of each chain, each group and each productive activity.

The Program has established 580 Agricultural Field Schools, has held about 7000 technical sessions and made 13,000 technical visits. Twenty-five percent of the participants have been women.

The Agricultural Field Schools at both the level of marketing or trading have as their focus the Collection and Service Centers (CSC) and seek to apply knowledge related to the collection of produce and the purchase of supplies. This includes areas such as the logistics of collection, classification of produce according to quality, and minimizing post-harvest losses. It also includes organizing supply in accordance with the nature of the demand, and emphasizing the importance of communication at the primary production stage.

In this regard, ECA both at the level of marketing and commercialization, is geared toward providing the tools necessary for developing skills in marketing and enabling

4 The box test is geared toward diagnosing the producer's level of technical knowledge in a given area.

farmers to design strategies such as joint purchase of supplies, create marketing plans, analyze market trends, apply negotiation techniques and acquire knowledge of legal systems and the formalization of activities, among other techniques.

Groups of 24 farmers are formed with three producers from eight AFS productive units (PDC) who want to learn how to market their products. These are guided by a specialists in business development and another in marketing, who apply the methodology of Economic Competencies for the Training of Entrepreneurs (CEFES). Sessions are held every fortnight or every week. Visits which offer technical assistance specifically in business development and marketing are also conducted.

Similar to what occurs in AFS productive units, the curriculum is designed based on the needs that emerge during the sessions in marketing and business management. In this case, the "bottlenecks" are related to a supply that is widespread, disorganized, poor in quality, deficient in terms of volume and highly seasonal. A *business plan* is also established which serves to outline the regulations, and this plan is implemented in the second cycle of the training. The Program has created 35 CSC (Collection and Service Centers), held 360 training sessions, and undertaken 563 technical assistance assignments. Twenty-two percent of the participants are women and one hundred percent of the business plans are now being financed.

At the entrepreneurial level, AFS attempts to increase the productivity and competitiveness of enterprises and businesses, by supporting the entrepreneurial training

of chairpersons, directors, managers, and producers, among others, based on their respective roles, to respond proactively to the challenges and opportunities of their environment, with a view to empowering them in their implementation of any plan in their personal, family, professional or business life that may be likened to an entrepreneurial undertaking.

Different associative mechanisms are proposed such as instruments for cooperation between companies, where each one maintains its legal and managerial autonomy and voluntarily decides to engage in a joint undertaking to achieve a common objective.

There is a clearly outlined curriculum, through which entrepreneurial skills are developed and practical concepts are mastered such as the formulation and implementation of business plans, investment projects, cost analyses, price information systems, innovative business practices etc.

In this first phase of the Program, AFS merge both curricula - that of marketing or trading and business management -meaning both are delivered to the producers connected to the CSCs.

In conjunction with the extension services, which are represented by the Field Schools (AFS) at their different levels (production, marketing or trading, business management), other services are provided to address the needs expressed in the diagnostic tests, business plans and investment plans, and which extend beyond technical issues. These services are provided by the Program itself or in collaboration with other stakeholders.

Financial services

- ***Incentives for innovation.*** One of the common strategies that support the application of technological innovations that are transferred in AFSs across the PDCs and the CSCs is the provision of incentives—supplies, equipment and services—-which strengthen its implementation. This is conducive to coordination and better performance by all the links in the value chain.

- ***Investment plans.*** Attempts are made to facilitate access to investment resources for participants in PDCs and CSCs, through partnerships with public investment bodies, mainly from programs in the Ministry of Agriculture and Livestock Farming or the Ministry of the Economy (MINEC), among others. The same applies to resources from private and development banking. The PRODEMOR and PRODEMORO programs successfully presented 24 investment plans, which involved the training of 1289 agro-entrepreneurs, the majority of whom were members of the PDCs and the CSCs. This endeavor will attract 1.5 million dollars in non-reimbursable grants for capitalizing some 24 collective enterprises.

Technical support services

International trips. This mechanism has given participants the opportunity to acquaint themselves with successful experiences of other countries with respect to issues related to agronomic management and the handling of harvested fruit, basic grains, and vegetables,

along with the treatment of pastures and dairy cattle herds, as well as shrimp ponds and apiaries. Fourteen international trips to Mexico, Costa Rica, Nicaragua, Honduras and Guatemala were planned, organized and conducted with 380 participants including producers and technical staff. The trips taken by participants and the innovations to which they were exposed are clearly related to the curriculum delivered to them. There was participation on the part of technical staff from PAF –CP (22%), and from MAG (12%) although the majority of participants consisted of producers from the PDCs and the CSCs (60%).

Local tours. These tours facilitate the exchange of experiences between producers who share similar situations in terms of soil type, climate, social and economic status. The encounters speed up the adoption of technologies that eliminate "bottlenecks" and increase productivity since knowledge is transmitted from one farmer to the next. The local tour is enriched by a day of field demonstrations where visiting producers are guided by technical staff and assisted by producers who demonstrate results from technology-driven operations or innovations.

The Program planned, organized and conducted 90 exchange tours with producers from the eight production chains (dairy, aquaculture, bee-keeping, vegetables, basic grains, fruits, cocoa and coffee) which amounted to 6,780 participants. Issues addressed include fertilization and nutrition practices, treatment of corn and beans, cooperative working arrangements, and its impact on the livestock business model, the setting-up and agronomic treatment of grasslands, leguminous plants, forage, quality control, and the implementation of Best Livestock

Practices (BLP), conservation techniques for grasslands, as well as management of dairy cattle. On average, the groups consisted of 100 participants per event who, in keeping with the strategy, toured the same CDPs (Centers for Product Development) established according to chain.

International Specialists. These professionals are experts in a variety of fields relevant to the productive chains, and possess the experience and knowledge that enable them to propose solutions to the obstacles which hinder the development of the productive chain. They propose strategies, mechanisms, and innovative technologies as solutions to these problems.

Video conferences, forums, seminars and workshops were held in order to facilitate the participation of experts on different issues. IICA's internal facilities as well as its network of Offices (34) throughout the hemisphere were a key factor in accomplishing this undertaking. The IICA Offices planned, organized and executed visits by international experts from countries with a great deal of experience such as Ecuador, Brazil, Colombia, Peru, Venezuela, Mexico, Germany, Panama, Guatemala, Costa Rica and Nicaragua. A total of 15 experts shared ideas with 812 participants, including producers and technical staff.

Commercial services

Information on prices, markets and production. Action was taken to guide producers in the use of market information. By having information on prices, consumer

demand, and the tactics of their competitors, they are able to improve their negotiating skills, make hard decisions, reduce marketing-related risks, decide where to sell, and to know at what point in the marketing chain they can fetch the best prices. This knowledge allows them to ascertain whether the quality of their products is comparable to that of the other producers in the region, or nearby, and to decide whether or not to store the product (if they believe the price may increase).

In the case of the vegetable chain, for example, production technicians provide, during the AFS sessions, price bulletins generated by Agricultural Economics Division of MAG. The technicians in the fruit chain teach their producers how to use text messaging; thus they are able to send information on prices by text and in writing. The aquaculture chain prepares weekly price bulletins for shrimp and tilapia farmers. In addition to this, information has been generated on agricultural supplies for producers in the staple grains, fruit and vegetable chain, in order to help reduce costs at the time of purchasing supplies before cultivation.

Business Symposia and Participation in Trade Fairs. Business symposia and trade fairs are the two main means of advancing linkages between producers, to facilitate entry into new markets such as restaurants, hotels, supermarkets and food processing industries, including major ones such as those for staple grains and dairy. These events also work in the reverse move backward in terms of getting involved in penetrating the collective purchasing of agroservices, and reducing the price of supplies and the cost of production.

With respect to the first modality, three business symposia were held with 86 agro-entrepreneurs as participants who were attempting to increase their sale prices; in terms of the second, the 24 roundtable sessions took place with 5103 agro-entrepreneurs. Ten trade fairs have thus far been held.

Quality Support Services

Training in Agricultural Health and Food Safety (AHFS). Producers were trained in post harvest management (cleaning, classification, post harvest handling, and packaging), hygiene, and compliance with regulations which certify processing plants for the export of products. Training was provided to 347 participants from five AFS units linked to production, from nine AFS units linked to marketing, from three partner enterprises which in reality are not in the CSC category, but which nonetheless collect and market their partners produce.

Areas covered included best agricultural practices in terms of production and manufacturing, postharvest handling of fruits and vegetables, best practices for hygiene in dairy and honey processing plants, the use of equipment in bean packaging and processing management in the staple grains chain. Teaching resources and technical materials were distributed (14 in all) in order to enhance the process of learning about best practices concerning farming, livestock, hygiene and manufacturing.

Support for improvement of facilities. The facilities used as Collection and Service Centers (CSC) must comply with health standards; consequently, and in order to identify the adjustments required, a survey was carried out of 23 facilities for collection and handling of shrimp, vegetables, fruits, unpasteurized milk, basic cereals and honey. The following areas were examined: product reception, packaging room, dressing rooms, sanitary conveniences and septic tanks, water for drinking, materials and equipment washing areas, as well as storage areas for chemicals, materials, equipment and finished products. In each case, the necessary equipment for collection, classification, washing and packaging of fruits, vegetables, basic grains and honey was recommended.

Coordination with State entities. Coordination was done with the State entities responsible for monitoring compliance or upgrading of standards relating to the chains in the Program. To this end, coordination was done with the General Directorate for Plant Health (DGSV) and the General Directorate for Livestock (DGG), which are the divisions responsible for AHFS in the Ministry of Agriculture and Livestock (MAG).

Follow-up, evaluation and control

Follow-up, evaluation and control within the Program is a three-tiered process within a system: strategic monitoring, an online follow-up and monitoring system and a control of supporting documents. The details are described below.

Strategic monitoring

Strategic monitoring of program execution has been put in place, and is carried out by a team of eight persons who meet with the players who comprise the PDC and the CSC in order to visit production units to ascertain the extent of the adoption of the technologies taught in the Agricultural Field Schools (AFS) and in the Economic Competencies for the Training of Entrepreneurs (CEFES). Recommendations are made to the technical personnel participating in each chain.

Online follow-up and monitoring system

An online follow-up and monitoring system (OFMS) has been developed and comprises a set of procedures mechanisms and instruments that are used to obtain information periodically on the status of the Program. As part of the follow-up process, each activity is systematized and quantified, which highlights the results and products achieved. The system generates alerts or early warnings or lack of effectiveness of actions, which serves as inputs for taking corrective measures.

The follow-up system relies on a computerized system that facilitates Periodic reporting on the field activities and uses, as one of its main tools, the geo-referenced territorial location of the participants for spatial analysis.

The main sources of information are the reports submitted by the technical personnel in which they report on their weekly activities; the technical instruments for collecting information; reports on the visits made by the technical

monitoring staff to the territories where the Program is being carried out; the producers who participate in the production chains, who are interviewed and provided with technical advice; and the technical Panel of each chain, which also provides key information on the execution of the Program.

The components and instruments of the online follow-up system are outlined in accordance with the flow of work as follows:

- *Registration of producers*. The production experts are responsible for this aspect. Once the productive initiatives have been identified, they use the Registration Form to register all the producers who are interested in participating in a given production chain. This form is processed via the Computerized Follow-up System by the chain's technician or typist, at which time the producer is given the status of Applicant.

- *Diagnosis of producers or productive units.* To do this, the production technicians utilize the Diagnosis Form, which is designed specifically for each production chain. This form facilitates assessment of the profile of the producer, and whether he/she meets the requirements for participating in the Program; subsequently, a technical assessment is carried and a solution provided. Both instruments are processed in the computerized system by the technician and the producer acquires the status of Approved, or Denied, depending on the decision. In the case of the fisheries, dairy, apiculture and coffee sectors, a complementary instrument was

developed as the base line. Georeferencing is also done at this stage of the production units, the PDC and the CSC. This task is the responsibility of the production and business development experts, and the result obtained is a visualization via Google Maps, as well as the other features of the data base.

- *Execution*. This includes most of the activities carried out within the Program.

- *Establishment of an AFS*. With respect to the computerized system, this includes: a grouping of participating producers who are identified by a name; the formulation of a curriculum of topics that must be covered to ensure that knowledge is transferred; an assisted 'plot school', a PCD or CSC; and assigned experts and support personnel. With respect to the computerized follow-up system, the AFS for commercialization and business management have been merged into a single type of AFS, which applies the CEFE methodology. The technical personnel responsible for the production AFS record, in the computerized system, the attendance of the producers at each of the sessions, and maintains a personal record of each producer, which enables them to monitor his/her participation in the sessions. They utilize the following formats or forms: format for the establishment of a CSC, form for training assistance, format for AFS sessions, format for CEFE sessions, and format for producer with access to inputs.

- *Technical assistance visits to the production area.* This includes visits from extension officers as well as

the technical assistance provided by specialists and technicians in the areas of business development and commercialization. By means of a *Format for technical assistance visits*, designed for each chain, a series of variables is collected which enables certain assessments to be done with respect to the level of applicability of the technical competencies that are transferred during the ECA sessions, by the producers. The technicians are responsible for uploading this information to the system.

- *Agribusiness activities.* These are aimed at informing producers of market prices, putting them in touch with providers of agricultural inputs and stimulating their participation in commercialization events, markets, business symposia and other events. This information is collected via the *format for business advice* and the *format for the informed chain actor,* which were designed for this purpose. These formats are processed in the system by the technical personnel involved in commercialization and business development.

- *Monitoring.* Based on the data collected via the different instruments, consultation and reporting can be done that facilitates monitoring of the activities of the technicians, the progress of the ECA and CEFE sessions, the topics that were covered for the adoption of new technologies, participation by the producers in the sessions, the scope of technical assistance, distribution of the producers throughout the territory, the CDP and the CAS, among others. On the other hand, strategically, the indicator of results is available for the Annual

Operational Plan of each production chain, and is submitted monthly to facilitate preparation of the report and to measure the real progress reported against what was programmed.

Control of supporting documents

Important complements to the Computerized Follow-up System are the supporting documents that "feed" the system. These documents are systematized in such a way that each chain generates, submits and organizes, periodically, all the documents into physical files with four types of information: producers (registration sheet, diagnosis, technical examination, technical assistance); CDP (Act establishing the CDP, list of participants, curriculum, reports of each ECA session carried out, accompanied by the list of participants with its respective signatures, and the supporting teaching material); CAS (Act of commitment of the CAS, list of participants, curriculum, reports on each CEFE session taught, accompanied by the list of participants with its respective signatures, and the supporting teaching material); agribusiness (documents on the participation of producers in commercialization events, access to agricultural inputs, business sessions, national and international tours, price information, markets, buying-selling advice, agreements, business plans, technical assistance to the CAS). All the documentation generated by each production chain is housed in the IICA office in Santa Tecla.

3.2 Operational structure

Management model

The highest decision-making body of the Program is the Joint Coordinating Committee (CCC), which comprises the Minister of Agriculture and the IICA Representative in El Salvador. This body determines the strategic orientation of the Program, decides what the obstacles are and takes decisions relating to its economic resources. It meets once per month and its decisions are recorded in the form of minutes.

A second body is the Cross-cutting Inter-thematic Coordination body, which is an oversight body made up of eight production chains that are inter-related: (basic grains, fruits, vegetables, honey, aquiculture, dairy, coffee, cocoa) and the technical topics that form part of this initiative (agribusiness, health and safety, methodological support and follow-up system). This body is made up of the General Coordinator of the PAF-Chain and the Cross-cutting Technical Coordinator, respectively. The former is in charge of the Production Chain Coordinators (one per chain) and an Administrator. The latter supervises the persons in charge of the technical topics already mentioned.

The Coordinators of the Productive Chains is responsible for the technical teams and the extension workers who support the CDP and the CAS. Each chain has the services of an accountant.

The Administrator is responsible for managing the purchasing of inputs for each one of the chains, under the supervision of the Administrator of the IICA Office and the Representative, who form part of the National Purchasing Committee that takes decisions relating to the competitive bidding processes.

Territorial scope of the Program

Currently, the Program covers the entire country. For this reason, there are twenty-six sites, sixteen of which are CENTA extension agencies, two rented offices and one site that operates out of the research campus of the Universidad Nacional de El Salvador (UNA). The technical teams that do the agricultural extension work are located at each of these work sites (at many of these sites, there is technical personnel from more than one chain), where they have stations equipped with furniture, as well as computers and printers that enable them to carry out their administrative activities. Nevertheless, these sites are uses primarily to hold meetings with producers or other local authorities, since most of the time, the technical teams are located in the field.

Scope of extension services

Extension services are provided to both groups and individuals. The format with respect to groups, methodologies and content varies based on whether the intervention is at the productive level (CDP) or the commercial and business management level (CAS).

In order to provide attention and follow-up to the groups that make up the Agricultural Field Schools, technical personnel is contracted, or they are employed in conjunction with technical personnel from the CENTA and the MAG. Consequently, groups of three technicians are organized, where one experienced technical person is responsible for the planning and execution of the theoretical and practical sessions and two extension officers do follow-up in the field with the producer. Nonetheless, the three participate by providing assistance on the farms of the producers who are participating in the Program. These teams of three persons are responsible for eight Agricultural Field Schools, made up, on average, by 25 persons, for a total of 200 participants. There is a distribution system for the time that the technical personnel spends in attending to the 8 AFS. In the CDP, a specific curriculum is taught, which is applied strictly and in accordance with the plan and the scheduling of topics for each chain.

The FAS for commercialization are made up of farms grouped into eight FAS. In other words, 200 farms that wish to make up a CAS that allows them to channel their production to the formal market in a standardized manner, although in reality, there are situations that emerge that may require them to vary this theoretical framework, and there are also different combinations of the number of ECA that participate in a CAS. In this case, the technical team is made up of a business development specialist who attends to each CAS and the producers who belong to it, and a commercialization specialist who attends to the CAS throughout the chain.

Use of Information and Communication Technologies (ICT)

The use of information technologies has been a key factor in strengthening the communication and knowledge dissemination processes to the producers. In order to carry out their operational activities, both in the field and at the administrative level, the personnel had been supplied with laptop and/or desktop computers, as well as with wireless internet and Office software. Additionally, cellular telephones were provided to facilitate communication among the staff within the Program, and between the staff and the producers. GPS technology has also been provided to the technical staff for geo-referencing the production units, among other things. The use of digital cameras was also considered as integral to the equipment that the technicians and extension officers needed, as it enables them to provide support and follow-up to the processes that are carried out in the field.

3.3 Approach to learning

The approach to learning is the one promoted by the Agricultural Field Schools (AFS), which function under the assumption that knowledge is a public good and therefore, there should be equal opportunities for access. Among the main characteristics of the AFS are: informal education for adults (this is derived from the assumption that farmers already have broad field experience and knowledge); they are based on the phrenological stages of the agricultural and aquacultural activity (there is a clear beginning and an end); the field is considered to be a place of learning (the AFS are organized in the communities where the farmers live); basic science (these are focused on learning the basic agro-ecological processes through field observations, research studies and practice); continuous testing and validation (it is suggested that no technology is necessarily effective in every new situation, and therefore, must be tested, validated and adapted locally); development of the local innovative capacity (it is recognized that the agricultural systems and the markets are constantly changing and therefore, the capacity of the participants to innovate is stimulated).

In the case of the production AFS, the main objective is to improve the capacity of the farmers to find solutions to problems and to take decisions. These elements come together in what is referred to as the basic curriculum. All the lessons that that are taught in the CDP are carried out by means of activities that include observation and analysis of the agro-ecosystem, as well as decision-making and continuous experimentation. To achieve this

objective, a play-oriented methodology is applied, which is guided by a facilitator (technical specialist) with the support of extension workers who visit the production units periodically. The 'classroom' or space for learning is the 'Field School' or Production Development Center (PDC). This is where the group of producers brings together their know-how; where the in-built knowledge (producers) and the exogenous knowledge (facilitator) complement each other. One of the first sessions of the AFS seeks to diagnose the degree of knowledge of the producers, via a 'test' box that enables the base line to be determined. This test is applied again once the curriculum has been covered, in order to determine the level of learning of the participants.

Each session tackles a central problem that has to be resolved. Both producers who know the topic, and others who do not know it are selected, and then practice is carried out in the field. There, it is the leader who is most knowledgeable. At the end of the session, there is discussion and the plenary is held. After the sessions, farm visits are carried out by young extension officers; the frequency of visits depends on the progress of the farmers. The purpose of the visit is to check if the technology taught in the AFS is being applied and how it is being applied. A tour is done of the farm with the farmer in order to identify problems. If the application is not correct, a demonstration is done. Learning barriers are also identified to provide feedback on the sessions.

Learning barriers such as illiteracy, individualism, prejudice and other barriers, are dealt with through the creation of networks among the farmers, which allows them to share knowledge, strengthen community

relations as well as improve their self-esteem and dignity. Likewise, methods are used that are both entertaining and horizontal, and which are expressed in the language of the technical staff, bringing the family together, without restrictions, where the persons are able to interact on different occasions. The formulation of investment plans also helps to break down barriers, since the farmers are the ones who formulate and present them.

The FAS for marketing is geared towards providing, via the methodology of Economic Competencies for the Training of Entrepreneurs (ECTE), the necessary tools for equipping the agricultural producers with marketing skills, via training that has an amusing focus, with working sessions every two weeks lasting three hours. This methodology recognizes that learning based on life experiences contributes to concretizing knowledge more quickly, as a result of closer contact between the learner and the object of learning. The principle of 'learning by doing' enables three basic learning methodologies to be brought into play: the dynamic method that develops skills and abilities; the cognitive method that facilitates conceptualization, discovery, transfer and construction of ideas and knowledge; and the sentimental medium that produces changes in attitude and develops emotions. When the tasks are carried out collectively, this produces a 'horizontal exchange' between the participants, and the interaction between several persons creates the necessary climate for 'activating' the sentimental learning methodology. Negotiating skills, interpretation of market trends, the activities to carry out at a farmers' market, based on skills and demand, is all knowledge that can be acquired in this AFS, which the Collection and Service Centers (CSC) utilize as learning tools.

In addition to the above, the cycle of learning and adopting technology is reduced thanks to activities such as the local and international field visits that strengthen the exchange of knowledge between one farmer and another. The confidence that is generated through a farmer-to-farmer horizontal dialogue is borne out by the farmers themselves in their statements and in their life experiences (by acquiring productive and life experiences), all of which make the local field visits an effective method for learning and adopting technology.

Finally, capacities are also developed through the training of 300 technical personnel and extension officers. Additionally, the Program has provided training in technical areas such as agricultural health and food safety, agribusiness as well as formulation of business plans and investment projects.

Of the 300 technical personnel and extension officers, 70% are persons contracted by the PAF-CP and 23% are staff from the CENTA and the MAG who are deployed to the PAF-CP. Thirty-two per cent (32%) of the participants work in the basic grains chain, 22% in the fruit chain, 16% in livestock, 7% in honey and 5% in vegetables. Moreover, they were trained to use the Market Information System (MIS) of the Ministry of Agriculture and Livestock, through explanation of the process involved in market research.

3.4 Opportunities for communication

The Program provides opportunities for exchange of information and dialogue at its various levels. The first opportunity is the periodic meetings between the IICA Representative and the cross-cutting, inter-thematic coordination group, where the performance of the Program is analyzed, based on the strategic monitoring, and in an effort to correct its activities. The second opportunity is provided by the meetings of coordinators of the production chains, where the instructions emerging from the first level are replicated, the topics relating to incentives are discussed and fulfillment of the goals and results of the Program are analyzed. Additionally, permanent meetings between the coordinators of the chain, technical staff and extension officers are held. Likewise, meetings are held between the Representative and the technical and extension staff.

The producers, for their part, have as their opportunity for information, dialogue and communication, the groups of 25 persons who are brought together as the CSC and the PDC. There are also spaces for meetings of the coordinators of the respective chains and with the authorities.

There is also a space for permanent dialogue between all the institutions participating in the Program, which is called the Weekly Management Meeting, which is convened by the MAG every Monday.

Finally, on the initiative of the Representative, *ad hoc* committees were established to take decisions as well as analyze and discuss specific matters relating to the Program, in order to guarantee cross-cutting dialogue between the components of the project.

4

Caring for the Crop:

Administrative and Institutional Management

Photo: Communications Office / IICA El Salvador

4. Caring for the Crop:

Administrative and Institutional Management

During the course of the two years of the project, the IICA Office in El Salvador executed large sums of resources. These (public) resources were managed by the Institute on the basis of three premises: efficiency, transparency and timeliness.

Efficiency can be measured in terms of savings realized as a result of the appropriate management of public resources. The types of savings include: non-payment of the Value Added Tax (VAT) by virtue of IICA's status as an international organization; contributions in the form of technical and administrative expertise, equipment and facilities, valued at one million US dollars; direct purchases by IICA free of intermediaries; the possibility of negotiating with suppliers (once the corresponding tender had been accepted); and the application of "prompt payment" to the suppliers, which resulted in better prices and conditions, since the State takes 60 days to pay.

To ensure the transparent use of resources, a series of measures were taken. A National Purchasing Committee was set up that included a representative of the Ministry of Agriculture and Livestock. A series of procedures was established for all bidding processes, with a notary present

to certify each step. In addition, all negotiations with suppliers took place before the purchasing committee, and were taped and recorded. Finally, three internal audits were conducted, the Office of the Director General and the Secretary for Corporate Services provided follow-up, and there was also an international external audit.

The Joint Management Committee has to sign off on all the system's operations and any changes made, while memoranda of understanding, which cover the entire budget and contractual commitments, are channeled through the President's Office and must be approved by IICA's Programming Committee at its Headquarters. Any changes in budget are made through addenda, and the requirements are dictated by the MAG and IICA.

Public bidding is by public invitation to tender, as defined by the Purchasing Committee. The opening of tender offers involves the same stakeholders that received them, including a notary. A record is kept of all assessment criteria. The criteria are technical, economic, time-related, and cover legal and financial aspects.

All purchases for amounts exceeding USD30,000 are made via competitive bidding processes.

Certain measures were also instituted to reinforce management. These included strengthening of the administration unit and the implementation of modern administrative management systems, such as the SAP. Human resources processes were computerized using the Visual UR software; all information was digitized; SPSS was used for statistical analysis; a traceability system for the purchasing process and a follow-up and monitoring

system were instituted; and the documentation was organized. All of this was done in 18 months.

In general, the procedures were expeditious and the technical personnel involved in the various memoranda of understanding participated in every phase of the work. With regard to the memorandum on production chains, the coordinators for each chain established their purchasing plan in stages (Plan 1, 2, 3, etc.), subject to financial and budgetary control. The other memoranda of understanding established technical specifications, but in the case of the production chains, they were defined according to needs in the field.

There is a management model for the Program and each of the activities under the other memoranda of understanding. Each memorandum, including the one on production chains, has its own Annual Plan of Operations (APO).

The personnel selection process was intensive and widespread, and conducted by the IICA Office. It was used to both seek out talent and induct new staff. The profiles of posts, selection manuals and all procedures were prepared within five months. The selection of the main technical positions involved the participation of the MAG counterpart. It was a difficult task to prepare the Terms of Reference for staff, select them, train them and place them, especially the more specialized ones.

Implementing the Program required the sound management of institutional relations with various offices and departments in the sector. Relations were based on coordination of the different parties involved

in the Family Agriculture Plan (PAF). IICA was invited to participate systematically in the MAG Management Committee when pertinent topics were being handled.

An initial set of institutional arrangements were made with the banking system. Noteworthy in this regard is the Banco de Fomento Agropecuario (BFA), which earmarks USD36 million for agriculture. An alliance was therefore established whereby the BFA gives loans to farmers to produce corn and beans seeds, and IICA, under one of the memoranda of understanding, participates in the purchase of the seed; in this way, the producer pays when IICA pays. The bank has also participated in technical meetings. The bank operates under the aegis of the Ministry of Agriculture. Credit needs are also channeled through the Program. The other institution involved is the Banco de Desarrollo de El Salvador (BANDESAL), with which there is an agreement and a coffee project.

A second group of institutions is the research and outreach institutions. Worth noting is the Centro Nacional de Tecnología Agropecuaria y Forestal (CENTA), which is a strategic partner in the Program and has an excellent relationship, at the management level, and a highly positive involvement with those in charge of CENTA regionally. Work is underway with the outreach agencies of CENTA. Seventy technical officers from CENTA and the MAG are participating in the project. Work is being coordinated through the communications team of CENTA, MAG, IICA and FAO. Seed analysis and phytosanitary analysis are another facet of the relationship with CENTA, whose Seed Unit certifies the inputs purchased. IICA s AHFS Program is also providing support.

The Dirección General de Desarrollo de la Pesca y Acuicultura (CENDE-PESCA) is another member of this group. Its functions are to promote the sector, conduct research and develop standards. Activities are coordinated through the aquaculture chain, where a support specialist has been designated. This institution is part of the MAG.

The Oficina de Política y Planificación Sectorial (OPPS) of the Ministry of Agriculture and Livestock is another agency with which action is being coordinated. Its role is to advise the Minister s office and lead processes for planning sectoral development. They have taken on and adopted the follow-up and monitoring system.

Another entity with which coordination has been established is the Ministry of Economy. Its representatives are invited to activities related to the chains, such as the preparation of business plans, matchmaking events, technical roundtable discussions, etc. Progress has been made with the Agricultural Innovation Program or the third component of the Family Agriculture Plan (PAF).

There are other institutional relationships and coordination. The Escuela Nacional de Agricultura (ENA), whose last two generations of graduates are working in the Program, is an example. Relationships were also forged with the universities, mainly for training, and with private companies, especially through business networking events.

Finally, there are the institutional relations and coordination generated through IICA itself, where several specialists from Headquarters as well as representatives in the countries have participated.

A final aspect of institutional administrative management was the support provided to upgrade technical expertise for professionals in public institutions involved in the development of the agricultural sector and national aquaculture, through the AFSs, at the institutional level.

Assistance was offered to the Centro Nacional de Tecnología Agropecuaria y Forestal Enrique Alvarez Córdova (CENTA) and to the offices of the Ministry of Agriculture and Livestock (MAG), the Dirección General de Ganadería (DGG), the Dirección General de Economía Agraria (DGEA), the Dirección General de Sanidad Vegetal (GSV), the Centro de Desarrollo de la Pesca y la Acuicultura (CENDEPESCA), the Dirección de Desarrollo Rural (DDR), as well as to the Escuela Nacional de Agricultura (ENA), among others.

The methodology consists of completing a diagnostic assessment for the design of training programs and contents in technical areas related to agribusiness, marketing, agricultural health, food safety, the formulation of investment projects and business plans, as well as the corresponding follow-up, monitoring and assessment plan. The scope of this AFS level includes an exercise with sound installed capacity, through the training of facilitators in participatory methodologies: farmer field schools (AFS) and Competency-based Economies through Formation of Enterprise (CEFE).

The idea is that in the medium term, the Ministry and its main offices and divisions will be strengthened and will capitalize on available human resources by reinforcing their specialization and technical expertise in each of the disciplines that they serve and that are within their purview.

5

The Harvest:

The fruits of innovation

Photo: Communications Office / IICA El Salvador

5. The Harvest:

The fruits of innovation

Results are measured on the basis of the Random Strategic Monitoring in Production Development Centers (PDC) and producer farms, the on-line Follow-up and Monitoring System, and the strategic monitoring of the Collection and Service Centers (CSC).

Achievement of goals

The planning of the Program included a definition of various goals for each of the production chains described in Table 1; we can see in that table that the Program had achieved 91% of its goals as of August of 2012.

Technological innovations

Three indicators were applied to measure this result: application of the technological innovations; frequency of participation in PDC sessions versus technical assistance visits to farms; and innovation versus interest in learning.

Table 1. Goals of the PAF-CP (production chains component), by chain

Chain	# AFS	# AFS sessions	# CSC	# CEFE	Goal PDC	Goal Participants' goal	Participants Registered	PAF-CP Participants	% of goal
Dairy	90	957	4	69	84	2014	2131	1726	**86%**
Vegetables	19	315	2	26	18	449	731	485	**108%**
Cocoa	12	144			12	285	285	210	**74%**
Coffee	41	277	5	5	116	2900	2776	2776	**96%**
Aquaculture	29	353	2	40	28	670	919	829	**124%**
Honey	52	436	2	33	40	1000	1009	720	**72%**
Fruits	117	1190	6	80	116	2900	2936	2449	**84%**
Basic Grains	228	2828	12	92	228	5700	6042	5280	**93%**
Total	**588**	**6500**	**33**	**345**	**642**	**15918**	**16829**	**14475**	**91%**

Source: IICA Office in El Salvador.
Figures may vary at the close of the Program

Application of technological innovations

In global terms, 80% of participants in the Program, i.e., some 12,000 families, are applying all or part of the curriculum they learnt at the PDCs of the Farmers' Field Schools (AFS) to their plots of land. Twenty per cent of all producers (approximately 3,000) apply all of the technologies offered at the field school sessions on their farms; 60% of producers (approximately 9,000) tend to apply many of the technologies, though not all; the remaining 20, that is to say, some 3,000 producers, are still not applying any of the technologies.

There are three main factors, according to the producers, that explain why they do not use any, or very few, of the technologies: the main one has to do with economic constraints that prevent them from introducing these technologies; the second involves cultural issues and their reluctance to implement technological changes; and the third factor has to do with the age of farmers and illiteracy issues.

Innovation and interest in learning

According to the large-scale and random strategic monitoring activities carried out in August 2012, involving 40% of the 527 PDCs and six of the eight chains, i.e., 90% of all 580 PDCs distributed throughout the national territory, over 73% of the PDCS engage in highly innovative transformation processes and, in turn, the producers show acute interest and participation in

that learning process. What is more, another 17% almost falls into this group and shows a significant likelihood of joining this broad number of PDCs. Only 10% of the PDCs are in a compromising situation.

Frequency of participation in PDC sessions versus frequency of technical assistance visits to farms

This indicator was assessed by consulting with producers about the frequency of attendance at PDC sessions versus the frequency of technical assistance visits their farms or plots of land. The balance between the sessions given at the PDCs or "school farms" and the technical assistance offered by technical and outreach personnel from the chains at each of the participants' farms to reinforce the application of the technologies transmitted is reflected in the fact that two-thirds of the sample are located in the "ideal" and "optimum" zones; in other words, there is an appropriate ratio between sessions or technologies learnt and the reinforcement of technical assistance visits to the farms of the producers, which paves the way for applying the technologies imparted at the farms.

Almost one-third of the producers are located in the "inefficient" zone, where there is ample room for improving the balance between both variables over the next few months. Only six per cent of the farms showed downright poor results, but several of them can still improve and therefore shift into more favorable zones.

Organizational innovations

This section covers the Collection and Service Centers of the agro-production chains. Significant strides are being made in most of them and they are supporting the major efforts waged by the producers in the primary chain production. Although slower production was expected in the CSCs in relation to the AFS engaged in production, most of them have made interesting strides and have improved linkages to markets, especially to formal markets where their collective efforts to purchase low-cost inputs and to get better prices and conditions for the sale of their products have crystallized.

Institutional innovations

An institutional innovation is an organizational change promoted by an institution to better achieve its objectives or to redirect its functions on the basis of new demands or changes in the environment. A classification of institutional innovations breaks them down into six categories: management of assets, new management models, new transfer and learning models, development of partnerships, development of competencies and new businesses. In this sense, one can distinguish these types of innovations in the Program, as follows:

On-line follow-up and monitoring system. This is an unprecedented innovation in outreach systems in Latin America. Thanks to this innovation, it is possible to ascertain the level of job performance of all technical

and outreach personnel in terms of their effectiveness and job responsibility, as well as the status, in real time, of the main indicators of results of the Program.

Use of ICTs in the outreach system. This innovation has allowed for a substantive change in the management of outreach efforts and in the work of outreach workers. It has also improved technical decision making and communication with users and has contributed to the monitoring and follow-up of activities in the field.

Innovation in the field schools methodology. Traditionally, the field schools methodology has been applied at the farm level, but the Program has extended the approach to the production chain by including marketing, entrepreneurial and institutional aspects, as well as the methodology, introducing the CEFE model.

Changes in productivity

At the PDC level, major results have been noted with regard to productivity in each of the production chains that are part of the Program. In the basic grains chain, there has been a 25% change in productivity (*quintal/manzana*) in the PDCs. For the fruit chain, it varies according to product: for plantain, the change is 162%, and for citrus, the figure is 20%. In the vegetable chain, it also varies according to product and whether the crop is protected or grown in the open air. In the first system, productivity changes (kg/ha) have been 22% for tomato and 65% for pepper. In the second, the figures were 40%

for tomato, 22% for pepper, 30% for cucumber and 68% for loroco. In the aquaculture chain, the changes were 67% (lb/ha/cycle). In the dairy chain (000s of bottles/ milking cycle), the change is 23%. Finally, in the honey chain, the change is 18% (lb/beehive/year).

Success stories

The *Los Loroqueros* Collection and Service Center, which markets loroco to the formal sector. It has formed a partnership with its neighbors from the *Los Achiotales* Cooperative. The organization, through the CSC, has enabled them to manage a larger volume of production and increase their negotiating capacity and, as a result, they have been able to market with certain export companies like PHANA andTROPICS. The groups that make up the CSC set the price of the product, supply a formal buyer and have already filled orders for 20,000 lbs and 55,000 lbs. Between them, the two cooperatives have 55 *manzanas* (38.5 hectares) dedicated to cultivating this edible flower. As a group, they also purchase inputs as partners and thereby get better prices and reduce operating costs. The impact on income, with respect to the 55 *manzanas* managed by the two associations, which bring together some 39 producers, is estimated at between USD38,500 and USD46,200 a year.

The beekeepers of the *Asociación Cooperativa de Apicultores de La Libertad (ACAPILL de R L),* based in Ciudad Arce, department of La Libertad, realized its dream of exporting honey to Germany, a highly demanding market in

terms of quality standards. It met 93.30% of the criteria used by the purchasing company, Deutsche Honig Import GmbH & Co. KG, to classify its suppliers. This figure immediately earned it Classification A. All this was achieved thanks to the intervention of the team of specialists from the PAF MAG/CENTA/ IICA, as well as the advisory services provided by IICA in agricultural health and food safety (AHFS), which enabled it to overcome nonconformities regarding industrial safety issues, the hygienic handling of foodstuffs, the calibration and use of measuring instruments, training in the use of industrial equipment, safety practices, good beekeeping practices and marketing. At present, the association holds the title of First Place in Honey Exports for 2011-2012. It has generated USD1,250,000 in foreign exchange, with each of the 30 partners making up to USD25,000 in profits.

The *Asociación Cooperativa Faro del Pacífico* groups 28 milk producers in Izalco, department of Sonsonate. This group sells high-quality raw milk that meets high food safety standards and, after being processed, is consumed by primary school children under the Presidential Glass of Milk Program. It has a Collection and Service Center that can collect and market close to 4,000 bottles of grade A refrigerated raw milk. Thanks to the field schools and the CEFE methodology, its members have acquired knowledge about hygienic milk production, grass and fodder conservation and the construction of homemade silos. They also learnt about Mandatory Salvadoran Standards (NSO), the registration of the value added tax (VAT) and various tax issues, which has enabled them to enter the formal market and increase the scale of their operations. The association's milk sales figures have also averaged USD49,000 a month with a fixed

per-bottle price of 41 US cents, thereby putting an end to price fluctuations. As a group, it has also been able to buy production inputs, mainly feed concentrate. It has also purchased four refrigerating tanks that allow it to receive 5,200 bottles per day, a silage machine, five milking machines and three irrigation systems.

The *Los Pinos* and *El Refugio* coffee-growing cooperatives, both in the western part of the country, bring together 250 coffee growers whose members have discovered the advantages of joining together to run a Collection and Service Center and are learning the lessons of competency-based economies through formation of enterprise (CEFE). Under the project "Recovery and development of national coffee growing," within the framework of the coffee chain, they were given 140,284 coffee plants as an incentive. These were planted using the assisted repopulation model, which called for the introduction of technological innovations. The actions have focused on increasing the expertise and skills of coffee growers and organizations. A total of 42 field school sessions have been completed and the curriculum has centered around production aspects identified by the stakeholders themselves.

Promoting management that is designed to increase productivity and improve quality and value added of coffee has also been part of the process. A course in coffee cupping and roasting has been added, under which the target population will apply new skills in that process and in the grinding of coffee, and also focus on enhanced flavor and quality. The course participants will learn how to identify and determine the organoleptic characteristics of production, to enable them to consolidate the best flavors

and textures for their clients. The *Refugio* cooperative will start processing production at an ecological coffee mill with capacity for 1,500 quintals, an incentive granted under the project, which establishes a new type of mill as well as a new environmental management model and offers new opportunities for the marketing of services.

Grupo agroempresarial de fruticultores Valles Unidos, in San Francisco Menéndez, Ahuachapán. With 29 partners in the biggest plantain-producing area of the country, this group cultivates 400 *manzanas* of plantain, using newer technologies, staggered planting and irrigation. The group hopes to expand this type of cultivation gradually to 1,800 *manzanas* that are still managed traditionally. The goal is to produce high-quality plantain: 300 boxes per week have already been sold on the formal market through the company El Salvador Produce. Good Agricultural Practices (GAPs) have also been adopted and the results have made it possible to double the number of people employed in agricultural production in the area.

The *Cooperativa Sara y Ana,* in Jiquilisco, department of Usulután, made up of shrimpers, were given 400,000 larvae that were placed in a demonstration pond and 90 quintals of concentrate, which have spurred production considerably. Using loans that they themselves negotiated, they are replicating the multiplier effect achieved with the incentives in other ponds, generating a yield of 1800 pounds per hectare. In the past, the cooperative's 26 hectares of land produced only 625 lbs. per hectare. With funds from the MAG's PRODEMORO and with a business plan in place, USD44,000 have been approved to produce 3,500 lbs. per hectare. The cooperative has increased its yield by some 22% and has generated net income of USD

9,262 from 16-gram shrimp in each production cycle (between 70 and 90 days). Formal marketing will be the next step.

The *Asociación Agropecuaria AGROSEC,* in the Zapotitán valley, whose plant in Sector 5 has set itself the short-term goal of becoming an exporter of high-quality corn tamales to the Salvadoran community in the United States, made from corn cultivated and processed in the area. It sent frozen samples of its product to the United States that met the standards of the Food and Drug Administration (FDA). There is a distributing company in the United States market that has said it intends to purchase 108,000 tamales (33,750 lbs.) every 20 days. Staff has been trained in marketing at the field schools, using the CEFE methodology, which includes the application of good manufacturing practices, to ensure good health and safety conditions. The farmers, who until last year were producing 180 quintals per plot of land, are now producing 275 quintals. They visited other countries to learn about experiences in operating and managing collection centers for basic grains. The programmed planting of maize has guaranteed the permanent availability of the product to supply the plant and maintain sustainable production over time, and thereby honor commercial commitments assumed or to be assumed through local commercial contacts. In future, they wish to obtain machinery for the production of flour since they aim to expand their range of products.

The Nahulingo Production Development Center in Sonsonate is reactivating cocoa production in the area. Its members have participated in national and international tours and received training from foreign experts through

the field school system. They have received incentives to build a model nursery where the members of the PDC are working in partnership. This has become a new opportunity to sell seedlings and create jobs and opens up the possibility for them to function as nursery operators. The installed capacity of the nursery is 45,000 seedlings a year, with the expectation that production will reach 200,000 in the next four years. Technical advisory services have been geared towards the management of substrates, seed preparation, techniques for building nurseries and other activities to provide training in and redevelop the cultivation of shade-grown criollo cocoa, which used to be the main crop. It is now, however, virtually extinct.

In the future, a further 11 production development centers will construct similar nurseries in different parts of the country to build up a plant supply. The practice is especially valuable because the plant material is highly productive. Although international prices open up a promising horizon for local fine flavor cocoa, Salvadoran cocoa producers anticipate ecological, economic and social benefits and even certain benefits in the tourist and cultural sectors, given the pre-Columbian tradition associated with the product. Another 285 farmers are promoting the cocoa chain.

6

Future crops:

Lessons learnt

Photo: Communications Office / IICA El Salvador

6. La siembra futura:

Lecciones aprendidas

According to the participants, the lessons learnt may be classified as follows:

- **Avoid paternalism.** With regard to the project's approach, one of the most important lessons learnt has been the need to avoid paternalism and keep in sharp focus the option of promoting production. According to the participants, this is especially true because of the deep-seated paternalist culture that existed in Salvadoran agriculture. In the case of the Program, users finance their investments and must attend the field schools, among other things.

- **Begin by focusing on the demand.** From its inception, the project was aligned with the objectives of the producers: integrating into markets, meeting the requirements of those markets and establishing production initiatives to do so. This made it possible to focus on intervention and resources, design and institute services coherently and achieve short-term results that have real impact. The "early victories" have enabled users to validate the Program, which has earned it credibility. Priority has been given to projects where the farmers take the lead.

- **Participation of the users.** Be in direct contact with stakeholders who have experienced major technological changes. The participation of farmers is an important lesson, especially with regard to the preparation of plans of operation and at other levels of the project. Models do not work without people. Without people, there are no results.

- **Management of human resources.** There is consensus that one of the key factors in the success of the Program was the availability of human resources with proven technical expertise and significant management capabilities who were highly committed to the project. This was the result of an excellent selection process. The juxtaposition of experience and youth was also a positive additional factor. For example, in the outreach service, teams led by a senior specialist had the support of young people who had recently graduated. Finally, training played an essential role in technical and methodological reinforcement.

- **Learning process.** Having a learning model is vital in a process of this kind. The importance of systematizing curricula is clearly manifested in all stakeholders in terms of the significant impact in transmitting knowledge and learning how to transfer experiences. In the opinion of the stakeholders, this has facilitated a speedy process in the adoption, adaptation and dissemination of knowledge, which has been largely due to a system of experiential learning, which means building knowledge based on real situations. This process has triggered change in the stakeholders themselves. At

issue here are practices such as the systematization of learning and teaching processes where farmers assume responsibility; where a change in attitude is promoted in the one receiving and in the one imparting; and there is a change in the perception because of the commitment and a proactive stance.

- **The management of partnerships.** Innovation must be undertaken in partnership with the territorial stakeholders. This is another lesson that has been learnt, in the words of the participants themselves. This coordination was developed from the outset and involved working with stakeholders, both public and private. In the latter case, there is consensus that coordination of the public and private sectors had an impact on the Family Agriculture Plan (PAF) and on the entire community. With respect to the public sector, it is essential that the institutional stakeholders empower themselves and embrace the process so that it is sustainable. Changing perceptions also seems to be a key factor. This has to do with the culture, with the conditions (salaries and logistic support) and with middle-level leaders. This is why mechanisms were sought to encourage the officials to participate actively in everything that was done and a special effort was made with the operational staff.

- **Have a follow-up system in place.** This is one of the lessons to which the participants attributed most importance. It is crucial that this system be instituted from the outset and that it allow for monitoring and evaluation. According to the stakeholders, the

system should include contractual commitments, technical performance, administrative procedures and results.

- **Leadership and political will.** Again, in the words of the participants, this type of process requires courage, leadership and the ability to take on risks, at all levels, from those at the top down to the producers**.** The roles played by the IICA Representative and the Ministry of Agriculture in the process are noteworthy and the support of the authorities at the institutions is considered to be of vital importance. However, the visits and interviews highlighted the leadership qualities of the coordinators, technicians, outreach teams and the farmers themselves (particularly young people and women).

- **The integration of the technical and administrative aspects of the work.** There was agreement that it was crucial to combine technical and administrative components for the first phase of the project. This meant ensuring the transparent use of public funds and expeditious administrative management. In other words, making sure that the financial resources were available as and when required. This effort involved a sharp learning curve as far as the purchasing and administrative processes were concerned, the creation of formats and guidelines for purchasing processes, the support of the Office's administrative and accounting system for the purchases made, and significant coordination between the technical and administrative staff of

the Program. The experience offers a number of lessons for the institution: for example, the need to produce a manual for the purchase of large volumes, to allocate specific time to study or prepare the documents to be utilized, and to use of a follow-up system for administrative tasks.

- **Use of ICTs.** This is another lesson that was learnt, since their use facilitated management of the project. At the same time, however the issue of digital illiteracy had to be addressed. It should not be taken for granted that technical staff know how to use ICTs. There should be an induction process, ideally during the planning stage. This includes the digitization of the documentation.

- **Associativity.** In the words of those involved, what was most important were the organized groups of producers. Lessons were learnt about how to manage organized groups and it was confirmed that promoting associativity is a practical, not a theoretical, approach. The participants themselves must be aware of the advantages as well as the challenges and responsibilities of working in organized groups.

- **Integrated approach.** The participants are agreed that one of the strengths of the Program was the ability to integrate approaches and levels. Thus, the innovation approach was integrated with the chains and territorial development approach. The macro, middle and micro levels were also integrated and, finally, various methodologies were used to promote learning.

- **Management of the project.** The first lesson has to do with the need to have a reasonable amount of time for execution, because it is a large-scale project and a number of areas need to be worked on at the same time. Notwithstanding the scale of the project, the goals and objectives were met in full; much was accomplished in a short space of time. The second lesson concerns the need to have an institutional image from the beginning. The Program was given a "brand name" that users and other stakeholders recognize.

- **Communication.** The main lesson here is that communication must flow among all stakeholders and generate and build opportunities for interaction and facilitate information exchange, dialogue and negotiation. This interaction involves all levels of the project: among farmers, among outreach personnel, among technicians, among management staff and among the authorities; and between the latter and all the rest.

7

Consolidating innovation

Proposals for the future

Photo: Communications Office / IICA El Salvador

7. CONSOLIDATING INNOVATION

Proposals for the future

For the second phase of the Program, the greatest challenge is consolidating achievements within the framework of what has been called an "innovation for development" approach. This means that the model used by the Program must promote the establishment of innovation networks, by means of linkages in the territories and by agro-commercial chain (and the various links in each chain), in two ways: the territorial and organizational linking of the project stakeholders; and coordination with the public and private stakeholders that provide the services required to identity the needs of (individual and collective) users. The Program must also consolidate a structure around this network of interaction among the stakeholders, made up of a platform related to the demand, one for services and another for monitoring and evaluation. Finally, a continuing process of knowledge and learning should be the bridge linking the network and structure. The process should be underpinned by a revitalized learning model that allows for the continuing development of competencies in stakeholders, which should also be the basis for competitiveness in the businesses created.

To achieve the foregoing, support will be needed in a number of areas that are key to the Program's future and in which IICA could play a part. The areas proposed are as follows:

- **Associativity.** This approach is pivotal to the Program's business strategy. However, various international experiences have shown that the specifics may vary. It depends, among other things, on the farmers involved and their business and situation. They range from loosely organized groups formed to negotiate prices at harvest time to sophisticated formal organizations whose actions will depend on the scale and type of operation in which they are involved. The aim, therefore, should be to study and implement various types of arrangements that have been tried and tested in other parts of the world, bearing in mind that models can be developed for each situation. A strong training component is also needed for producers in the areas of management, organizational development and corporate governance.

- **Institutional framework.** One of the most important objectives of the project is to strengthen the institutional framework of the stakeholders participating in it so that the Program gradually becomes part and parcel of that framework. To improve this area, various instruments developed by the Institute could be used to strengthen the organization of these institutions, such as the Instrument for the Institutional Development of NARIs (IIDN).

- **Assurance and improvement of the quality of the Program.** The Program now has a significant

strong point. After the on-line evaluation and monitoring system was installed, all of the processes involved in the management of the Program were improved. As a result, setting up a quality assurance and continuous improvement system is a relatively simple matter, using ISO standards, the Excellence Management Model, or some other tool. With management of such a high international standard, the continuous improvement of the Program would be assured.

- **Financing.** A crucial aspect –about which the participants agree– and a major constraint to innovation is financing. This is because many farmers do not have the resources to institute the technological innovations learnt, weakening the impact of the project and discouraging the stakeholders. The aim should be to plan ways of bringing the producers involved in the Program in contact with the capitals market through creative formulas, such as micro-credit and agricultural insurance.

- **Research.** If the competitiveness of businesses is to be sustainable, the Program has to be linked to research. In this regard, the proposal is to explore new formulas and models –to be put into practice in the production chains– that would include both CENTA and the private sector, through participatory research processes, technology consortia, and so on.

- **Marketing.** In those chains that have had successful marketing experiences and where conditions are appropriate, the proposal is to explore new formulas for production linkages, such

as productive partnerships or inclusive business programs, with both the private and public sectors (public purchases).

- **Follow-up and monitoring system.** In this second phase, the proposal is that IICA support the development of a module of the results of technical assistance activities by identifying gaps in competitiveness, using the baseline of the Program as input.

- **Learning and competencies**

  - **The certification of the competencies of outreach personnel.** The model implemented is, in a positive way, demanding for the technical teams working with the farmers, not only in technical aspects, but also as regards the need to have tools to analyze the environment and methodologies to bring about cognitive change in the farmers. Although the Program has been concerned about generating competencies for this, in this second phase, the proposal is to certify those competencies. The standards of outreach personnel and the quality of the service offered to the farmers would thereby be improved.

  - **The professionalization of farmers.** The development of the curriculum of the field schools is a key input. The certification methodology would make it possible for the producers in the various participating chains to obtain certification as professional farmers in their respective areas.

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