



# INNOVATION FOR SUSTAINABLE RURAL DEVELOPMENT

With the technical support of:



**Food and Agriculture  
Organization of the  
United Nations**



# INNOVATION FOR SUSTAINABLE RURAL DEVELOPMENT

Santiago, Chile, 2017



## INNOVATION FOR SUSTAINABLE RURAL DEVELOPMENT: TOWARDS A THEORETICAL FRAMEWORK

<b>A. Introduction</b>	1
Innovation: Preliminary considerations	1
Limitations of research on innovation	2
Towards a new definition	3
<b>B. Innovation for sustainable rural development</b>	3
Family farming in innovation processes	3
Social construction of markets	5
The role of government institutions	5
<b>C. Author contributions</b>	6
<b>CHAPTER I: CONTRIBUTIONS FOR A NEW UNDERSTANDING OF INNOVATION FOR SUSTAINABLE RURAL DEVELOPMENT</b>	10
<b>1. New Approaches and Concepts for Innovations in Sustainable Rural Development in Latin America</b>	11
1.1 Introducción	11
1.2 Different ways to understand what innovations are and how they are produced	12
1.2.1 Conceptualizing innovations	12
1.2.2 The diffusionist approach	13
1.2.3 The experimental approach	14
1.2.4 The governmental innovation approach	15
1.2.5 How to strike a balance?	15
1.3 Future scenarios and forms of integration for rural Latin America	16
1.3.1 Forms of international integration	16
1.3.2 Vectors of transition to sustainable rural development	16
1.3.3 Obstacles to transition	18
1.3.4 The issue of coalitions	19
1.4 Interlinking social innovation systems for rural development and the Sustainable Development Goals	20
1.4.1 Markets	21
1.4.2 Social protection	22
1.4.3 Technology	22
1.5 Conclusion	23
<b>2 Innovation for Sustainable Rural Development</b>	26
2.1 Introduction	26
2.2 Background on innovation for development	26
2.3 Institutional mechanisms and public policy instruments for innovation in family farming	27
2.3.1 Policy instruments for market access	28
2.3.2 The new mixed policies for family farming or “policy mix”	28
2.4 Challenges of innovation systems for sustainable rural development	29
2.4.1 The need for a systems interface mechanism	29
2.5 Conclusions: What are the public policy alternatives?	30



<b>CHAPTER II: INSTITUTIONAL INNOVATION</b>	34
<b>3 Socio-Productive and Institutional Innovation</b>	35
3.1 Introduction	35
3.1.1 Context	35
3.1.2 Innovation requires a better understanding of the poor in rural areas	36
3.1.3 A theory of change to overcome rural poverty	36
3.2 Experiences in socio-productive and institutional innovation	37
3.2.1 Social protection and productive inclusion	37
3.2.2 Financial Inclusion	38
3.2.3 Empowering the rural population and institutions	39
3.2.4 Promoting the creation of decent employment at the territorial level	39
3.2.5 Realizing the potential of rural women	39
3.2.6 Future challenges	40
<b>4 Dynamics of Institutional Innovation for Socio-Productive Inclusion</b>	42
4.1 Background	42
4.1.1 Reasoning	42
4.1.2 Experiences	43
4.2 Areas of opportunity for coordination	43
<b>5 Technological Innovation from a Territorial Perspective: Challenges of Building Linkages between Agricultural Research and Rural Extension</b>	45
5.1 Introduction	45
5.1.1 INTA: A brief introduction	45
5.2 Institutional innovation: Territorial-based Regional Projects (PRETs in Spanish)	45
5.2.1 PRET "Fostering regional development in central and northern Neuquén"	46
5.2.2.1 Case study: Agricultural Cooperative of Small Producers in Central Neuquén	46
5.2.2 Diagnostic tools for linkages between research and rural extension	48
5.2.3 Challenges in developing territorial innovations	48
<b>6 Linking Social Protection with Financial Inclusion:</b>	50
6.1 Innovations to Promote Sustainable Rural Development	50
6.1.1 Trends in Social Protection Programmes (SPPs)	50
6.1.2 Rural Financial Market Dynamics	51
6.1.3 Opportunities for linking social protection with the Financial Inclusion Agenda	55
6.2 Examples of Existing Practices	56
6.2.1 Government-to-Person (G2P) transactions facilitated by mobile payments	56
6.2.2 "Jóvenes con Oportunidades" in Mexico	56
6.2.3 BRAC's Graduation Model in Bangladesh	56
6.2.4 The Graduation Programme by Fundación Capital (Colombia)	58
6.2.5 Key Takeaways	59
<b>CHAPTER III: INNOVATION FOR RELOCATION OF FOOD SUPPLY</b>	62
<b>7 Territorial Agri-food Systems: Basis for the Inclusion of Family Farming</b>	63
7.1 Introduction	63
7.2 Theoretical framework	64
7.2.1 Sustainable food systems	64
7.2.2 Territorial Food Systems	64

7.2.3 Food Supply and Distribution Systems (FSDS)	65
7.2.4 Territory, proximity to markets, and short supply chains	65
7.2.5 Public procurement from Family Farming	66
7.3 Methodological considerations	66
7.4 Case study: Department of Antioquia (Colombia)	67
7.4.1 Stakeholders in the Food Supply System	67
7.4.2 Analysis of food items produced by family farms	68
7.4.3 Agri-Food Territorial Systems for the inclusion of Family Farming	68
7.4.4 Analysis of food supply in private markets	68
7.4.5 Sub-regional / territorial food supply	69
7.4.6 Market infrastructure in the territories	70
7.4.7 Participation of Family Farming Organizations in the food supply system of Antioquia	71
7.4.8 From inefficiency to opportunity: territorial markets for Family Farming	71
7.4.9 Analysis of supply for public food procurement programs	72
7.4.10 Origin of food purchased by public procurement programs	73
7.4.11 Participation of Family Farming as a direct provider for public food purchase programs	75
7.5 Conclusions and policy recommendations	76
<b>8 Cultivating Good Water Program</b>	80
8.1 Introduction to the Cultivating Good Water Program	80
8.1.1 Emergence of the Cultivating Good Water Program	80
8.2 Innovative methodology of the Cultivating Good Water Program	81
8.2.1 Socio-environmental study of the micro-watershed	81
8.2.2 Selection of the micro-watershed	81
8.2.3 Raising Awareness	82
8.2.4 Training the Watershed's Management Committee	82
8.2.5 Future Workshops	82
8.2.6 Water Management Agreement	83
8.2.7 Other agreements	83
8.2.8 Implementation	83
8.2.9 Fundraising	84
8.2.10 Monitoring and Evaluation of the Program	84
8.2.11 Systemizing the Process	84
8.3 Main activities and programs in Paraná River Basin III	84
8.3.1 Environmental Education	84
8.3.2 Management of Watersheds	85
8.3.3 Biodiversity, Our Common Heritage	85
8.3.4 Sustainable Rural Development	85
8.3.5 Fisheries in Our Waters	86
8.4 Dissemination and Potential for Replication of the Cultivating Good Water Program	86
8.5 Final Considerations	86
<b>CHAPTER IV</b>	88
9. Finals Considerations	89
9.1 Towards a new understanding of innovation systems	89
9.2 Innovation Systems for Family Farming and Sustainable Rural Development	89
9.3 Key Challenges for Innovation Systems and Sustainable Rural Development	90

# INNOVATION FOR SUSTAINABLE RURAL DEVELOPMENT: TOWARDS A THEORETICAL FRAMEWORK

*Luiz Carlos Beduschi, Raúl Contreras, Raúl Holz<sup>1</sup>*





## A. INTRODUCTION

Family farmers have historically experimented and accumulated knowledge to adapt their farming systems to local conditions. However, this experience is often ignored in academic literature on innovation, which tends to focus on innovation in new technologies and the applied sciences, while ignoring problems specific to developing countries (Freeman (1995) and Lundvall (2010), among others).

However, family farming plays an important role in reducing rural poverty, fighting food insecurity and malnutrition, and promoting a sustainable food system. In Latin America and the Caribbean (LAC), the family farming sector is comprised of approximately 60 million people, occupying 81% of agricultural land and generating between 57% and 77% of agricultural employment. Family farming also plays a critical role in food supplies, providing between 27% and 67% of food at the national level (IDB/FAO, 2007; FAO, 2012).

Of course, rural areas face specific challenges. Their socio-economic indicators tend to be persistently worse than in urban areas. This is reflected in lower access and levels of public services such as education, health and housing, lack of basic infrastructure such as roads, irrigation and communications, and unequal access to land and water systems. In addition, these conditions tend to disproportionately affect indigenous peoples and women. Yet despite these problems, and the growing diversification of sources of rural income, agriculture remains the main activity that determines the productive structure, social relations and interaction with the environment in rural areas.

To meet the projected increase in food demand by 2050, it is estimated that global food production will have to increase 60% from its 2005-2007 levels (Alexandratos and Bruinsma, 2012). However, increasing food production with today's existing production matrix, which has a strong bias in favour of intensive and industrial agriculture, will exert even more pressure on the natural limits of the planet.

Given these challenges, this chapter has a dual purpose. The first is to recognize that the experience and knowledge of family farming can also be a source of innovation, and the second is to propose a theoretical framework that enables innovation to be part of a sustainable rural strategy based on the strengthening of family farming and an inclusive food system.

Of course, the main challenge of an approach to innovation based on the knowledge and experience of family farms and rural homes is how to replicate that experience on a larger scale. Innovation in rural areas tends to be localized and therefore restricted by the specific social, economic and ecological context.

This book offers ideas and information to expand our understanding of the potential role of innovation in sustainable rural development. But it should not be seen as the final word, and rather as an invitation to debate. Although there is still much work to do both from a theoretical and empirical perspective, this book contains various articles that help to understand how innovation can positively impact sustainable rural development.

The first section of this chapter discusses the limitations of the existing literature on the contribution of innovation to sustainable rural development and proposes a definition of innovation based on family farming and inclusive food systems. The following section examines in greater detail how this definition should be understood through three core elements: family farming, the social construction of markets, and government institutions. Finally, the chapter ends with an overview of the other chapters in this book.

### INNOVATION: PRELIMINARY CONSIDERATIONS

This section introduces key ideas to develop a concept of innovation focused on the strengthening of family farming and an inclusive food system for sustainable rural development. This functional definition of innovation is consistent with the Regional Initiative 2 being developed by FAO's regional office for Latin America and the Caribbean.

The Regional Initiative<sup>1</sup> is designed to help meet FAO's global goals: 1) Eradication of hunger, food insecurity and malnutrition; 2) Elimination of poverty through economic and social progress for all, and 3) Management and sustainable use of natural resources. It also falls within the framework of the Second International Conference on Nutrition and the Sustainable Development Goals (Agenda 2030). The FAO initiative contributes directly to six of the 17 SDGs: No Poverty, Zero Hunger, Gender Equality, Decent Work and Economic Growth, Reduced Inequalities, and Responsible Consumption and Production.

---

1 | *Regional Initiative 2: Family farming and inclusive food systems for sustainable rural development.*



These goals can be summarized in terms of three major challenges linked to the strengthening of family farming: reduction of rural poverty, food insecurity and malnutrition, and sustainable production. Innovation can be understood as a tool to eradicate rural poverty and feed a growing population in a context of increasing destruction of nature that includes climate change, and the degradation of terrestrial and aquatic ecosystems.

## LIMITATIONS OF RESEARCH ON INNOVATION

Academic literature on innovation focuses on two related concepts: innovation and innovation systems. However, even though this literature contains important elements, the traditional definitions of innovation and innovation systems tend to be insufficient.

The origin of modern research on innovation tends to be attributed to Joseph Schumpeter's theories. Schumpeter, who came from the field of economics, believed that innovation was driven from the supply side. He first highlighted the role of the individual entrepreneur in his *Theory of Economic Development* (1934), and then the role of corporations in *Capitalism, Socialism and Democracy* (1942). But this interpretation suffers a priori from at least two problems. On the one hand, underlying both approaches is the view that supply creates its own demand, in this case the demand for innovation. And, on the other, it ignores the question of how innovation happens (Witt, 1993).

Without going into detail about the history of innovation (see Chapters 2 and 3), it is important to note that at least since the OECD's publication of *Technology and the Economy: The Key Relationships* in 1992, the subject of innovation has achieved a new status, exceeding the limits of academic research and becoming a target of public policy. This research, which was followed by other international organizations, focused mainly on the analysis of national systems of innovation and innovation policies based on science and technology. In these studies, innovation driven by R&D is increasingly regarded as a global activity linked to increasing the productivity of multinational corporations (OECD, 2015).

But in order to develop a concept of innovation that strengthens family farming as part of sustainable rural development, the above approach is insufficient for at least four reasons. First, and as outlined in the introduction, innovation tends to be linked to research in the applied sciences as a driver of innovation at the expense of local knowledge and expertise. Most studies focus on innovation through research and development in science and technology, which tends to be generated in urban spaces. Such studies tend to measure innovation according to macro indicators of expenditure on R&D or the number of patents. For example, a registered patent derived from traditional knowledge is considered innovative, but there is a tendency to ignore the traditional roots of that knowledge. Without underestimating the contribution of science and technology to innovation, including in terms of information and communication (e.g. information about weather conditions, market prices and buyers), the role of innovation for sustainable rural development should not be limited to these aspects alone.

Secondly, the traditional approach tends to sidestep the link between innovation and the global dynamics of knowledge appropriation, such as international standards for intellectual property protection, which may weaken family farming. A definition of innovation that ignores these practices would surely lead to the weakening of territorial innovation capabilities.

Thirdly, the approach does not consider power relations and how these are expressed in institutional structures and policies. This is critical to advancing a concept of innovation focused on family farming that aims to improve the terms and conditions of access to productive assets, including natural resources.

A fourth point is related to the concept of markets. Many traditional studies on innovation recognize the market as the main driver of innovation (market-driven innovation), but this approach is clearly inadequate. Family farming is characterized by facing spaces of exchange where market failures are common or markets are non-existent. Given this scenario, the social construction of markets is critical to achieving inclusive markets that facilitate socio-economic coordination between family farmers and consumers.

In summary, a theoretical approach that does not consider the characteristics of the innovation process in rural areas will result in a poor analysis with incorrect conclusions for public policies. Therefore, a broader definition of innovation for sustainable rural development is needed, which, in addition to traditional aspects linked to innovation (technology, applied sciences, 'modern' business organizations), considers innovation processes arising from local experiences and knowledge, which tend to be low technology and intensive in their use of natural resources.

## TOWARDS A NEW DEFINITION

FAO (2012) has established a definition for an innovation system that is closer to the needs of sustainable rural development. It defined an agricultural innovation system as “a system of individuals, organizations, and companies focused on finding social and economic uses for new products, processes and forms of organization to achieve food and nutritional security, economic development, and sustainable management of natural resources”.

Based on the above definition, a more specific definition is possible that considers family farming and an inclusive food system as cornerstones for sustainable rural development. Therefore, a system of innovation for sustainable rural development could be defined as:

A set of individuals, organizations and government institutions focused on finding social and economic uses for new products, processes or forms of organization through the strengthening of family farming and inclusive food systems, with the aim of sustainable rural development.

Of course, this generic definition is only useful up to a point. For this reason, the following discussion moves toward a concept of innovation for sustainable rural development based on three key aspects of the innovation system: 1) the role of family farming; (2) the social construction of the market, and (3) the role of government institutions.

## B. INNOVATION FOR SUSTAINABLE RURAL DEVELOPMENT

### FAMILY FARMING IN INNOVATION PROCESSES

This section will highlight three aspects considered key to understanding the role of family farming in innovation processes: 1) local knowledge and experience; 2) diversity of family farming, and 3) organization and participation of family farming.

One important aspect for any system of innovation that aims to promote the strengthening of family farming is the existence of local knowledge and experience. As indicated in the introduction, family farming has historically been defined through agricultural systems that adapt to changing local influences of nature and the socio-economic system. In this regard, family farming practices incorporate extensive accumulated knowledge. This knowledge, understood as a resource, and this learning capacity, understood as the capabilities and skills of family farmers, is the basis of innovation in rural territories. Of course, this type of innovation is conditioned by the needs of subsistence farming, but can also be driven by them. In other words, in order to subsist in an ecosystem with limited capital innovation is essential. And, even though that innovation may not be technological, or related to the applied sciences, it is no less innovative.

In terms of the dynamics of innovation, these experiences can be grouped into products, production processes and forms of organization. With regard to food products, family farming has historically been the guarantor of food diversity and its underlying biodiversity, both in terms of type of crops and their varieties. This contrasts with the rise of industrial agriculture and its dependence on only a few products. Today, although there are more than 50,000 edible plants, only 15 crops are responsible for 90% of food consumption (FAO, 1995). In terms of innovation of production processes, Altieri and Koohafkan (2011) show through examples how family farming has historically innovated through complex farming systems adapted to local conditions. Finally, innovation in the organization of the agri-food system helps to create innovative ways of linking family farming with other producers, consumers, intermediaries, public institutions and private companies. These new forms of organization can promote access to markets, access to inputs and technological adaptation. Today, this is shown through innovative ways for family farmers to integrate into value chains or develop innovative new business models linked to community organizations through networks, alliances of mutual assistance, and cooperation.

In summary, the entire system of innovation for sustainable rural development based on family farming should consider local knowledge and experience as a central driver of innovation. Of course, this type of innovation faces certain challenges and is confined mostly to specific territories and experiences that are difficult to replicate elsewhere. But given the homogenizing influence of industrial agriculture on production processes, food products and forms of organization, local knowledge has a great innovative potential. This can be complemented with research and development adapted to the local ecology and socio-economic reality. And, this brings us to the second aspect - diversity.

Innovation that promotes sustainable rural development should consider two key aspects of diversity in family farming: diversity as a characteristic that should be considered in all innovation policies and as a driver of innovation.

Family farming is inherently diverse. This diversity is due to territorial links that frame family farming in a specific cultural and environmental context. As a result, policy recommendations for innovation that do not consider the diversity of rural areas will have little chance of success. The diversity of family farming is also a challenge in defining the term sustainable development, since the definition depends to some extent on the specific territory.

Yet despite its diversity, family farming shows some common features and trends. In this regard, innovation policies designed to facilitate the strengthening of family farming must recognize that the subsistence strategies of rural households are highly dynamic and involve multiple sources of income, not only agricultural. In fact, it is increasingly common that agriculture in rural areas is not the only or even main source of income.

Considering its different environmental and cultural contexts, the great diversity of family farming can be a driver of innovation. This diversity is reflected in products, processes and forms of organization, which if expanded through an inclusive food system could become innovative sources for sustainable rural development. The challenge is how to organize and this innovation, without eliminating the diversity that is its strength.

The third key aspect to stimulate innovation in family farming is organization. This is important for at least two related reasons: 1) the need for collective action to define an agenda for sustainable rural development and innovation, and 2) to establish an innovation system that is participatory and responds to local needs. In contrast to the first point, which frames innovation through changes in the organization of the production process, this second point emphasizes organization based on collective and participatory action. In other words, a system of innovation that seeks to strengthen family farming must be based on a system in which farmers control the production process and which responds to the realities of their local context.

With respect to the first point, in order to influence the dynamics of innovation that affect rural development, family farming must be organized. This entails an important policy dimension given that the achievement of sustainable rural development is socially constructed. Different views and policies regarding the conditions and terms of sustainable rural development can be proposed, but rural organizations are needed to interact with public institutions and lobby for family farmers' interests.

If rural actors do not have the capacity to organize, their influence on the social, economic and political processes that affect them will be minimal, and this tends to negatively influence the dynamics of innovation aimed at sustainable rural development. Although favourable conditions can be generated from the outside, it is difficult for an effective organization to be created this way. The organizational challenge for family farming, which tends to be relatively fragmented, contrasts with the professional associations of large agricultural businesses in Latin America and the Caribbean, which tend to exert a strong influence on public policy.

With respect to the second point, local organizations are also important because they can facilitate innovation dynamics. In other words, organizations can facilitate the adaptation of innovation to local needs and conditions. The ways in which local organizations can exert influence include: improving access to and management of natural resources, sharing experiences, facilitating access to inputs and outputs, offering training, improving the availability of information, strengthening bargaining power with intermediaries and participating in public research and extension.

In summary, the organization of rural actors is important to establish a system of innovation that will strengthen family farming and establish an inclusive food system. Organizations have greater capacity to exert influence on the processes of innovation and facilitate participatory processes.

The importance of family farming in the dynamics of innovation has been analysed based on three points: local experience and knowledge, diversity and better organization. The next section will discuss the importance of socially constructed markets.



## SOCIAL CONSTRUCTION OF MARKETS

The neoclassical interpretation of the economy has fostered an understanding of markets as a free exchange between autonomous individuals isolated from social influences. This concept is also reflected in the design and implementation of public policies, including in innovation policy. However, this conception of markets is insufficient to understand the operation of existing markets and the role of innovation when not driven by market forces. This problem is highlighted even more when studies focus on markets linked to family farming, which are often incomplete or non-existent.

However, any critical analysis should go beyond the perfect market as a point of reference and propose an institutional reformulation, not only when markets fail, but where they do not exist. A better approach to sustainable rural development should consider markets as socially constructed. The social construction of the market begins with the premise that perfect markets, as described in neoclassical economics, do not exist. Instead, markets are social products or spaces of socio-economic coordination, reflecting, among other things, power relations and cultural aspects. They can be seen as spaces for cooperation and not only to govern competition or facilitate the accumulation of wealth.

In other words, markets and innovation for sustainable rural development can be mutually reinforcing, but public policies are needed that promote the construction of spaces of exchange and facilitate access for family farming with the aim of achieving an inclusive food system.

Within this policy framework, innovation for sustainable rural development occurs in at least two related stages: first, in the social construction of the market and, second, as a result of the functioning of the market (e.g. local markets and short supply chains). When new markets are established, they should be organized to form lasting social relationships. This allows innovation in the forms of organization and coordination among the various actors of the system, including government agencies, private companies and rural organizations. The social construction of the market in this stage determines the form and content of new relationships. Finally, once the market is created, it expresses specific social, economic, and environmental characteristics. Examples of this first stage are the markets that emerge through public procurement, trade in seeds or university cafeterias linked to specific territories.

The second stage of innovation occurs when markets are already operating. This is due to the proximity of producers and consumers since innovation is more likely to occur when there is proximity between supply and demand, above all in the development of new products.

But such proximity may have other benefits in terms of sustainable development based on family farming and inclusive markets. A market that brings together producers and consumers helps to redistribute the profits of the production process and bypass intermediaries that tend to capture a higher percentage of profits. A more integrated local market also facilitates the more efficient use of natural resources, more immediate access and fresher food, and less dependence on imports from other countries or territories.

Even without a perfect market to drive innovation, the existence of local markets may contribute to an increase in productivity. For producers, proximity to demand, access to key information, better access to inputs and interactions with other producers can accelerate and improve production processes.

In summary, a critical analysis of innovation for inclusive markets that benefit family farming should not be limited to an analysis of the 'perfect market' model (market failures, efficient distribution of resources, etc.). This limits public policy options to make institutional changes when the market does not work, leading to incorrect conclusions and poor policy decisions related to the economic development of rural households. Considering that markets are a social construction, it is more appropriate to conceive of them as social institutions, formed by relations between groups based on interests, gender and indigenous peoples. Of course, this does not mean markets are immune to influences due to the imperatives of competition and accumulation of wealth.

The above analysis has focused on innovation and its links to family farming and the construction of markets. Government institutions have been mentioned only in passing, but in the following section we examine briefly the role of these institutions in promoting innovation related to family farming for an inclusive food system.

## THE ROLE OF GOVERNMENT INSTITUTIONS

The role of government institutions in promoting innovation that contributes to sustainable rural development can be partly interpreted from the preceding analysis on the role of family farming and the social construction of markets. To avoid repetition, the following analysis will focus on the most important aspects of this role and should be understood as a continuation of the previous discussion.

First, it is important to note that State and government institutions require institutional strengthening and legal frameworks that promote innovation policies. This can include specific laws for family farming, regional forums on agriculture, and cooperation between countries.

In parallel with institutional and legal reforms, the dynamics of innovation benefit from a system in which the actors work together (national and local government institutions, extension services, research centres, organisations of producers, cooperatives and other community groups). In this regard, the question that arises is how can government institutions promote a system of innovation that: promotes individual and collective capacity for innovation, recognizes the diversity of family farmers, including their demands and local needs; facilitates closer co-operation between formal and informal research entities; and contributes to the construction of inclusive markets, among other things.

Even so, the role of innovation in public policy should not be overestimated. While innovation can contribute to sustainable rural development, it is not enough on its own and must be integrated into broader efforts that include rural development and effective social protection policies. The following discussion should be understood with this in mind.

From a general perspective, a system of innovation for sustainable rural development would benefit from coherent innovation policies. In other words, coordination is needed among the various public policies and programs (e.g., science, technology, education, industry, infrastructure, taxes and economy), which impact the dynamics of innovation in family farming and rural households more generally. An exclusively sectoral approach is not sufficient because the creation of a favourable environment for innovation should be part of a national effort that pays special attention to the link between policies and the territorial focus of State institutions (from ministries to local governments).

Related to this point, a primary objective of government institutions should be the coordination of social protection with productive development policies. Social protection policies, even if they improve socio-economic conditions, are limited if they fail to establish conditions that enable family farmers to successfully integrate into the food system. To this end, a policy of innovation focused on family farming and rural households should: 1) contribute to improving the conditions and terms of access to critical assets, such as land, water, infrastructure and energy; 2) facilitate access to financial services (credit, insurance) and non-financial technical assistance, extension and information; 3) strengthen local organizations and promote their participation; and 4) establish specific policies for gender and indigenous peoples.

Examples of policies that promote innovation for sustainable rural development and require the participation of government institutions include: the social construction of markets (e.g. public procurement, school food programs); public food supply systems; promotion of short supply chains (farmers' markets, direct selling etc.); and inclusive integration into value chains.

As noted above, the role of government institutions is essential to establish an innovation system that allows sustainable rural development. Innovation policies must be integrated with social protection and productive development policies and be coherent with a broad range of policies that have an impact on the innovation system. In addition, they must be understood in terms of the role of family farming, rural households generally, and the social construction of the market for sustainable rural development.

The following is a brief summary of the articles by various authors who have contributed to this book.

## C. AUTHOR CONTRIBUTIONS

The common theme of contributing authors in this book is the understanding that the dynamics of innovation can facilitate sustainable rural development. The first two contributions are attempts to conceptualize innovation in view of sustainable rural development. In Chapter 2, Arilson Favareto explores the relationship between innovation, development and sustainability. The author proposes a systemic approach to innovation that breaks with the traditional dual vision of innovation based either on increased productivity and supply, or on an experimental perspective rooted in local realities. Favareto proposes three strategies to encourage innovation that increases productivity and supply, improves well-being and protects the environment: 1) access to markets that highlights the importance of the social construction of markets; 2) social protection and inclusive production, and 3) the adaptation of technologies derived from both the "diffusionist" and "experimental" models. The author also recognizes three main challenges: 1) integrate networks of science and technology with educational institutions; 2) redesign the educational curriculum and extension to adapt to farmers' needs, and 3) establish strategic research projects.

In the next chapter, Eric Sabourin begins with an overview of the concept of innovation that highlights two main aspects. First, he notes that innovation is rarely a simple mechanism of creation and diffusion, and secondly he stresses the importance of collective action for innovation processes. The author also stresses that there has been little innovation at the government level in contrast to civil society. Sabourin then proposes the development of public policies that reflect the specific conditions of countries and their farming communities. These policies, he argues, should be both transversal and sectoral, thereby helping to break the dichotomy of social policies that support family farming and agricultural policies that support agribusiness. The author concludes by proposing an innovation system that is based on relations of reciprocity and commercial exchange.

The following three chapters emphasize innovation at the institutional level for the delivery and implementation of effective programs. First, María Ignacia Fernández highlights the problem of coordination between conditional cash transfer programs (CCTs) and productive programs. The author argues that CCTs have lost their innovative strength by not linking with productive programs. The main problem is that CCTs focus on the individual or household, while productive programs are usually focused on the territory. Obstacles recognized by the author to achieving effective coordination include standardizing the coverage criteria and target population between CCT and productive programs. To overcome this barrier, the author argues that political will is needed for effective coordination between different levels of government and community organizations in order to facilitate the design and implementation of programs adapted to the needs of the territory.

The following chapter by Marcos H. Easdale is based on a case study of the possible coordination between scientific research and rural extension. The author's analysis is based on the experience of Argentina's INTA (National Institute of Agricultural Technology) with the Commercial Agricultural Cooperative of Small Producers of Central Neuquén. This experience includes aspects of both R&D and E&T. The author emphasizes that to achieve positive changes in the territory requires first breaking through institutional and organizational inertia. This requires political and community leadership to ensure the sustainability of projects beyond individual efforts. This can also facilitate extension based on the integration of scientific and traditional knowledge, which can serve as a link between different actors and interests, where the aims of policymakers converge with community expectations.

The next chapter by A'kos Szebeni proposes linking social protection with financial inclusion. This linkage would promote synergies and optimize the multiplier effect, helping to ensure the durability of the social policy impact. The author proposes three different approaches to link social protection programs with financial products. These vary according to the complexity of the programs and their potential synergies. The author concludes that social protection programs can help reduce asymmetries of information and facilitate the delivery of inclusive products. The biggest challenge, according to the author, is coordination between institutions to effectively link social protection and financial inclusion programs.

The chapter by Marcos Rodriguez Fazzone is based on the study "Food supply system: A basis for the inclusion of family farming" developed in 2016 by FAO and Plan MANA (Program for Improving Food and Nutrition) for Colombia's Department of Antioquia. The author emphasizes that the food supply system is currently comprised of long supply chains, which results in higher prices, energy costs and losses in the quality and quantity of food. He argues, therefore, that innovation in terms of the construction of social markets should be based on relocating supply. He concludes that the relocation process requires strengthening coordination both between family farmers, and with local government institutions and consumers.

The following chapter discusses the experience of Itaipu Binacional's Good Water Cultivating Program (CAB). This program was created as a social and environmental mitigation plan after the construction of the Itaipu hydroelectric mega-project. Its strategy to promote innovation is based on the permanent participation of those affected by the mega-project. Indeed, more than just an environmental project, the program aims to be a 'movement' of permanent participation'. The most innovative aspect of the program is its methodology for the design and implementation of applied environmental research. In particular, this includes building relationships with community members who participate, implement and legitimize the program's initiatives, as well as, indirectly, the construction of the hydroelectric plant. As a result, the CAB includes 'innovative programs that do not degrade the environment and are technically appropriate, economically viable and socially acceptable'.

The final chapter by Ana Paula de la O Campos and Benjamin Davis, with the contribution of María Ignacia Fernández, is a summary of the previous chapters. The authors also emphasize the importance of recognizing the diversity of poor rural households for a successful policy of poverty reduction. They highlight the need for broad, multi-sectoral policies that require innovation at the institutional level to effectively design, implement and execute these policies. According to the authors, this institutional reorganization is necessary for the competitive and sustainable integration of the territory with dynamic markets.



## REFERENCES

- Alexandratos, N. and Bruinsma, J. (2012).** *World agriculture towards 2030/2050: the 2012 revision*. ESA Working Paper No. 12-03. FAO
- World Bank (2010).** *Innovation Policy: A Guide for Developing Countries*.
- FAO/IDB (2007).** *Policies for family farming in Latin America and the Caribbean – Executive summary* (Soto-Baquero, F.; Rodríguez F., M.; y Falconi, C., eds.). FAO, Santiago, Chile
- FAO (1995).** *Dimensions of need - an atlas of food and agriculture*. Rome, Italy.
- FAO (2012).** *Report of the FAO Expert Consultation on Agricultural Innovation Systems and Family Farming*. 19-21 March 2012, Rome, Italy.
- Freeman, C. (1995).** *The National Innovation Systems in Historical Perspective*. Cambridge Journal of Economics 19(1), 5–24.
- Koohafkan P. and Altieri M. A. (2011).** *Globally Important Agricultural Heritage Systems: A Legacy for the Future*. SIPAM. FAO. Roma, Italy.
- Lundvall, B.Å. (ed.). (2010).** *National Systems of Innovation: Toward a Theory of Innovation and Interactive Learning*, 2nd ed. London: Anthem Press.
- OECD (1992).** *Technology and the Economy: The Key Relationships*. Paris: OECD.
- OECD (2015).** *The Innovation Imperative: Contributing to Productivity, Growth and Well-Being*, Oecd Publishing, Paris
- OECD and Eurostat (2005),** *Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data*, 3rd Edition, OECD Publishing, Paris,
- Schumpeter, J.A. (1934).** *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interests and the Business Cycle*. London: Oxford University Press.
- Schumpeter, J.A. 1942.** *Capitalism, Socialism and Democracy*. London: Unwin.
- Witt, U. (1993).** *Evolutionary Economics*. Aldershot, UK and Brookfield, VT, USA: Edward Elgar Publishing.



# CHAPTER I: CONTRIBUTIONS FOR A NEW UNDERSTANDING OF INNOVATION FOR SUSTAINABLE RURAL DEVELOPMENT





# 1. NEW APPROACHES AND CONCEPTS FOR INNOVATIONS IN SUSTAINABLE RURAL DEVELOPMENT IN LATIN AMERICA

Arilson Favareto<sup>2</sup>

## 1.1 INTRODUCTION

What kinds of innovations and for what kind of rural development in Latin America? The answers to these questions remain far from clear. Given the current state of global capitalism, the role of innovations in economic revitalization is undeniable, although any such consensus vanishes as soon as those innovations are associated with broader and more complex notions of development. And the difficulties multiply when the qualifier “sustainable” is added, clearly a widely-held value or normative ideal – much like democracy or freedom – but its realization in terms of concrete measures and policies remains highly contentious.

The promotion of health and well-being in Latin America has moved in a positive direction in recent decades. Nearly every country (particularly those that pushed through progressive social inclusion programs) has seen a substantial reduction of poverty and improvements in several quality of life indices, including schooling and access to electricity. This could lead to the assertion that the combination of proven policies and the direction chosen for economic development has borne itself out, and that, accordingly we are moving toward sustainable development. Nevertheless, the pace of these improvements, especially the index of poverty reduction, has begun to slow in recent years. Additionally, the improvements have been uneven across the social spectrum; inequality is still vast and deeply-entrenched. Furthermore, sustaining economic growth has proven difficult for several countries in the region (Rimisp, 2015; Cepal, 2016).

These findings would suggest that, despite the irrefutable developments, there is still a long way to go before rural areas throughout Latin America undergo truly sustainable development processes; at best, we are at the halfway point. It is worth noting that public policy and social involvements are not unlike technology: the result-producing potential of innovation decreases over time. Further innovation becomes crucial, both in forms of production and in incentives and policies.

The role of innovation is all the more clear if one considers that the world population will approach 8 billion by 2030, of which 40% will still be living in rural areas. Global poverty will remain concentrated in these areas (United Nations, 2014) of major ecosystems, all the more decisive for the fragile and declining environmental balance of the globe. How, then, to improve the material conditions of a substantial part of humankind and at the same time reduce the pressure on natural resources? Is it possible to establish models of development that promote these new ways of using natural resources while simultaneously reducing inequality? When discussing innovations in sustainable rural development, it is these types of issues that must be addressed.

Central to this text is the idea that a more systemic and robust approach to technologic, social and institutional innovations would require moving beyond both the mainstream vision of innovation systems (which have shaped the current agri-food systems) as well as the alternative vision that has prevailed in many organizations. The mainstream approach is marked by a strict separation between the production of knowledge and its dissemination into two different systems. Its outcome was the diffusion of models ill-suited to local circumstances and formulated according to one condition: the increase of productivity and food supply. This model of innovation systems does not encourage diversity, neither does it value local knowledge - or environmental conservation. On the other hand, the experimentalist vision of innovations contributed decisively to the creation of a body of knowledge, and to practices deeply anchored in local circumstances. Some difficulties arose, however, in translating such experiences into institutional and legal frameworks, in other words, in adapting them to a larger scale in order to overcome their atomization and fragmentation. A systemic and robust approach to innovations should focus on this very gap: enhancing the knowledge produced through a variety of experiences in the field, and connecting it with the results of the constructive and diverse public policy developed in several countries over the last two decades. But this is not all. It is also necessary to both formulate a coherent basis and mobilize currently scattered resources, providing incentives and forms of coordination that can bring about a new stage in the sustainable rural development of Latin America – something as comprehensive as what resulted, decades ago, from the Green Revolution. This time, however, improvements in health, well-being, and environmental conservation should be added to productivity growth as key requirements.

---

2 Federal University of the ABC and Brazilian Center for Analysis and Planning – Brazil



To illustrate this thesis, this paper is divided into three sections. The first section briefly summarizes the main tenets of the relations between innovations, agriculture, and sustainable rural development in order to outline the concept of innovation systems - which will be used as a reference in subsequent analyses. The second section aims at contextualizing some of the main regional trends in family farming and rural development. The goal here is to define where we stand with regard to regional trajectories for reducing problems associated with poverty, food safety and sustainability, and to identify the requirements for developing innovation systems. The third section seeks to connect innovation systems to the Sustainable Development Goals. In this part of the text, three major issues for rural development in Latin America are addressed: the relationships between systems of social protection and productive integration, inclusive and sustainable markets, and thirdly, technology, technical assistance and rural extension.

## 1.2 DIFFERENT WAYS TO UNDERSTAND WHAT INNOVATIONS ARE AND HOW THEY ARE PRODUCED

### 1.2.1 CONCEPTUALIZING INNOVATIONS

The starting point for reflecting on how to induce innovations for sustainable rural development is to understand the varying conceptions of the term innovation, as well as how they might be produced. In the literature on agri-food systems and sustainable rural development, a rather broad definition is common: innovations are changes made to current patterns which generate improvements – such as increases in productivity and competitiveness; socially-minded notions such as the increase of income, sustainability and equity (FAO, 2016; European Union, 2014) are sometimes added to this definition. In this definition, the substance of an innovation is identified by its results rather than by the process that has produced it.

The definition, impact and constraints of innovation have been matters of debate for nearly a century. Combining existing resources into functional operation: this is the core of the idea of innovation, according to its most prominent author, Joseph Schumpeter (1928; 1934; 1942). In his classic book, *The theory of economic development*, he expands the above definition by introducing a well-known (and polemic) distinction between invention and innovation. Invention would be a new combination of resources made in order to create something that might or not have economic importance. Only when it is transformed into a social product, into new merchandise, or into a new way of producing merchandise does it become an innovation. That is, something that can be economically exploited and subject to relevant social transactions. Schumpeter defined five types of innovation: a) new products created by introducing new goods into a market; b) new methods of merchandise production or marketing through the introduction of technologies or processes; c) new sources of raw material, including the substitution of materials; d) new markets, including the creation or formation of new groups of consumers, or the introduction of new consumption needs among existing consumers; e) new ways of organizing companies – creation of new methods and structures to manage work, production, and marketing.

According to the author, a primary effect of introducing such innovations was the disruption of the markets' balance, affording new profit and investment cycles. These gains were always temporary, since exceptional profit tended to fade as innovation began to be adopted by larger groups of entrepreneurs, creating new stability and new crises, which could only be disrupted by the introduction of a new cycle of innovation. This was his principal contribution: he showed the cyclical nature of capitalist development and the critical role played by innovations in those cycles. Nevertheless, for many, this reasoning didn't adequately explain *how* these new combinations of resources emerge – and how they become innovations.

Schumpeter claimed that there were three preliminary conditions for new cycles of innovation: new, more advantageous economic possibilities (products, markets, services); limited access to such possibilities (for opportunities to be available exclusively to some people, producing profit); an economic situation allowing cost calculation and fairly reliable planning (minimum stability). Even so, one question had yet to be answered: how to transform these necessary conditions into actual innovation? Some of Schumpeter's followers sought to deepen their knowledge of the impact of innovations and technological progress on economic development (Abramovitz, 1956; Romer, 1964 and others). Others (Nelson, 1959; Freeman, 1972 and others) focused on understanding the processes of innovation production and diffusion. This second group, of particular interest to us here, formulated three key ideas that are briefly presented below.

First, if innovation is more than invention, it should be noted that there is no innovation without invention. Next, the links and interdependencies among innovations, science, and technology become stronger as our societies' relationship with knowledge intensifies. While, in the Schumpeterian conception, the individual entrepreneur is the primary vector for innovation, the focus here becomes the connection between the

production system and the scientific and technological production system. Innovation is no longer cast as belonging exclusively to the inner sphere of companies, but is considered dependent on the interaction between the sphere of business and the sphere of science. Secondly, expected windfall profits would directly depend on the possibility of innovations becoming profitable, which occurs when the product of economic activity actually reaches the market. This is not just a question of the supply of new products or services; expectations depend on whether a social demand materializes from those innovations. Research shows that the dynamics between the sphere of production and the sphere of science and technology, as well as between supply and demand, and their consequences for innovation, vary in each sector of economy. This provides the basis for the third contribution: the key role of diffusion in the dynamics of innovation. Diffusion not only involves the dissemination of a new technology, it is part of the innovation process itself, since it involves learning, imitation and social returns. It is the process by which individuals and companies adopt a new technology or replace an old technology with a newer one, changing the pattern of an entire branch or sector. These shifts reveal the many possible interconnections between the sphere of production and the sphere of science, and between producers and markets.

### 1.2.2 THE DIFFUSIONIST APPROACH

These ideas draw crucial attention to substantive aspects of the organizational pattern of the currently prevailing global agri-food systems' origins, and, to a certain extent, to the direction of rural development in the numerous countries whose economies depend on these systems. The previous generation was primarily concerned with responding to the dietary needs of a world undergoing massive demographic expansion. In a relatively short period of time, many countries went from the condition of food scarcity to that of food export (Mazoyer & Roudart, 1997). Even economic theory is no longer focused on food supply and it is now widely accepted that the key issue for tackling poverty and hunger lies in access to food rather than in agricultural production, as is well articulated in the renowned work of Amartya Sen (Sen, 1982).

This was facilitated by the interplay between a variety of factors: the technological transformations of the Green Revolution; the introduction of social innovation systems which mobilized scientific research for the continuous development of those technologies inside and outside of companies; the introduction of rural extension services able to rapidly spread those technologies; the organization of credit schemes to finance the transition of technological patterns; the implementation of infrastructures and channels of transformation and commercialization to ensure access to potential markets for food products (Goodman et al., 1990). And, last but not least, this all took place within a pattern of social organization in which regular access to basic food staples at lower prices relative to other basic needs was fundamental in ensuring the stabilization of social reproduction conditions of a large labor population. It also allowed for a reduction in household food expenses, freeing a portion of the wages for the consumption of other goods, and stimulating the development of other industrial sectors. of the contemporary capitalism (Veiga, 1991). It is worth emphasizing, however, that these innovations involved an actual social system (Amable et al., 1997), connecting, on one hand, the varied resources and institutions (credit, science, education) required to produce and spread technologic and organizational innovations and, on the other hand, a sort of organized social demand (standardized, regularly-supplied food and a social interest in the reduction of food costs, in order to stimulate the expansion of other urban and industrial sectors).

There was, as is well known, a price for this relative success. The funding of this new model impacted the debt level in many countries, particularly in Latin America, where countries had to cover the conversion of their old land elites into modern rural producers. Farm technology systems, rural extension and technical assistance services, credit channels, and incentives for integration among farm, industrial, and financial capital were implemented in order to introduce or adapt technologies produced in the so-called Northern countries. The resulting economic model is highly dependent on major agribusiness conglomerates that increasingly control the direction and pace of technologic innovations, often ignoring risks and the precautionary principle, thereby reducing countries' sovereignty over their natural and genetic resources. From a social point of view, the production conditions of this new model led to the exclusion of millions of farmers, and to a ruthless concentration of production and income, as well as to countless conflicts over land and other natural resources, such as water and forests. With regard to environmental resources like soil and water, the expansion of such intensive production is damaging to both biodiversity and to human health; in particular, the abuse of chemical pesticides and the promotion of diets leading to obesity and other illnesses.

These issues have led increasingly to a rejection of the current organization model of agri-food systems. Yet it would be naïve to imagine that such a model no longer enjoys strong support and social legitimacy. On the contrary: for poor populations in rural areas, the consumption of industrial food products (instead of local or natural products) is often associated with higher social status. For urban populations, well-known brands signify reliable food origins and compliance with sanitary regulations. Governments and national economies in Latin America have gone through a process of 'reprimarization' [Translator's note:

return to a primary sector-oriented economy] of their export schemes (McMillan & Rodrik, 2012). In several countries' parliaments, representatives of these sectors and companies are a highly influential force. Companies have even started to practice what is called the "proactive management of contestability" (Hommel, 2004). The soya moratorium in the Brazilian Amazon is an example of how the behavior of European consumers was able to influence agro-industrial expansion strategies in the tropics, leading to the introduction of basic ways to control deforestation. The FSC logo is another example of how the production model itself, and the relation with suppliers and local civil society, can be altered slightly by introducing social, environmental or transparency clauses (Voivodic & Beduschi Filho, 2011). Recent commitments made by agri-business corporations to reducing the sodium and sugar contained in their food push in that same direction (Nilson *et al*, 2012).

In spite of such challenges, the days of the large-scale diffusion innovation model in agri-food systems are hardly numbered. This sector does continue to produce innovations – probably not with the intensity and speed required by the extensive economic, social and environmental problems identified – and this model is, to date, still supported by political and social legitimacy. It continues, objections notwithstanding, and there is no reason to imagine that this will change in the near future. We know that in the upcoming decades the world population will continue to grow. We know that this growth will be particularly concentrated in Africa and Asia, and will demand an increase in food production. Along with the social objections to the limitations of current agri-food systems, a new set of actors and a new narrative about agricultural production have emerged – with their own ways of reflecting on the topic of innovation.

### 1.2.3 THE EXPERIMENTAL APPROACH

While the protagonists of the diffusionist approach presented above were major agri-food conglomerates and governments (around which other actors including universities, research institutes, supermarkets, supply networks and the financial system were organized), what is referred to here as the experimental approach is a narrative emerging primarily from social organizations. Varying from one country to another, these protagonists come from various popular movements – farmers, peasants, indigenous peoples, environmentalists (p.ej: *Vía Campesina*, 2010). In the academic milieu, renowned intellectuals and institutions theorize and lend legitimacy to this approach (entre otros Altieri, 1995).

But why define it as 'experimental'? Insofar as it emerges from criticism of the clear separation between the production of knowledge and its diffusion that we find in the dominant model. These forms of mass production are ill-suited to local circumstances and depend exclusively on productivity and supply. The dominant model doesn't engage with cultural diversity or biophysics, and doesn't ascribe value to local knowledge, environmental conservation needs or social inclusion. Predictably, opposition to this approach has developed into a series of networks systematizing a wide range of knowledge and practices deeply rooted in local circumstances. Such a narrative is generated from an evidence-based dimension of specific practices, experiences and know-how, rooted in the regions themselves, and produced by social actors intent upon maintaining and reproducing their resources. This vision is strongly rooted in the kinds of interrelations between social systems and specific ecological systems that are likely irreproducible in other contexts.

A number of concepts, notions and categories have emerged in relation to this narrative. The most widespread is perhaps the notion of agroecology, considered by some to be a scientific concept or discipline, by others a social practice, and by still others to be a social movement – though in all cases rooted in ecological conservation (Altieri, 1995). Other concepts include short distribution channels, defined as ways of selling that engage few intermediaries (in some cases a maximum of one) between the producer and the end consumer (Marsden, 2004). Another notion is participatory certification, defined as a way to certify compliance with certain social and technologic production conditions. This assessment is made by members of the communities themselves, rather than by external companies or third parties (Sabourin, 2012). Also worth mentioning are forms of horizontal learning introduced among farmers, including the "Farmer-to-Farmer" method, in which producers learn directly with their peers under similar conditions and constraints, with the aim of finding and sharing applicable solutions (Holt-Gimenez, 2006).

Undeniably, the legitimacy of this experimental approach is growing. Increasing numbers of consumers seek out natural or certified products, as well as those distinguished by regional origin. Similarly, the number of organizations and networks supporting production and sales channels coherent with this narrative has also increased. The ability of this narrative to become a new prevailing model of production and organization of agri-food systems is, at the same time, highly disputed. Many critics argue that it is not possible to feed an expanding world with agro-ecology or similar practices. Social organizations answer that this is a problem related to the transition itself: as government funding, programs and incentives supporting these practices develop and expand, the volume of supply will rise and costs will drop, making it possible to eventually replace the mainstream agribusiness model in present-day capitalism.



Furthermore, the unsustainable nature of the current model in the medium and longer term is justifiably decried. In any case, the controversy remains vigorous. For the purposes of this text, it suffices to say that the alternative organizations and networks mentioned here find it difficult to translate local learning into changes in institutional frameworks, with the aim of broadening these experiences and overcoming their fragmentation. Therein lies the big challenge, regardless of whether the ultimate goal is to replace the dominant model entirely or to substantially increase the influence of the alternative model. But another question arises: how has the state, up to now, addressed these demands?.

#### 1.2.4 THE GOVERNMENTAL INNOVATION APPROACH

At the beginning of the 21st century, governments regarded as progressive came to power in several key Latin American states. In that same period, intergovernmental cooperation was strengthened on the continent. This not only created and reinforced policies and programs on family farming, but also stimulated the exchange of experiences resulting in the adoption of similar platforms in different countries. A variety of policies were implemented in different fields, such as specific credit regulations, public procurement programs ensuring markets for groups of family farmers, as well as support for agro-ecological social networks specialized in advisory and rural extension services (Niederle, 2016). These were accompanied by an expansion of social protections, either through income guarantee programs or cash transfer programs (Maldonado et al, 2016)). Such innovations in public policy and in the institutional environment resulted from the governments' increased attention to the interests of rural social movements, their prioritizing social inclusion, and also from the presence of leadership and technicians coming from these particular sectors.

This broad range of policies – varying both in scope and in quantity of resources committed – led to substantial reductions in rural poverty (Cepal, 2016). It also served as a crucial acknowledgement of the social legitimacy and contributions of a segment of the population in countries across the continent: family farmers, peasants, and indigenous people. However, at least three distinct problems remain unsolved. In spite of the crucial role of these efforts, they remain quite limited in comparison with governmental technical and financial resources allocated to corporate farming. Support given to peasant, family and indigenous farming is still limited. However, rather than dropping in the last period, the sector of commodity production showed gains in regional economies; this is what McMillan & Rodrik (2012) called the premature deindustrialization in Latin American economies. Additionally, a typical feature of these policies is an acute lack of coordination. For example, in many cases, the increased credit supply did not foster the agro-ecological transition, but instead promoted the adherence of family farmers to production schemes established by the entrepreneurial sector – using chemically-intensive, un-ecological practices. Finally, an increase in resources proved insufficient in transforming the production in rural economies, since it was not matched with a strategic reorganization project in these regions. These 'inside the door' policies (Translator's note: policies with emphasis on family/institutional production, opposed to policies aimed at what surrounds these productions, such as collective infrastructures or roads) with access, at best, to public procurement markets, consequently remained dependent on government funding. We are not referring here to the conservative criticisms that the poor should not be dependent on the state, but stating instead that these segments of the population need protection from reorientations arising from changes of government. This requires better integration between policies on social protection, family farming promotion, and the reorganization of regional production.

#### 1.2.5 HOW TO STRIKE A BALANCE?

At this particular point in Latin America's trajectory, what conclusions can we draw from a comparison of the three approaches to innovation described above? The dominant pattern addresses two of the crucial requirements: large-scale food production and the production of monetary surplus for the Latin American economies – all of this in the form of commodity export. This model is inherently exclusionary and comes at high environmental cost. The alternative model, much more coherent from a social and environmental perspective, is nevertheless based on limited experience, and provides both limited food supply and limited surplus within the agri-food systems. Thirdly, a number of institutional innovations have expanded the support for the alternative model, but, at the same time, have paradoxically served to strengthen the predominant pattern.

It seems reasonable that any future strategy would focus on these kinds of commitments. We are not talking about choosing between two patterns, which will both certainly continue to exist. At issue here are the resources, investments, and incentive systems that allow for decreasing the negative socio-environmental impact of agro-industrial systems, while not restricting responsible agro-ecological practices to isolated socio-environmental experiences. Social systems of innovation must somehow become less ambiguous. To find ways to accomplish this, we must first ask ourselves about possible scenarios for rural Latin America in the upcoming period. This is the objective of the next section.

## 1.3 FUTURE SCENARIOS AND FORMS OF INTEGRATION FOR RURAL LATIN AMERICA

### 1.3.1 FORMS OF INTERNATIONAL INTEGRATION

Considerable references to possible future scenarios have been made in previous pages. In another decade the world population will approach 8 billion and, over the course of the century, it should reach 10 billion. The most widely accepted projections predict a stabilization of the world population from that point on. However, regional manifestations of such growth are heterogeneous. The Asian continent should reach its population stability within the next three decades, while the African population will continue to increase for a longer period (United Nations, 2004). The implications of these figures are, among others, permanent demand for commodities, in general, and for food, in particular - one that will be partly fulfilled by Latin American countries. Thus, the stimulus comes from global population dynamics and reinforces this form of economic integration.

On the other hand, the positive effects of such global demand are not the same as a decade ago. Parts of the progressive Latin American agendas were financed through the then high exportation price of commodities. The global financial crisis of 2007-8 forced a slowing of economic growth in countries that were central to the global economy. The resulting reduction in the demand for Chinese manufactured products consequently slowed economic growth in Asia. There are two additional factors here: first, the change of government in the United States and the promise of a more protectionist policy in the face of Chinese competition. Secondly, the Chinese government's strategy to itself reduce the impressive pace of China's economic growth, in order to address increasing internal inequalities and the changes required to improve and refine their production structure (KPMG, 2016). Although the demand of commodities will remain high in Latin American countries, the conditions of the past decade - with rising prices - is unlikely to be replicated. Thus, larger amounts of exports at lower prices will be required in order to maintain the same level of profit.

It is impossible to analyze future scenarios without considering the important role of climate change. Even in the forecast of medium-term population stabilization, all projections point towards an increase of the environmental impact of the current model of farming. Significant progress in reaching the recently agreed-upon Sustainable Development Goals (United Nations, 2015) is necessary to interrupt the current trajectory of environmental degradation. Many hold that the red line has already been crossed, and that damages are irreversible. In any case, the high demands set for this sector and for the exporting countries do seem indisputable.

Such impact could be minimized through diversification in export schemes. Historically, and, more importantly, throughout the second half of the 20th century, many countries intentionally added complexity to their production structures by introducing policies of import substitution. In certain cases, these policies afforded self-sufficiency in food production and the development of local industry. However, the international market for traditional manufactured goods seems to be largely taken. Recent development in Asian countries, including Korea and, more recently, China, further decrease the likelihood of this as any real opportunity for Latin America (Abramovay, 2016).

In order to fully address the forms of international economic integration, a relatively new aspect has to be taken into account: against the backdrop of a high financialization of the economy, with a guaranteed demand for commodities, and as natural resources become goods with tremendous value potential, financial capital is showing an increasing interest in purchasing land purely as investment. Besides farming and mineral production, resources like water and biodiversity are increasingly seen as absolutely strategic in the geopolitical landscape of the next decades. Anticipating its future value, pension and investment funds from Europe and North America are already purchasing land, representing a potentially high risk to countries' sovereignty and management of their own resources and territories (Romero, 2015).

### 1.3.2 VECTORS OF TRANSITION TO SUSTAINABLE RURAL DEVELOPMENT

Do the aforementioned forms of international integration represent an impasse? They do - if the range of possible answers is limited to the driving economic forces of 20th century's main national projects - through both economic theories and political projects. If the economic opportunities for the 21st century (which do not rely on any well-established theory or political leader) are taken into serious consideration, then the answer is no.

Although the gateway to international integration by means of manufacturing is closed or too narrow, the door to comparative advantages through the production of commodities is still open. There are still the social and environmental costs discussed, and the prospect of an increasing dependency on these markets - whose prices and demand are controlled not by the exporting countries, but by international trade dynamics. This is an open door, one which Latin American countries will need to use, notwithstanding

the clear dangers. It will be necessary to move in that direction, and at the same time to broaden other opportunities seldom used in development policies and strategies, in general, and in rural development, in particular. The more relevant ones are described below.

The growth of mid-sized cities, the economic and demographic growth of the country's interior, and the new urban/rural relations: these are among the key future transitions for rural areas in Latin America. In virtually every country there is now a network of mid-sized cities that did not exist a generation ago (Berdegue et al, 2012). Until the end of the 20th century, we lived with the expectation of a global hyper-metropolization; a few large-size urban areas would boost economic and population growth. The industrial employment crisis and higher costs of living in these big centers led to a stagnation of the massive urban influx. These mid-sized cities represent today markets and infrastructures, and harbor the potential for both creating new networks with the small neighboring municipalities and of becoming opportunities for work, income, and access to public services and goods. Yet rural development policies ignore such potential and do not use these cities as references for program and policy strategies; for policy-makers, rural and urban still denote two distinct worlds.

New markets: we have already mentioned the increasing social rejection of the dominant forms of production used by major agri-business conglomerates. Although we used to refer to the alternative options emerging from this rejection as 'niche markets', nowadays larger and larger groups of consumers are unwilling to accept products that flout compliance with certain social and environmental criteria (Niederle, 2013). More and more of these consumers are willing to pay a premium for the guarantee that a certain product benefits poor communities or areas with a particular social or environmental interest. It is often possible to access these markets through short distribution channels. In other cases, more complex commercialization chains must be used to reach these consumers. This possibility could be more effectively used in strategies aimed at supporting farmers. The organization of these potential markets offers a unique opportunity to change production and consumption habits, create incentives, and generate income.

Higher levels of education and science and technology networks: many Latin American countries are about to eradicate illiteracy in school-aged children (Cepal, 2016). In many of these countries, the more serious problems are found in secondary education and in the quality of school education. Yet it would not be an exaggeration to say that farming households never had such high levels of education as today. Conversely, there are networks of universities and scientific and technologic institutions spread across the countries of the continent that have almost no connection with child and youth (primary) education networks. Improving the educational environment for rural youth, and bringing scientific and technologic institutions closer to the situation of Latin American rural regions, could prove mutually beneficial and could foster greater communication between the agricultural production sector and the academic and scientific sector, promoting innovations with high territorial, economic, and environmental impact.

A wide variety of experiences that needs to be expanded and stabilized: the flourishing of large numbers of social organizations, including associations, trade unions, non-governmental organizations, and networks of professionals came along with the re-democratization process on the continent, after some years of military dictatorships. Through these organizations, a series of localized experiences took place, bringing about learning and creating social capital that could be mobilized for more pressing challenges. It is not just a matter of scaling up experiences and learning; a crucial question right now is how to transform these lessons, in terms of the ways that government funding and private investments are managed, in order to support these kinds of production and social organization. Such experiences could be thought of as more than just an alternative, but rather as the base of a reorientation of policies, incentives and investments, giving them a new dimension.

A wide range of policies with little coordination and coherence: to some extent, many Latin American countries experienced a sort of 'institutional schizophrenia' in their development strategies. On one hand, they opted for specialization in the production of commodities. On the other hand, they chose redistributive mechanisms in order to minimize, at least partially, the negative effect of the economic exclusion inherent in the large-scale commodity production model of big companies. In considering certain specific family farming policies, credit is often concentrated in one segment (more capitalized), while public procurement programs are oriented toward another segment (less capitalized). This is to say that policies are too often designed separately and inconsistently, in the hope that beneficiaries themselves will find ways to integrate with one another. As the literature on public policy shows, unless coordination measures are introduced at the formulation stage, it is very difficult to connect policies once they are implemented.

There are significant limitations resulting from the position of Latin American economies at the international level. There are, conversely, a variety of untapped opportunities. How to gradually minimize the limitations related to the current context and scenario, and to encourage a new way of integrating family farming, rural regions and national economies?. At least five vectors should be considered – with direct impact in rural regions, taking into account the contradictions raised, and applying a strategy of transition for sustainable rural development in line with the demands of the 21st century.

First vector: to reduce the negative social and environmental impact, tackling the unjust basis of competitiveness in commodity production. Part of this sector's competitiveness results from the adoption of modern technologies and the productivity increase related to access to more dynamic markets. But another part results from unethical factors, including access to land in circumstances that verge on illegality, non-compliance with labor regulations, weakening of environmental laws and laws protecting traditional peoples and communities. It is time to stop seeing the commodity production sector as homogeneous and to encourage the adoption of strong social and environmental protocols.

Second vector: to expand the presence of family farming in all kinds of markets. Short distribution channels and agro-ecological production are spaces typically occupied by family farming, although their potential could extend them much further. Along with the expansion of supermarket chains into the country's interior, other opportunities can and must be exploited, like appealing to the finer sensibility of some segments within large markets for products made by small producers or by traditional communities. The expansion of family farming's market presence and productivity, without necessarily resorting to the same technology model used by large-scale farming, represents a priority of economic revitalization consistent with social and environmental needs.

Third vector: new forms of socially-responsible use of natural resources. For grass-roots organizations and for part of the environmentalist movement, it is impossible to think about rural development without thinking about food production. This is, indeed, one of the essential roles of rural areas and farmers. Yet, in the 21st century other economic demands require special attention. More than 20 years ago, Ignacy Sachs (2007) referred, in his studies, to what he called the era of the three "b's": biodiversity, biotechnologies, biomass. The value of biodiversity as an ecosystem-based conservation strategy and as genetic resource bank for industrial sectors such as chemical, pharmaceutical, and food industries is underestimated in the field of biotechnologies. Although biomass sources have been exploited at odds with environmental conservation, as in the cases of sugar cane, corn, and soybean, this could be part of innovative production systems which, diversify the supply of energy from food production.

Fourth vector: to increase economy's overall productivity and well-being. In fields such as health, sanitation, and education, Latin American societies still depend on factors limiting their economies' overall productivity. Improvement of these indicators relates not only to improvements in well-being, but also has a direct impact on workers, companies and the overall economy's yield. This represents a significant opportunity, since the costs of infrastructure and services in the fields of education and health in these countries, and in rural regions, are relatively low. These are social expenses that might be considered investments either in occupation and employment, or in the improvement of what one area of economy calls human capital.

Fifth vector: to boost and strengthen the endogenous base of national economies, diversifying the production profiles of rural areas. The key word here is diversification. Although the level of consumption in many rural regions has increased in the last decade as a consequence of cash transfer programs, resources spent in the local trade and service sector of those regions reflect a downward trend, with the expenses going instead in the direction of big urban centers, as a sizeable portion of the products consumed came from larger centers or were imported. By diversifying rural economies, investing in small and middle-sized industries, or exploiting what mid-sized cities offer, work and income opportunities could be improved and resources might be kept in these regions, diminishing both dependency and vulnerability (Favareto *et al*, 2012).

### 1.3.3 OBSTACLES TO TRANSITION

Following this presentation of scenarios, opportunities, and vectors of a transition to sustainable rural development, the obvious question is: why has this type of strategy not yet been implemented?

The customary answer is that expanding well-being, restructuring rural economies, or investing in science and technology are expensive undertakings and that funding would therefore be the main obstacle to an innovation plan. However, this answer is only partially right, either because financing is not an unsolvable issue – since much of what is referred to here does not require substantial expenditure – or because resources are often used in anachronistic or maladaptive ways.

With respect to the question of financing, it would be crucial to know to what the surplus obtained through commodity exportation would be directed. A significant amount of these surpluses have been, until now, channeled into financial markets, where capital is reproduced without generating productive reinvestment or expanding the work or the income of rural families. In a highly concentrated sector and in a financialized economy, dissociation occurs between the needs of capital reproduction and social needs, a trend widely recognized in current literature on inequality. The answer could be that it is perhaps time for Latin America societies (though not exclusively for them) to regard inequality and climate change as



the two major challenges of the 21<sup>st</sup> century. Redistributive policies can be adopted in various ways. They can be more or less aggressive; they can be aimed at compensating or at restructuring. In the last decade, Latin America's progressive trend chose a less aggressive, compensatory orientation. However, if local societies are heading toward a new form of integration into global economy, and thus also toward the integration of rural economies into this pattern, then it might be necessary to define taxation mechanisms for financing such transitions. With regard to financing, what must be taken into consideration is that such a strategy would certainly be less costly than the modernization strategies of several countries over the last century which drove many economies of the region into debt.

More deeply-rooted than the obstacle of financing is a cognitive one which prevents decision-makers and policy-makers from conceiving of truly innovative forms of integration for countries and their rural regions. There is a path dependence forcing these actors to always perceive rural regions as dependent or peripheral, and to come to the determination that existing agricultural policies (for the more productive) or social policies (for the poorest) are sufficient. By the end of the last century, a vast body of literature on multi-functionality and new rurality had sprung up, but this discourse lost ground in the next decade due to the expansion of commodities. Nevertheless, the needs of the 21<sup>st</sup> century compel us to consider those terms once again. Rural regions are not exclusively places of food production or of commodity export. They are also places for the production of renewable energy, for environmental conservation, or land optimization. Their protagonists are not only rural social movements or large agri-business corporations but also a wide range of economic groups and local actors whose interests are not limited to those of the sectors directly involved in agriculture. These are small merchants, small local industries, women, and young people – who still want to live in these areas, but not necessarily to work in agriculture. Rural areas are not only the place of tradition. They become increasingly exposed to so-called 'modern relationships': the ever-increasing role of money and money-related relations in social life, the use of such technologies as cell phones and computers, or the access to consumer goods formerly restricted to cities. In the face of such complexity, agricultural policies and social programs prove insufficient.

Partly due to these cognitive limitations and partly as a result of the inner dynamics of public administration, there is a third type of obstacle to overcome: a strong trend toward fragmentation of both policy and skills. This trend is visible from every vantage point. As mentioned, it can be seen in the detachment of primary education from scientific and technologic networks. It is also very clear in the disconnection between social policies and production policies. There are at least four areas of rural development policies where coordination problems are apparent: vertical coordination among levels of government; horizontal coordination among areas of government; coordination between government and civil society with weak ties to the private sector and to social organizations; coordination between policies and regions. Regarding the latter, sites are most often seen as investment objects rather than as systems with their own prime movers – whose mobilization is crucial for the development of future projects. Improved coordination of policies and actors with their own resources would actually minimize the demand for new, extensive public spending.

### 1.3.4 THE ISSUE OF COALITIONS

Once these three major types of obstacles have been identified, another question arises: is it even possible to overcome them? The answer here is more difficult, since it does not involve identifying subjects or problems. The response depends on the ability to mobilize actors able to formulate a new narrative, and to mobilize the resources required to transform this into strategies, investments and institutional arrangements.

If we go back a bit in time, we see that family-farming policies came out of institutional innovation, as a result of both favorable conditions and the action of a particular coalition of actors. These favorable conditions resulted from the need to boost an important segment of producers who had achieved, with little help, similar outcomes to those of large-scale agribusiness. This occurred within, or in spite of, public funding restrictions. But who took advantage of that breach, transforming restriction into opportunity? It was predominantly rural social movements representing farmers' interests who exerted pressure on the state. In addition, they teamed up with intellectuals and scientists, who provided technical and academic legitimacy and developed the rhetoric justifying this urgency. Thus they gained the support of part of the government bureaucracy, which provided the institutional and budgetary framework to meet their demands, resulting in the creation of government programs and structures (Grisa & Schneider, 2014).

If we analyze the progressive governments in Latin America, we see that the expansion of programs for family farming was parallel to the emphasis on industries exporting commodities. We can also identify a certain background of crisis – at the national level, several economies had stagnated or exhibited low growth for several years previously – and a wide coalition of actors managed to take advantage of these conditions. This explains their attempt to combine disparate and often opposing interests, such as family and corporate farming.

The findings of studies by Gomide & Pires (2016) on the capacity of the state for innovations in public policy can be applied to these two cases. The authors conclude that when only actors and technical resources are mobilized, the innovation potential is significant, though these innovations cannot expand without the political resources required to change a particular scheme adopted by a certain area or sector. The opposite is also true: when only, or mainly, political resources are mobilized, state-based programs do expand, as a result of the state's power to achieve these ends. However, the degree of innovation will be low due to an inability to reflect on and redesign the kinds of consistent and viable arrangements that reflect changing contexts.

Thus, it is indisputable that the emergence of a new rural development pattern involves the implementation of innovations. Moreover, these innovations should be driven by groups with both the political strength and technical skills required by the new framework briefly outlined here. These skills are unlikely to be found traditional rural actors in Latin American, since they have been too involved in a vision of agriculture and farming that still considers rural in opposition to urban, rather than proposing relations of mutual interdependence. Spaces and platforms must therefore be created in order to bring new actors into these new contexts; this is the starting point for innovation. Certain elements of the current conditions can help set the stage for a new narrative and for the identification of those actors committed to it. Put simply, the definition of countries' commitments and strategies for the Sustainable Development Goals can be done in either a bureaucratic, empty way or it can be viewed as a unique chance to integrate rural areas into the dynamics of development.

## 1.4 INTERLINKING SOCIAL INNOVATION SYSTEMS FOR RURAL DEVELOPMENT AND THE SUSTAINABLE DEVELOPMENT GOALS

As mentioned, in his lectures, Ignacy Sachs often said that today's generation stands on the debris of the three major organizational narratives for the future prospects throughout the 20<sup>th</sup> century (2009). Although neoliberalism had some success in promoting inflation stability and fiscal stability, it has also proven a total failure in driving lasting economic growth, social inclusion, or in basic human welfare. So-called 'real socialism' promoted substantial improvement of social indicators in the countries where it was implemented, but this was often accompanied by brutal inequality and marked by a process of economic stagnation that led to its collapse. Finally, European social-democratic governments over three decades successfully married economic growth to welfare expansion – within a context of relatively low inequality. However, they were stymied by the new conditions of contemporary capitalism, namely, its limited ability to integrate and value the conditions of work and workers as a crucial factor alongside of the expanding accumulation of capital. None of these three narratives propose suitable and consistent responses to the current and future challenges of this century.

With regard to Latin America, it is perhaps not an exaggeration to say that we are witnessing the breakdown of the two major narratives of the beginning of the 21<sup>st</sup> century. Over the last 15 years, social-developmentalism, or Latin American progressivism, inspired regional governments - with significant outcomes, including substantial economic growth, marked poverty reduction, and improved social indicators. Nevertheless, this was short-lived and could not compensate for the effects of a relative fall in commodity prices. To replace it, numerous countries look once again to the neoliberal agenda, whose characteristics and results have already been tested, with the effects referred to in the previous paragraph.

Furthermore, the turn of 2015 to 2016 was the setting for an ambitious movement: the definition of the Sustainable Development Goals (SDGs) and the drafting of the 2030 Agenda with a set of objectives organized into 17 strategic goals (United Nations, 2015). This is not what we could call a new narrative, but certainly introduces vast possibilities for innovation and experimentation aimed at overcoming what some are already describing as a "crisis of civilization".

As is well known, SDGs are an attempt to unify two previously separate agendas into two global governance movements: The Millennium Development Goals focused on the social agenda and the Kyoto Protocol on the environmental agenda. These initiatives have produced somewhat paradoxical results: on one hand, a significant reduction of poverty – although about one third of humankind still lives either under or very close to the threshold for poverty. On the other hand, inequality, which had started to decrease in many countries, rose again at an alarming rate, in many cases returning to levels not seen since the period before the two World Wars. In the field of environmentalism, there are more efforts underway in new technologies and greater gains in energy efficiency than ever before. At the same time, the continuous increase of the global ecological footprint and its clear impact on climate change have led to the term "Anthropocene": the ushering in of a new era in which human action could produce irreversible climate disruption on a

global scale. In short, there has never been as much wealth, or as much deprivation; there has never been as much technology and resource efficiency, but there has also never been such severe environmental impact derived from human action. As such, the fundamental purpose of the SDGs is ensuring that diverse and even contradictory efforts will result in less inequality, greater well-being and stronger ecosystem-based conservation.

The global institutional structure in charge of both the SDGs and the national strategies to address the commitments therein is currently being formulated; this, of course, represents a significant opportunity. Countries may aim for plans that address each of the 17 goals individually or, alternately, may choose to focus on the interrelations and aim for parity among them. In other words, countries might seek to implement certain strategies to grow their economies and others to compensate the potential negative health or environmental effects of their growth model. But they could also opt for less environmentally-depleting and more socially inclusive development models. Certainly the latter approach is more desirable, while the first would just repeat the problems of recent decades.

What type of innovation systems can help shape styles of development that are consistent with the goal of sustainability?

The first section of this paper outlined what kind of innovations can be applied at different scales. Given that the challenges of the current agenda require a paradigm shift in the fields of agriculture and rural development, it seems necessary to consider social innovation systems on a scale and scope that could drive such a shift. It is not simply a matter of mobilizing groups of producers or local knowledge, but of activating widespread systems, such as scientific research systems, city systems and distribution systems. These are the systems that could connect the spheres of production, and of science and technology, with the social demands for new ways of using natural resources. They could also foster interactions among these diverse realms, creating changes that aim at satisfying social demands through social inclusion and conservation of ecosystems.

The second section should have made clear that current circumstances speak against the feasibility of this last approach. On the contrary. We saw that the place reserved for Latin American economies, on the international level, is in the production of commodities, and we discussed the consequences of this; we also saw that this new context creates opportunities. It is not a question of giving up the competitive advantage in the exportation of primary goods, but of using it as a means and not as an end. The goal should be transformation on the social and production level toward less dependence on the outside, and toward greater sustainability. In the case of rural regions, this implies the need to completely rethink policies as well as public and private investments. These newly conceived plans and policies require other actors and resources than those required by the old agricultural paradigm. Only then will it be possible to overcome the obstacles of financing, of the fragmentation of efforts, and of the cognitive bias that has long prevented a fundamental recasting of future possibilities.

There are three strategic issues for shifting the paradigm in the approach to rural development. They can be used as a field of experimentation for shaping innovation systems that are both robust and consistent with all that has been discussed here: access to markets, social protection and technologies.

#### 1.4.1 MARKETS

As a subject, access to markets has the potential to be aligned with no less than 10 of the 17 Sustainable Development Goals: SDGs 1 (poverty), 2 (hunger), 7 (energy), 8 (inclusive growth), 9 (resilient infrastructure, inclusive industrialization and innovation), 10 (inequality), 12 (sustainable consumption and production); 13 (climate change), 14 and 15 (sustainable use of oceans and land ecosystems) (United Nations, 2015).

The current emphasis on the work of social organizations and international cooperation agencies has focused on facilitating ways of accessing public procurement markets and short distribution channels. As said before, access to large markets remains a challenge. The ideological resistance of the actors involved and the institutional constraints need to be overcome. If not, the risk is that the rate of increase in family farmers' access to markets remains sluggish.

Previous experiences have shown that tax, fiscal, and credit incentive systems play a key role in encouraging private actors to prioritize purchasing from family farming. However, these are not sufficient, as it is very difficult to gather an often-scattered supply. This results in high transaction costs, causing an irregular supply and threatening the contracts' feasibility. Similarly, farmers are often unable to access these new opportunities, trapped as they are in informal market mechanisms, such as anticipated sales aimed at obtaining credit or dependency on middlemen.

Addressing this topic from an innovative perspective involves reference to what, in sociological terms, is called the social construction of markets. That is, markets are not only understood as a meeting point between supply and demand, and between buyers and sellers, but also as a social structure requiring initial and specific acknowledgment in order to dismantle the obstacles preventing (particularly the poorest) farmers' access. Again, these obstacles may be related to credit, poor productivity, lack of incentives for buyers, or power relations.

To achieve this, certain situations have to be chosen according to certain criteria, such as governments' willingness to innovate with these programs – whose results will only be observable in the medium-term; private actors willing to test out the already-existing incentive programs, or to create their own programs of social inclusion using their network of suppliers; availability of scientific and technology networks and advisory services to support every step of the process of identifying and structuring a market.

Finally, it is important to pursue diverse types of markets - not only markets for food products. Innovative initiatives in the bioenergy or ecosystem services markets could be an encouraging example, widening the array of opportunities and initiatives available for farmers, government bodies and private endeavors.

### 1.4.2 SOCIAL PROTECTION

The issue of social protection is directly related to at least 6 Sustainable Development Goals: SDGs 1 (poverty), 2 (hunger), 3 (good health and well-being), 4 (education), 8 (inclusive growth), 11 (resilient and healthy cities and communities) (United Nations, 2015).

In this field, current emphasis is on cash transfer policies, which had a rapid, direct impact in improving income levels of poor rural families (CEPAL, 2016). In smaller proportions, some countries look to innovate new methods of social protection with productive inclusion (Maldonado *et al*, 2016). Today these experiences are still concentrated on the organization of short distribution channels and public procurement programs. Although these initiatives are certainly crucial in fostering a minimum level of organization of production, they often present such problems as the risk of discontinuity related to government changes or insufficient income.

A new generation of social policies requires a better understanding of how income is generated and how work is distributed in rural regions. This would enable a better link between the need for rural families to have work and income opportunities, and the opportunities actually available in the framework of local urban/rural relations. It is clear that in more distant regions the likelihood of having a non-agricultural income or a more dynamic access to markets will always remain lower. But in other regions, where urban/rural links are closer, it is certainly possible to consider innovative strategies for productive inclusion.

In terms of access to the social services and facilities that are crucial for well-being, such as education and health, innovation could also take advantage of the so-called "economy of relative costs". The improvement of the quantity and quality of educational options could create work opportunities for the children of family farmers, simultaneously boosting the relevant indicators. Furthermore, a better connection of the supply of such services to universities and networks of science and technology would be critical in sensitizing these networks to the real challenges of the community around them, thereby improving the educational and health environment in rural areas.

### 1.4.3 TECHNOLOGY

It is hardly an exaggeration to say that technology, technical assistance and rural extension concern virtually every one of the Sustainable Development Goals. It is impossible to conceive of new ways of using natural resources without making significant progress in scientific knowledge on this subject and its applications. The same applies to industrialization, education and many others.

As we tried to show in the first section of this text, the current approach to this subject is divided into two seemingly antagonistic perspectives: the major scientific and technologic diffusion models, and those models based on local forms of experimentation. These two types of networks will continue to exist: public or private research and technology networks, and public or social networks of advisory services to communities and rural extension. However, in both cases the distance between these networks must be reduced, as well as between them and the official educational, scientific, and technologic systems. Traditional services can no longer ignore the medium-term unsustainability of large-scale production forms based on intensive use of chemical additives, and on a disregard for environmental conservation practices. Advisory services to the community cannot remain marginalized from the scientific and technologic production system, basing their work on the systematization of fragmented local knowledge. In the cases



where these networks had public support, a lack of professionals prepared to work on innovative projects quickly became apparent, since many technical schools and departments of agronomy at universities have closed their doors, or train professionals exclusively according to the old model.

At least three challenges will be considered at this point if the aim is to promote innovation systems that are robust and consistent with the challenges of the 21<sup>st</sup> century: a) bringing the science and technology networks together with the educational networks that are available to rural families, improving the educational environment, and connecting qualified professionals to local social demands; b) organizing strategic projects to reorient education programs and experiences, bringing the research, technical assistance and rural extension undertakings closer to the needs of the current circumstances; and c) supporting or formulating strategic research, technical assistance and rural extension projects beyond agriculture, narrowly defined, evolving toward new opportunities to vitalize rural economies.

## 1.5 CONCLUSION

The last of the 17 Sustainable Development Goals addresses the means of implementation and the global partnership for sustainable development. Few organizations find themselves in positions similar to the FAO/UN – which organized the seminar where this text was presented – that is, able to mobilize both the resources and actors necessary to build innovation systems which are effective and consistent with the needs of sustainable rural development, according to the terms described in the previous pages.

This text focused initially on general aspects, such as the conceptual definitions and elements of the current global situation, and at the end addressed more specific aspects, including three issues that could be tackled in the short-term with concrete projects. The idea underlying this movement is that it is possible, desirable, and necessary to link immediate efforts made at the local level with the challenges stemming from this strategic long-term analysis, without overlooking the more general background of the transition civilization seems to be undergoing.

A key element to bear in mind is the need to avoid ingenuousness in assessing the problems and the magnitude of the challenges at hand. Also crucial is to not submit to a state of immobilization that prevents us from seeing the opportunities afforded by the present situation. First of all, what should not be ignored is that the infinitesimal shifts that needed to be intensified for this transition to take place are already underway, in the form of multiple experiences and organizations daily engaging in attempts at new ways of organizing agricultural production and social activity in rural regions. The daunting challenge is to go from these ordinary inventions or innovations to put in place the kinds of genuine and robust social innovation systems that deepen and accelerate the transition towards sustainable rural development.

## REFERENCES

- ABRAMOVAY, R. (2016).** *Os riscos políticos da desindustrialização prematura*. Consultado em: <http://ricardoabramovay.com/os-riscos-politicos-da-desindustrializacao-prematura/>
- ABRAMOVITZ, M. (1956).** *Resource and output trends in the United States since 1870*. American Economic Review, May/1956.
- ALTIERI, M. (1995).** *Agroecology: The science of sustainable agriculture*. London: ITP Ed.
- AMABLE, B. et al. (1997).** *Les systèmes de innovation à l'ère de la globalisation*. Paris: Economica.
- BERDEGUÉ, J. et al. (2012).** *Ciudades, territorios y desarrollo inclusivo en America Latina – los casos de Chile, Colombia y Mexico*. Working Paper. Santiago do Chile: Rimisp.
- CEPAL (2016).** *Panorama social de América Latina 2015*. Documento informativo. Santiago do Chile.
- EUROPEAN UNION (2014).** *Research and Innovation performance in the EU*. Luxemburgo: European Union.
- FAO (2016).** *Innovative markets for sustainable agriculture - How innovations in market institutions encourage sustainable agriculture in developing countries*. Roma: FAO/INRA.
- FREEMAN, C. (1972).** *The determinants of innovation*. Futures, vol. 11, no. 3, jun. 1972.
- GOODMAN, et al. (1990).** *Da lavoura às biotecnologias: agricultura e indústria no sistema internacional*. Rio de Janeiro: Centro Edelstein de Pesquisas Sociais.
- GRISA, C. & SCHNEIDER, S. (2014).** *Três gerações de políticas públicas para a agricultura familiar e formas de interação entre sociedade e estado no Brasil*. Revista de Economia e Sociologia Rural. vol.52.
- HOLT-GIMENEZ, E. (2006).** *Campesino a Campesino: Voices from Latin America's Farmer to Farmer Movement for Sustainable Agriculture*. Food First Books.
- HOMMEL, T. (2004).** *Strategies des fimes industrielles et contestation sociale*. Paris: Cirad/Inra.
- KPMG (2016).** *The 13th Five-Year Plan – China's transformation and integration with the world economy Opportunities for Chinese and foreign businesses*. KPMG – Global China Practice.
- MALDONADO, J. H. et al. (2016).** *Protección, producción, promoción: explorando sinergias entre protección social y fomento productivo rural en América Latina*. Bogotá: Uniandes Ed.
- MARSDEN, T. (2004).** *Theorising food quality: some key issues in understanding its competitive production and regulation*. In: HARVEY, M.; MCMEKIN, A.; WARDE, A. (Ed.). *Qualities of food*. New York: Palgrave, 2004. p. 129-155.
- MAZOYER, M. & ROUDART, L. (1997).** *Histoire des agriculteurs du monde – du neolithique à la crise contemporaine*. Paris: Seuil.
- McMILLAN, M. & RODRIK, D. (2012).** *Globalization, Structural Change, and Productivity Growth*. IFPRI Discussion Paper 12.
- NELSON, R. (1959).** *The economics of invention: A survey of the literature*. Journal of Business, vol. 32.
- NIEDERLE, P. (2013).** *Construção social de mercados e novos regimes de responsabilização no sistema agroalimentar*. Agriculturas. v. 10, n. 2.
- NIEDERLE, P. (2016).** *A construção da Reunião Especializada sobre Agricultura Familiar (REAF) do Mercosul: sociogênese de uma plataforma de diálogos entre governos e movimentos sociais*. Revista Estudos Sociedade e Agricultura. Ano 24, volume 2.
- NILSON E. et al. (2012).** *Iniciativas desenvolvidas no Brasil para a redução do teor de sódio em alimentos processados*. Rev Panam Salud Publica. 2012;34(4):287-92.
- NILSSON, M. & CONSTANZA, R. (2016).** *Overall Framework for the Sustainable Development Goals*. In: ICSU, ISSC (2016). *Review of Targets for the Sustainable Development Goals: The Science Perspective*. Paris.
- PIRES, R. & GOMIDE, A. (2016).** *Governança e capacidades estatais: uma análise comparativa de programas federais*. Revista de Sociologia e Política, vol.24n.58. Curitiba.
- RIMISP (2012).** *Pobreza y desigualdad. Informe Latinoamericano 2011*. Santiago do Chile: Rimisp.

- ROMER, P. (1964).** *Endogenous technological change. Journal of Political Economics*, vol. 98, no. 5.
- ROMERO, Simon (2015).** *Fundo de pensão americano comprou terras irregularmente no Brasil.* Jornal Folha de S. Paulo. Edição 17.11.2015.
- SABOURIN, E. (2012).** *A Construção social dos mecanismos de qualificação e certificação entre reciprocidade e troca mercantil.* REDD – Revista Espaço de Diálogo e Desconexão, Araraquara, v. 4, n. 2, jan/jul. 2012.
- SACHS, I. (2007).** *Rumo à Ecosocioeconomia - teoria e prática do desenvolvimento.* São Paulo: Cortez Editora, 2007.
- SACHS, I. (2009).** *A terceira margem – em busca do desenvolvimento.* São Paulo: Ed. Cia das Letras.
- SCHUMPETER, J. (1928).** *The instablity of capitalism.* Economic Journal .
- SCHUMPETER, J. (1934).** *Teoria do desenvolvimento econômico: uma investigação sobre lucros, capital, crédito, juro e o ciclo econômico.*
- SCHUMPETER, J. (1942).** *Capitalism, socialism and democracy.*
- SEN, A. (1982).** *Poverty and Famines: An Essay on Entitlement and Deprivation.* Oxford New York: Clarendon Press Oxford University Press
- UNITED NATIONS (2004).** *World population to 2300.* New York.
- UNITED NATIONS (2014).** *World urbanization prospects – 2014 review.* New York.
- VEIGA, J. E. (1991).** *O desenvolvimento agrícola – uma visão histórica.* São Paulo: Edusp/Ed. Hucitec.
- VIA CAMPESINA (2010).** *Sustainable Peasant and Family Farm Agriculture Can Feed the World.* Via Campesina Views. Jakarta.
- VOIVODIC, M. & BEDUSCHI FILHO, L.C. (2011).** *Os desafios de legitimidade em sistemas multissetoriais de governança: uma análise do Forest Stewardship Council.* Ambiente & Sociedade. Vol.14no.1 São Paulo Jan./ June2011

## 2. INNOVATION FOR SUSTAINABLE RURAL DEVELOPMENT

Eric Sabourin<sup>3</sup>

### 2.1 INTRODUCTION

The relationship between innovation and sustainable development is often taken for granted, but by analysing them we are able to deconstruct the connection between these two concepts. While technological innovation can be driven by conventional and alternative proposals, including ecological proposals, this is not the case with economic and policy innovation.

In fact, the phrase “policy and institutional innovation” can be considered, like phrases such as “economic solidarity” or “inclusive growth”, to be an oxymoron. But, beyond its inherent contradictions, it is important to examine the relationship between innovation and sustainable development from different perspectives, including the technical and policy perspective.

From the technical point of view, the capacity of sustainable development to promote institutional, economic or policy innovation is non-existent. When the notion of sustainable development was invented (as it is neither a concept nor a paradigm), the expression was quickly associated with change, appearing on the agendas of United Nations agencies, governments, NGOs and multinationals, and became a tagline promoted by the media. Of course, sustainable development was a blessing to interest groups and global powers as it was a new concept without links to more radical ideas previously put forward, which posed a greater threat to the established economic order.

The theoretical content of sustainable development was, and still is, much less innovative than similar proposals by Ivan Illich (1972), Georgescu-Roegen’s analysis of the entropy of the economic process (1971; 1978) that foreshadowed the decline of political ecology, or even the Club of Rome’s “zero growth” proposal (1972) and Ignacy Sachs’ eco-development concept (1980).

Sustainable development led to the *leopardization* of the notion of development by emphasizing superficial changes without any real change. Technically, the real policy, institutional and economic innovations came before the invention of sustainable development. The problem is that these innovations were forgotten. In fact, the notion of sustainable development continues to be an interesting utopian proposal with no theoretical basis.

From the policy perspective, the story is slightly different. Even if sustainable development is not radically innovative compared to the economic perspective, policymakers are obliged to offer policy alternatives, be pragmatic, and act conscientiously. They must work together to develop new policies despite the obstacles and contradictions they face, and within the confines of their knowledge. But, as Boaventura de Sousa Santos (2016) points out, now that the aim of sustainable development is universally recognized in line with the Millennium Development Goals, a more innovative definition is needed that is more radical and democratic than in the past.

This document is divided into three sections. The first offers a brief overview of systems of innovation for sustainable development focused on family farming and rural areas. The second focuses on institutional mechanisms and policy instruments that promote innovation for family farming systems in the region. Finally, the third section notes some challenges facing innovation systems for them to provide effective and operational instruments and policy options for sustainable rural development in Latin America and the Caribbean.

### 2.2 BACKGROUND ON INNOVATION FOR DEVELOPMENT

First, innovation is a permanent process of adaptation and rarely just a mechanism for creation and dissemination. For Schumpeter (1935), innovation is the *creation of new combinations between different resources (production factors) with different economic and social purposes*. For Flichy (1995), technological innovation, as well as social, organizational and institutional innovation, whether in business or public policies, is a process of creativity and the application of knowledge.

According to Gondard (1991), who revisited the distinction between innovation and invention established by Schumpeter, innovation is a successful invention that is used by people.

<sup>3</sup> Cirad, Universidad de Brasilia, Red PP-AL, coordinator of Red PP-AL.



Secondly, innovation is based on collective action. Darré (1986) showed that farmers can innovate individually on their own plot of land or production unit, but this innovation is based on interactions with other farmers and with various actors in networks and groups, such as the socio-technical networks analysed by Bruno Latour and Michel Callon (1986; 1991)<sup>4</sup>, among others.

According to B. Latour (1989), new knowledge or technical innovation is developed through the partnership between individuals and organizations in social-technical networks. Therefore, the success of an innovation depends on the size and strength of the socio-technical network where it was developed (Akrich, et al., 1988).

Callon (1986) defines the process as a set of tasks and steps to establish and stabilize the socio-technical network.

These interactions consider technical innovation as part of a set of social and institutional innovations and learning processes in the context of collective action involving producers, agricultural services, as well as the suppliers of inputs, commercial firms, research centres and universities, banks and even the media (Alter 2000). In the context of collective action, learning can be defined as the production and transformation of knowledge through the coordination between stakeholders based on the standards and rules governing such actions (Dutrenit and Suchs, 2014).

Indeed, according to Hatchuel (2000), it is not possible to separate knowledge from the relationship between stakeholders and other entities in the learning process. For Ostrom (1990, 1992), in the centre of collective action, the learning process is the practical implementation of knowledge, norms and rules.

## 2.3 INSTITUTIONAL MECHANISMS AND PUBLIC POLICY INSTRUMENTS FOR INNOVATION IN FAMILY FARMING

**Rural extension or technical assistance policies for family farming** have played a key role in the sharing of inputs and technology that have led to successes in the green revolution. According to Schumacher (1973) and Sachs (1980), in the 1970s various national centres for technical assistance and rural extension (ATER) in Latin America (Embrater, Brazil; INTA, Argentina; Guatemala, Peru, etc.), tried to evolve by adopting alternative technologies. However, dictatorships in these countries and the vested interests of suppliers quickly ended these attempts. From that period on, these centres, with exceptions often linked to agro-ecology (Argentina, Cuba, Brazil) or the use of the Internet (Uruguay and Chile), ceased to be truly innovative in their methods or to promote technological innovations for more sustainable development.

A 2014 study by Red PP-AL on family farming policies in Latin America and the Caribbean, which was published by ECLAC and IICA (Sabourin et al, 2015), shows progress in the area of credit and support for farmers' organizations with specific policy instruments for family farming. However, it also shows limited innovation in rural extension policies and instruments at the government level. The exceptions are mainly found in Uruguay with its CREA farming groups and digital education (Alzugaray et al, 2014), and Chile with its public agriculture program, INDAP, and digital technical support. It is also worth mentioning an initiative in Central America focused on providing public support for Farmer-to-Farmer (*Campesino a Campesino*) programs in Nicaragua, Costa Rica, Guatemala and Ecuador, and the proposed launch of an agro-ecological ATER in Brazil in 2013 (Petersen, 2006), which has been delayed by the fall of former President, Dilma Rousseff.

Alternative initiatives have come from civil society and, in particular, farmers' collectives that have shared ideas through agricultural innovation networks, such as the *Campesino a Campesino* experience in Central America, the Rural Family Schools in the Southern Cone and Brazil, and the Andean alternative technology groups in Bolivia, Peru, Ecuador and Colombia. Currently in Latin America, civil organizations, farmers' collectives and public institutes in Bolivia, Chile, Cuba and Uruguay are making progress in terms of knowledge sharing among farmers for the agro-ecological transition (Pra et al, 2016), although some setbacks in this process have been observed in Brazil, Argentina and Paraguay.

---

4 Desde los años 90 en la sociología de la innovación francesa (Callon, Latour, Akrich, etc) y americana (Actor Networks Theory - ANT con Law y Latour) o Teoría del Actor Red

### 2.3.1 POLICY INSTRUMENTS FOR MARKET ACCESS

Another area that has benefitted from policy innovation is public support for farmers' access to markets. There are three types of instruments, although it should be noted that these are embedded in the current liberalization of markets and are no longer implemented through structural support for agricultural chains or the regulation of prices that is now prohibited by WTO rules (unless used covertly by countries like the USA, Canada, Australia and the European Union).

***Support for organization or commercialization:*** this includes public procurement programs from family farming for public institutions (schools, hospitals, national parks), under Brazil's Food Purchase Program (PAA in Portuguese), which has been widely disseminated in the region with FAO's support.

***Support for separate market spaces for farmers:*** these include markets of producers in the Andean countries (Bazan and Sagasti, 2014), farmers markets in Argentina and Chile, agro-ecological markets in Brazil, and community initiatives in urban/peri-urban areas or other types of support to shorten supply chains or facilitate exports (Chambers of commerce for certain products, or productive linkages through small producers' associations in Chile and Colombia).

***Instruments for the certification of the quality, origin and processing of products.*** Currently, the majority of Latin American countries provide such instruments but Brazil stands out with important initiatives in the area of participatory certification and certification by social control organizations known as OCS (Pra et al, 2016).

### 2.3.2 THE NEW MIXED POLICIES FOR FAMILY FARMING OR "POLICY MIX"

Faced with a diversity of national, sub-regional and territorial situations, Red PP-AL's regional study (Sabourin et al, 2015) pointed out an existing mixture of public policy innovations. In this regard, the study recommends a "policy mix", which reflects the specific conditions of family farming in different countries, as an alternative to the agricultural modernization policies of the 1970s and 1980s, which were characterized by their homogeneity and lack of adaptation to local conditions.

Specifically, the study noted the coexistence of transversal policies (sustainable development, environment, regional development, food security, fight against poverty) and sector-specific policies, which are usually overseen by ministries other than the Ministry of Agriculture (for example, ministries of rural development, social development, family economy and solidarity, among others). This trend, although sometimes disturbing in terms of the segmentation of target populations, differs little from dual agricultural policies. In countries like Brazil, agri-business continues to be regulated by the "real" Ministry of Agriculture, while dealing with family agriculture, poverty and ethnic diversity, is entrusted to other ministries or secretariats, such as the former Ministry of Agrarian Development, with a lower allocation of resources and power.

Based on the historical development of agricultural policies in certain countries, this can be interpreted as a victory for social movements and alternative groups long marginalized or ignored. However, it may be a false victory since it can be a way of providing social protection for some producers, even as their economic marginalization continues, opening more space and productive and financial support for agribusiness.

Public policies concerned with family farming and land development have a dual purpose. On the one hand, policy instruments are used to strengthen the rural economy based on family labour, contributing to the development of territories where family farming produces a significant proportion of food and income, and is the basis for important value chains. In this way, territorial development programs, including the management of agro-ecosystems, sustainable management of biodiversity and natural resources, or adaptation to climate change help to improve conditions and prospects for family farmers.

But the role of family farming is not limited to agricultural production, but is closely associated with other economic activities, livelihoods and rural ways of life, as well as influencing social fabrics and cultural identities. Therefore, policies, processes and technical assistance initiatives are needed that address family farming and land development in an integrated way.

## 2.4 CHALLENGES OF INNOVATION SYSTEMS FOR SUSTAINABLE RURAL DEVELOPMENT

Results of studies in Brazil (Sabourin, 2008, 2010) show there are groups of farmers, who, aside from their main function of agricultural production, also engage freely (but for the improvement of their own production systems) in the management of common resources (biodiversity, water, pasture land, forests) through various initiatives (such as seed banks, shared pasture land, shared water resources and forest reserves). These actions (Mormont, 1996) are generally based on reciprocal relationships (mutual assistance, cooperation and shared resources), which have received broad support and recognition in negotiations with public authorities (Sabourin, 2009).

A recent study in Brazil's northeast and central-west<sup>5</sup>, looked at whether the characteristics mentioned above can be found in other production schemes for common goods managed by family farmers including groups of experimental farmers (Sabourin et al, 2004), training groups (Universidad Campesina, Escuelas Familiares Rurales) (Coudel et al, 2009), or even groups to facilitate market access. The analysis considered experiences that could be replicated or incorporated into new policies (Sabourin, 2009).

Three categories of factors that promote public policies for collective action by farmers were identified:

- I. Accumulated experience and capital are essential in these initiatives, whether through the work of existing organizations or policy instruments. This is especially the case in the management of shared resources, such as water supply, community seed banks, or rotary funds, by organizations of local producers. It is also important when there are different programs, as in the case of the Schools and Rural Family Homes program, which have benefited from international cooperation, churches and different levels and sectors of government (education, agriculture and social development).
- II. The second strategy is to build local institutions and strengthen human capital. This is the case of Brazil's alumni association of the Universidad Campesina of Cariri (Paraíba), Coopatec/Coopafi, and cooperatives of alumni of Unai technical school in the state of Minas Gerais (Sabourin, 2009). The mobilization of local or regional institutions also occurs through territorial forums (municipal or regional) and associated networks.
- III. Third is updating or creating more equal relationships. Peer-to-peer relationships can be built into collective actions for the sharing of resources. Equal relationships (face-to-face, trainee/educator or between students with different knowledge) are developed through social or collective learning processes, as in the case of the groups of experimental farmers (Coudel the, 2009).

Multi-institutional and international cooperation helps to extend reciprocal social relations through social networks, which can provide both individuals and organizations with greater autonomy and diversified sources of income and support, as in Nicaragua, El Salvador, Peru and Bolivia (Hocdé, 1997).

The successful experiences include cases of coordination at the level of the municipality or territory between educational organizations controlled by farmers and innovation initiatives (technical or institutional).

In terms of support of farmers' organizations for the generation of new skills, these must be formalized through contracts (Favareto, 2008). This can be achieved through public support in contractual negotiations, but in the majority of cases this alone is not sufficient.

In order to sign contracts, an organization needs to have a legal statute, which does not present limitations or excessive bureaucracy. Without the simplification and adaptation of these statutes, it is difficult to facilitate this form of coordination between public authorities and farmers' organizations.

### 2.4.1 THE NEED FOR A SYSTEMS INTERFACE MECHANISM

Reciprocal systems, which thrive within collectives, and the business exchange system in markets for goods, services and labour, need a systems interface mechanism.

The first possible mechanism depends on whether the collective or community maintain control of their rules and structures of reciprocity, such as mutual aid, minka, ayni, mutirão, shared management of resources, etc. (Temple, 2003). For example, in the commercialization of products, the control of the transaction by the producer is possible in the case of direct sales in their production unit or local market, or through networks of economic solidarity. Apart from the control of supply chains, direct sales through

<sup>5</sup> "Contribuição dos dispositivos coletivos dos agricultores familiares à renovação de instrumentos de políticas públicas de desenvolvimento rural" (UnB-Sol, CNPq, Cirad, Embrapa Cerrados - 2005-2008).

physical encounters between producers and consumers, create, in addition to a commercial relationship, a face-to-face relationship of reciprocity, which favours human relationships and generates values of respect, friendship and trust (Sabourin, 2012).

The second possibility depends on the existence of public policies or legislation that facilitate a systems interface mechanism (Temple, 2003). Firstly, the practices and relationships of reciprocity should not be destroyed only to promote the “development” of commercial exchange, which often happens through the state’s redistribution policies. One possibility, in this regard, is to protect territory-based reciprocal economic arrangements (or mixed) through public policies. This could be through production rights such as quotas, private markets, public procurement, etc., or by promoting processes of qualification and certification of quality or origin of products.

Reciprocal social relationships generate specific ethical and emotional values. However, these do not resolve everything and technical and institutional competencies are also needed with a suitable legal framework. This is essential, since together with fostering ethical and emotional values, they contribute to the restarting and reproduction of cycles of cooperation.

Systems interfaces constitute what Ploeg (2008) called conversion mechanisms: joint reciprocal/exchange mechanisms allow a conversion of meaning and values. However, the identification, experimentation, analysis and validation of exchange systems require research in real conditions over time.

## 2.5 CONCLUSIONS: WHAT ARE THE PUBLIC POLICY ALTERNATIVES?

For the State, supporting collectives based on reciprocity is an opportunity for the delegation of management and the production of public services or common goods through public policies (ECLAC, 2016). For organisations of family farmers and rural workers, this support is welcome to strengthen their efforts and capacity for autonomous action.

Such instruments may include various measures (legal, political, and territorial) and types of support (technical, pedagogical, organizational, institutional and economic) to guarantee the performance and management of farmers’ collectives. With these measures, it is possible to negotiate positive interfaces, overcoming existing blockages and paralysis between reciprocity systems and systems of commercial exchange or between collective action and public policy.

It is important not to associate farmers with a romantic idea of altruism: they accept these measures out of necessity for their own production systems. However, more than just boosting their production, they also take on functions of collective or public interest such as the conservation of forests and parks, biodiversity, water, recovery of pastures, food security, production and dissemination of technical information, etc.

In addition, these benefits depend on structures and social rules of proximity and reciprocity built over time. Maintaining or regaining those functions means contributing to the modernization of economic and social structures of reciprocity and redistribution (mutual support, shared management of resources, passing on traditions and knowledge), as well as favouring the generation of values produced by equal or balanced reciprocal relationships. Those values of solidarity, equality, justice and responsibility are not culturally or socially created, but are rather produced by relations of reciprocity (Temple, 2003) between farmers and local stakeholders, whose social status and respect depends, in turn, on these values.

Even so, the voluntary nature of these functions can speed up their disappearance. The commodification of practices can lead to a breakdown of social and economic structures of reciprocity and shared management, transforming the nature of their rules and values. In this regard, efforts to recover farmers’ cultural and technical traditions, or even bringing their knowledge into conflict with technical and scientific knowledge, constitute valuable support, as in the case of the Universidad Campesina, rural family schools and the experimental farmers of the *Campesino a Campesino* program in Central America. A strategy of this kind, which takes into account the multi-functionality of agriculture in rural areas based on collectives, has several advantages for countries of the South. This strategy, based on the interaction between reciprocity and commercial exchange, offers a theory for the notion of multi-functionality as a “suitcase concept” (which has room for everything), as well as “sustainable development”.



One advantage of this strategy is its lower cost in terms of public resources, since it essentially involves supporting pre-existing multi-functional practices. Secondly, public support or recognition helps to avoid the disappearance of these practices, preserving economic structures of sharing, mutual support and redistribution in line with shared values of responsibility, trust and justice.

In the cases studied, it is rare that public support is transformed into individual compensation for farmers for services performed free of charge in the past, except in the case of payment for environmental services by private or public programs, which continues to be controversial (Sabourin 2013, Karsenty, 2013). Remuneration, if it exists, must be for farmers' collectives, strengthening their functioning and reproduction.

Conversely, programs that support the multi-functionality of agriculture based on individual remuneration for services associated with production tend to commoditize services that ensure the maintenance of universal human values (Sabourin, 2008; 2012). Changing the free and voluntary nature of these functions can accelerate their disappearance (in particular when compensation of this type is no longer guaranteed), or lead to a breakdown of the structures of reciprocity that support them by undermining their rules and values.

## REFERENCES

**AKRICH M, CALLON M, LATOUR B.** *À quoi tient le succès des innovations. Deuxième épisode: l'art de choisir les bons porte-parole.* Annales des Mines, 1988: 14-29.

**ALTER N.** *L'innovation ordinaire*, Paris: PUF, 2000, 278p

**ALZUGARAY S.; GOÑI, M.; MEDEROS L.; ROBAINA S.** *Políticas de conocimiento para un desarrollo inclusivo: Aprendizajes desde Uruguay* in Dutrénit G.; Sutz J. (eds) *Sistemas de innovación para un desarrollo inclusivo: La experiencia latinoamericana* México, Foro Consultivo Científico y Tecnológico, 2014 pp 181-200.

**BAZÁN M.; SAGASTI, F.** *Perú: avances y desafíos de los sistemas de innovación para el desarrollo inclusivo*, in in Dutrénit G.; Sutz J. (eds) *Sistemas de innovación para un desarrollo inclusivo: La experiencia latinoamericana* México, Foro Consultivo Científico y Tecnológico, 2014 pp 155-180.

**CALLON, M.** *Eléments pour une sociologie de la traduction: la domestication des coquilles Saint-Jacques et des marins pêcheurs dans la baie de Saint-Brieuc.* L'Année Sociologique. n° 36. 1986: p.169-208.

**CALLON, M.** *Réseaux technico-économiques et irréversibilités* in. Boyer, B., Chavance, B. Godard, O.(ed) *Les figures de l'irréversibilité en économie.* Paris: EHESS, 1991, p.195-232

**COMISIÓN ECONÓMICA PARA AMÉRICA LATINA Y EL CARIBE (CEPAL),** *Horizontes 2030: la igualdad en el centro del desarrollo sostenible (LC/G.2660/Rev.1)*, Santiago, 2016.

**COUDEL, E; SABOURIN, E.; TONNEAU, J.P.,** *Dynamiques et apprentissages d'une première expérience de construction d'une Université Paysanne au Brésil* in *Concevoir et construire la décision*, E de Turckheim, B Hubert, A Messéan (eds) Versaille, Quae, 2009.

**CLUB DE ROMA,** *Meadows, D.H.; Meadows, D.L.; Randers, J; Behrens, W. (1972) Los Límites del crecimiento: informe al Club de Roma sobre el predicamento de la humanidad*, Roma, Fondo de Cultura Económica, 01/01/1972 - 255 páginas

**DARRÉ J.P.** *La production de connaissances dans les groupes locaux des agriculteurs*, Agriscope, n° 7, 1986, p.24-35

**DUTRÉNIT G.; SUTZ J.** (eds) *Sistemas de innovación para un desarrollo inclusivo: La experiencia latinoamericana* México, Foro Consultivo Científico y Tecnológico, A.C. Edward Elgar Publishing AG 2014

**FAVARETO A.** *Três instantâneos sobre a gestão social do desenvolvimento territorial nos anos 2000 – apontamentos para um balanço* in III° Fórum Internacional de Desenvolvimento Territorial, Fortaleza-CE, 5 -7 de novembro de 2008.

**FLICHY, P.** *L'innovation technique. Récents développements en sciences sociales. Vers une nouvelle théorie de l'innovation.* Paris: la Découverte, 1995, 251p

**GEORGESCU-ROEGEN, N. (1971)** *The Entropy Law and the Economic Process*, Cambridge, MA: Harvard, University Press

**GEORGESCU-ROEGEN, N. (1978).** « *De la science économique à la bioéconomie* ». *Revue d'économie politique*, vol.88, n°3, Mai-juin, p.337-382. In MissemerA., (2013). Nicholas Georgescu-Roegen, pour une révolution bioéconomique. Lyon, ENS Éditions, Feuillet Économie politique moderne, 136p.

**GONDARD P.** *L'innovation agraire en PVD: concept et méthodes d'observation.* In *l'innovation en milieu rural*, doc LEA 1. Montpellier: Orstom, 1991, p. 5-11

**HATCHUEL, A.** *Apprentissages collectifs et activités de conception.* *Revue Française de gestion*, Juin-août 1994, pp 109-120.

**HATCHUEL, A.** *Quel horizon pour les sciences de gestion ? Vers une théorie de l'action collective.* In: *Les nouvelles fondations des sciences de gestion.* A. David, A. Hatchuel, R. Laufer. Paris: Vuibert FNEGE, 2000, p.7-43.

**HOCDE, H.** *No quiero plata, Quiero conocimientos, no equivocarse de planteamiento!* San José, Costa Rica: IICA-PRIAG, série estratégica, Documento 22, 1997, p55

**ILLITCH IVAN** *La Convivialité*, Paris, Seuil, 1973 (Tools for conviviality, New York, Harper & Row)

**KARSENTI, A.** *De la nature des « paiements pour services environnementaux* in *La Revue du MAUSS semestrielle*, n° 42, 260-267, 2013 «Que donne la nature?l'écologie par le don

**LATOUR B.** *La science en action*. Paris: La Découverte. 1989.

**LATOUR B.; L LAW** «Where are the missing masses? The sociology of a few mundane artifacts», in Bijker, Wiebe E.; Law, John, *Shaping technology/building society: studies in sociotechnical change*, Cambridge, Massachusetts: MIT Press, 1992, pp.225–258

**MORMONT M.** *Agriculture et environnement: pour une sociologie des dispositifs*, Economie Rurale, 1996, 236: 28-36.

**OSTROM E** *Governing the Commons: The Evolution of Institutions for Collective Action*. New York: Cambridge University Press. 1990,

**OSTROM E** *Crafting Institutions for self-governing irrigation systems*, San Francisco, ICS Pres, Institute for Contemporary Studies, 1992, 111p.

**OSTROM E 2003.** *Toward a Behavioral Theory Linking Trust, Reciprocity and Reputation in E. Ostrom & Walker (ed.) Trust and Reciprocity: Interdisciplinary Lessons for Experimental Research*, New York: Russell Sage Foundation, pp 19-78, 2003, Chapter 2

**PETERSEN, P.** *Agroecologia em rede: fonte de inspirações para a inovação local*, in *Agriculturas, experiências em agroecologia*, vol. 3, n° 2, 2006, p. 30-33

**PLOEG J.D. VAN DER** *The New peasantries: struggles for autonomy and sustainability in an era of Empire and Globalization*. London, Sterling, Earthscan, 2008, 356p.

**PRA, M.; SABOURIN E.; PETERSEN P., SILVEIRA L.M. DA, 2016,** *Lógicas e estratégias de comercialização na agricultura familiar do Agreste da Paraíba in Estudos Sociedade e Agricultura*, Vol. 24 (1) 2016, UFRJ, Rio de Janeiro

**SABOURIN, E.** *Ressources communes et multifonctionnalité au Nordeste du Brésil*, in *Groupe Polanyi (ed), La multifonctionnalité de l'agriculture: une dialectique entre marché et identité*, Versailles, Quae Editions, 2008. 360p.

**SABOURIN, E.** *Camponeses do Brasil: entre troca mercantil e reciprocidade*, Rio de Janeiro, Garamond, 2009, 410p

**SABOURIN, E.** *Campe sinos, mercados y políticas públicas: una lectura por la reciprocidad*. Lima: Fondo Editorial-UARM, 2012, 519 p. (Serie Ética y Desarrollo).

**SABOURIN, E.** *La réciprocité homme/nature et les dérives de son abandons* in *La Revue du MAUSS semestrielle*, n° 42, pp247-260, 2013 «Que donne la nature? l'écologie par le don

**SABOURIN, E., SIDERSKY, P., SILVEIRA L.** *Farmer experimentation in north-east Brazil: The story of a partnership between smallholders' organisations and an NGO seeking to enhance agricultural innovation in the Agreste region of Paraíba State*. in: *Advancing Participatory Technology Development* La Haye: ACP-EU,CTA, 2004, p.191-207

**SABOURIN, E; SAMPER, M., SOTOMAYOR, O. (EDS) 2015.** *Políticas públicas y agriculturas familiares en América Latina y el Caribe: nuevas perspectivas*. San José, C.R. IICA, 380p. <http://www.iica.int/es/content/pol%C3%ADticas-y-agriculturas-familiares-en-am%C3%A9rica-latina-y-el-caribe>

**SACHS, I.** *Stratégies de l'écodéveloppement*, Paris, Éd. ouvrières & Éd. Économie et Humanisme. 1980

**SANTOS, B. DE SOUSA,** *A difícil democracia*, São Paulo, Boitempo, 2016.

**SCHUMACHER, E. F** *Small Is Beautiful: A Study of Economics As If People Mattered*, Blond & Briggs Ltd., London, 1973

**SCHUMACHER, E. F.;** *Small Is Beautiful: Economics as If People Mattered: 25 Years Later...With Commentaries* (1999). Hartley & Marks Publishers

**SCHUMPETER J.A.** *La théorie de l'évolution économique*. Paris: DALLOZ, 1935, 586p

**TEMPLE D., 2003.** *Teoria de la Reciprocidad*, Tomo I: La reciprocidad y el nacimiento de los valores huMANOS. 240P TOMO II: LA ECONOMÍA DE RECIPROCIDAD, PP. 376-392, PADEP-GTZ, LA PAZ.

**VARIOS AUTORES** *Manifesto Convivialista: declaração de interdependência*, São Paulo, Editora Annablume, 60p, 2016



## CHAPTER II: INSTITUTIONAL INNOVATION





## 3. SOCIO-PRODUCTIVE AND INSTITUTIONAL INNOVATION

Ana Paula de la O Campos and Benjamín Davis (FAO)<sup>6</sup>

### 3.1 INTRODUCTION

The aim of this document is to present the challenges facing the region in terms of poverty reduction in rural areas, as well as to discuss the progress made in terms of social protection and socio-productive innovations that promote the integration of social policies with productive and financial support.

Given that socio-productive innovation requires greater coordination between different sectors, the need for innovation at the institutional level and the challenges associated with this inter-institutional, multi-sectorial and territorial approach are also discussed.

Although Latin American and Caribbean countries face great challenges, these can be seen as opportunities for integrated rural development. One such opportunity is the urban population's growing demand for food of higher quality and nutritional value, which could generate employment opportunities for poor rural households along the agri-food chain.

In addition, climate change presents major challenges that can be turned into opportunities for economic growth for vulnerable populations, especially if these groups are seen as the *guardians* of natural resources and innovative actors in sustainable development. It is clear that facing these challenges requires innovation beyond traditional sectorial policies of agricultural promotion and conditional cash transfer systems.

#### 3.1.1 CONTEXT

Since 1990, Latin America and the Caribbean has made significant progress in the reduction of poverty and extreme poverty, reducing almost by half the number of poor (according to the World Bank, 2017, measured by income/ daily consumption of US\$3.10) and by more than half the number of extreme poor (US\$1.90 per day)<sup>7</sup>. The main factors that have made this progress possible have been economic growth, with improvements in the minimum wage<sup>8</sup>, and the expansion of the contributory and non-contributory social safety net<sup>9</sup>.

Even so, the challenge of eradicating extreme poverty, which is the number one goal of the Sustainable Development Goals (SDGs), is far from over. There are still approximately 33.6 million people living in extreme poverty in the region and 70.5 million in poverty (extreme and moderate poverty). Although the trend continues downward, the poverty reduction rate has slowed in recent years with low sustainability since a high proportion of "non-poor" (200 million) in the region are vulnerable to falling back into poverty (Birdsall et al., 2013). Part of the reduction in rural poverty has also been due to migration to cities or other countries (de Janvry and Sadoulet, 2000).

Currently, the region is still one of the most unequal in terms of income and individual wealth. The Gini coefficient, which measures the degree that income distribution deviates from a perfectly equal distribution, continues to be very high according to recent data. For example, middle-income countries, such as Brazil, Chile, Colombia, Costa Rica, Honduras, Mexico and Panama, are among the most unequal countries in the world, with a Gini index above or about 0.5 (BM, 2016).

Inequalities can also be seen at the sub-regional level, with Central America, the Andean region, southern Mexico and Brazil's northeast being the regions with the highest levels of poverty. These are in addition to the inequalities observed between rural and urban areas, men and women, and social classes within ethnic groups. More than 50% of the extreme poor live in rural areas.

---

6 With contributions from Arnaldo de Campos (FAO), Ignacia Fernández (Rimisp) and Akos Szebeni (FAO)

7 The proportion of poor in the total population fell from 29.5% to 11.3%, and those in extreme poverty from 15.8% to 5.4% between 1990 and 2013 (World Bank Poverty and Equity Database, 2017).

8 Contributions for a new understanding of innovation for sustainable rural development

9 According to the ASPIRE database of the World Bank, the coverage of social protection in the region already includes 62.3% of the poorest quintile of the population.

### 3.1.2 INNOVATION REQUIRES A BETTER UNDERSTANDING OF THE POOR IN RURAL AREAS

To achieve synergies between economic and social policies, a better understanding of poor rural households, family members and their livelihoods is needed.

Although the region is well advanced in the process of structural transformation - only between 10% and 35% of the economically active population (EAP) is in the agricultural sector – and income diversification has increased, the poorest population in rural areas remains largely engaged in subsistence agricultural activities. In this regard, we can categorize poor rural households according to the following types:

- First, there are those engaged in *family farming in transition*, which have the potential to exit poverty through agriculture but do not generate enough income to do so. They face numerous barriers in making the transition to commercial agricultural activities (access to land, credit, insurance, economies of scale and associations, etc.). These homes usually have other sources of income to supplement their consumption needs.
- Then there are the households engaged in *subsistence family farming*, where agriculture is unlikely to serve as a sustainable way out of poverty. However, in these households the role of agriculture can take on a different character by acting as a social safety net and as a provider of food that contributes to the food security of family members. These homes depend on other sources of income apart from agriculture as well as social protection.
- Finally, there are *poor households without access to resources* (land and other natural resources), which depend mainly on informal and low-paid wage labour or self-employment activities, often in inadequate conditions.

For poor rural households, there is only one way out of poverty. In general terms, it is through income diversification - combining agricultural activities with other activities by one or more members of the household including self-employment, subsidies, wage labour or migration.

But this path is conditioned by many factors within households, such as gender, age and ethnicity, as well as factors affecting the economic development of the territory where they are located. These include economic dynamism, climatic characteristics, especially in areas prone to disasters, different levels of structural and rural transformation, and access to resources, services, technology, information and infrastructure. In addition, the local institutional framework, political economy and the existence of political or armed conflicts may affect them.

### 3.1.3. A THEORY OF CHANGE TO OVERCOME RURAL POVERTY

Given the heterogeneity of poor rural households, a broad, multi-sectorial policy is clearly needed to reduce rural poverty that considers different types of households and the characteristics of specific territories. Public policy plays a fundamental role in facilitating this process, but it is not neutral. Development policies should explicitly favour the poor, their organizations and systems of production (agriculture and agri-food chains), as well as sources of income.

In this regard, specific policies are required for populations with particular vulnerabilities such as indigenous peoples, women, youth and the elderly. The current context calls for policies that facilitate the management of increasing climate risks and individual risks to mitigate the uncertainty of processes of structural transformation.

A broad rural poverty reduction program includes the following elements, which would not be enough if implemented individually:

- Economic growth and inclusive structural transformation, through which investments generate employment in sectors and territories where the poor may also benefit.
- Increase of productivity in poor rural households - increasing access to natural resources (land, water, forests) as well as inputs and other assets - to improve their capacity to manage risks and increase their productivity, linking small-scale agricultural markets to agri-food systems.
- Expansion of social protection systems in rural areas and stronger coordination with other rural development and natural resources sustainable management programs.
- Creation and improvement of rural infrastructure, especially in energy, transportation, water and sanitation.

- Facilitation of decent employment creation in the agriculture and non-agricultural rural economy, both in terms of self-employment and wage employment.
- Generation of human capital through access to social services (health and education).
- Strengthening of rural institutions and local governments to encourage their participation in policy dialogue and decision making, which requires promoting professional qualifications.
- Empowerment of the rural poor by boosting their organizational capacity to promote political participation so they can benefit from the processes of development and economic growth.

Finally, the fight against poverty through financial inclusion and socio-productive innovation is based on certain assumptions. First, that the majority of the rural poor have insufficiently exploited economic potential. Second, that the barriers preventing the realization of this potential must be overcome. And, third, that coordination and integration between social policies and productive development must be improved. The following section describes some examples of these challenges.

## 3.2 EXPERIENCES IN SOCIO-PRODUCTIVE AND INSTITUTIONAL INNOVATION

To solve problems as complex as poverty and vulnerability, which have multiple causes and manifestations, it is necessary to innovate in different areas. Some examples of this process in the region include:

- The new relationship between the State and citizens, which has improved in recent years.
- Opportunities for coordination between public and private investment at the level of underdeveloped territories, communities, individuals and households.
- Recognition of the need to move from technical innovation in agriculture and conditional cash transfer programs to an integrated and systemic approach.

Innovation in agri-food systems can be an engine for agricultural development in rural areas by promoting synergies between social protection, sustainable rural development and financial inclusion programs, and through the strengthening of local institutions involved in multi-sectorial planning and coordination in the implementation of innovative initiatives.

The search for answers continues to focus on rural territorial development, which is defined by Rimisp as “the process of productive and institutional transformation in a given rural area, which aims to reduce rural poverty. This productive transformation is intended to improve the competitiveness and sustainability of the territory’s economy to facilitate its integration with markets. Institutional development aims to encourage and facilitate the interaction and coordination of local actors both between themselves and with external entities, while increasing opportunities for the rural poor to participate in these processes and benefit from them” (Schejtman and Berdegué 2004).

### 3.2.1. SOCIAL PROTECTION AND PRODUCTIVE INCLUSION

Latin America and the Caribbean is a global reference for the development of social policies, with various innovations in policy design, targeting, scale and legal frameworks. Social development continues to be a priority for many countries - most of them have developed productive inclusion and social protection policies and have fostered the exchange of experiences.

Social protection, through direct income support, not only reduces poverty, food insecurity and hunger, but also promotes the development of human capital. Governments can also use it as an instrument to act quickly in times of crisis (natural disasters or economic crises). However, experiences in different countries show that social protection is more than a simple social safety net, since it can also contribute to productive inclusion, stimulating local economic development and promoting the sustainable management of natural resources.

Social protection is the starting point to locate the poorest population in rural areas. Most of the beneficiaries of social security in rural areas (including credit instruments, insurance, savings, inputs, etc.) are self-employed or work in agricultural and non-agricultural activities in a context where markets are either non-existent or do not function efficiently. Evidence from the region (and others such as Sub-Saharan Africa) shows that long-term programs, such as cash transfers, lead to increased investment in productive activities, including both agricultural and non-agricultural activities, while also increasing productivity and output, since they can function as a source of liquidity or insurance.

But the impact of social protection is limited. The experiences in the region show that social protection, in itself, is not sufficient to lift people out of poverty or address all structural inefficiencies. Increasingly, countries are seeking to complement social protection programs, or place them within a wider context of rural development. For example:

- In Peru, the *Incluir para crecer* (Inclusion for growth) program seeks to link the cash transfers program, *Juntos*, with complementary interventions in productive development (the *Haku Wiñay* program), as well as with social services, and public goods and services (FONIE).
- In Mexico, the *Productive Territories* program seeks to contribute to reducing the rural population in extreme poverty, including beneficiaries of the conditional cash transfer program *Prospera*, by way of increasing their productivity, output and income<sup>10</sup>.

In this regard, current opinion is moving toward a broader strategy of social protection and complementary actions linked with interventions that consider food security and the promotion of productive inclusion.

Some tools for productive inclusion include:

- Social protection policies, including cash transfers, and synergies with efforts to ensure personal identification, and access to energy, water and education.
- Technical assistance and rural extension (TARE), as well as funds for small investments linked to TARE.
- Financial rural inclusion, including micro-credit, aimed at the small farmer or formal credit lines targeted to family farming.
- Public procurement and links with the private sector
- Professional qualifications.
- Agricultural and non-agricultural investments at the territorial level for the generation of employment.
- Databases and information accessible to stakeholders at different levels, including ministries, development agencies, beneficiaries, etc.

### 3.2.2 FINANCIAL INCLUSION

Informal financial services still play a dominant role in rural areas of the region. Financial inclusion is seen as a way to solve this problem through innovations that link financial services with social protection programs. For example, when the beneficiaries of cash transfer programs receive transfers through the formal financial system (savings/debit cards), programs such as Fundación Capital seek to raise the financial literacy of beneficiaries so they can save and benefit from banks' other financial products.

Financial inclusion can occur in several ways:

- The use of a certain financial product (e.g. debit cards) as a tool for social protection programs.
- Specific financial products and services to strengthen the benefits of social protection.
- The integration of financial inclusion and social protection programs through common operating frameworks for the promotion of sustainable rural livelihoods.

---

<sup>10</sup> The program aims to achieve this objective through four pillars: increasing the productivity of existing assets, increasing revenues through agricultural and non-agricultural economic activities, increasing food production, and improving access to public policies and programs.



As an example, **BanEcuador**, a state-owned development bank in Ecuador, has promoted a social management strategy with a gender-based, generational and territorial focus. As part of this strategy, financial products have been created for the rural poor such as *Credisemilla*, which takes advantage of the cash transfer program *Bono de Desarrollo Humano*, to offer microcredit to women. BanEcuador also acts as a second floor bank, delegating the management of microcredit to community banks and cooperatives.

### 3.2.3 EMPOWERING THE RURAL POPULATION AND INSTITUTIONS

The empowerment of the rural population can occur at different levels and for different purposes. These may include the empowerment of women, or young people in the household, in order to promote their capacity for economic decision-making and access to productive resources of the household or family.

The second level is the strengthening of rural organizations, increasing their organizational capacity, for both productive and social purposes. By strengthening and empowering these institutions, the most vulnerable can improve their bargaining power and gain access to policymakers and markets.

Finally, it is necessary to promote dialogue between local institutions (groups of agricultural producers, women, young people, etc.) and local and national authorities. Helping these institutions to improve their participation in local decision-making processes means they can influence the design of national policies that affect their livelihoods.

Programs like the “Forest-Farm Facility” (FFF), which is present in Central America and other parts of the world, allow organizations of producers, family farmers and cooperatives to become agents of development and rural transformation. The FFF creates opportunities for income generation and facilitates access to natural resources and their sustainable management, as well as promoting access to credit and markets, and exchanges between producers at the global level.

### 3.2.4 PROMOTING THE CREATION OF DECENT EMPLOYMENT AT THE TERRITORIAL LEVEL

In order for rural poverty reduction efforts to be sustainable, public policies should promote economic diversification, non-agricultural employment, and investment in human capital. Providing decent employment for young people is a challenge: in the region, about 30.9 million young people aged 15-29 live in rural areas, accounting for 25.3% of the rural population, and most are women (Dirven, 2016).

To meet this challenge, policies, strategies and programs are needed to promote the creation of decent employment for the rural population, especially young people and women, in agricultural and non-agricultural activities. It is also important to take advantage of the increasing modernization of agri-food chains and the growth of small towns, while applying international labour standards in rural areas, such as the elimination of discrimination, the promotion of occupational health and safety standards, and the prevention of child labour.

### 3.2.5 REALIZING THE POTENTIAL OF RURAL WOMEN

Women play a crucial role in rural economies but face gender barriers, particularly in access to productive resources, services, economic opportunities and decision-making. These barriers prevent them from fully achieving their potential, thereby weakening the agricultural sector and undermining rural development.

Actions to support women in rural areas are based on the principle of equal opportunity. Helping women in agriculture and rural development to realize their potential requires the elimination of gender barriers in access to services, technologies, markets, social protection and productive resources.

In addition, gender-based discrimination in legal frameworks that impede women’s access to land must be eliminated as access to resources, such as land, gives women access to other agricultural services and benefits.

### 3.2.6 FUTURE CHALLENGES

The agenda of rural development and poverty alleviation faces important challenges.

First, it is necessary to change organizational paradigms, organizational cultures, and the organization of the public sector in general.

Second, integrated capacity building is required to improve the performance of multi-sectoral management initiatives<sup>11</sup>

Third, inter-institutional coordination efforts can face several challenges due to the internal structures of individual institutions (budgets, targeting, coverage)<sup>12</sup>.

Finally, it is necessary to resist standardized solutions and instead adapt to the particular context of each country or territory (low-income countries, mainly agricultural, middle-income countries with high inequality, countries with areas of conflict, etc.).

---

<sup>11</sup> This includes building evaluation capacity related to issues such as food security, poverty, rural development, climate change, rural and urban productive inclusion, while linking different levels of government and civil participation, in order to improve the impact of these initiatives at the territorial level, as well as their impact on issues such as gender equality, youth and the elderly, and indigenous peoples.

<sup>12</sup> For example, budgetary restrictions (different ministries/services with their own budgets), different focuses (territory vs. household /individual), and programs with different scales of coverage and different target populations, depending on educational or cultural level, or because beneficiaries of a certain program (e.g. of the TMC) not may not be ready for productive programs.

## REFERENCES

**WORLD BANK.** *Poverty and Equity database*, accessed 2/02/2017.

**WORLD BANK.** *ASPIRE database*, accessed 2/02/2017.

**BIRDSALL, N., LUSTIG, N. Y MEYER, C. J. 2013.** The Strugglers: The New Poor in Latin America? Center for Global Development, Working Paper 337, Agosto 2013 (revisado 9 de Septiembre, 2013). Washington DC.

**DE JANVRY, A. Y SADOULET, E. 2000.** *Rural Poverty in Latin America: Determinants and Exit Paths*. Food Policy, 25 (4), pp. 389-409.

**DIRVEN, MARTINE. 2016.** *Juventud Rural y Empleo Decente en América Latina*. FAO RLC, Santiago.

**SCHEJTMAN, A. Y J. A. BERDEGUÉ. 2004.** *Desarrollo Territorial Rural*. Rimisp: Santiago de Chile.

## 4. DYNAMICS OF INSTITUTIONAL INNOVATION FOR SOCIO-PRODUCTIVE INCLUSION

*M. Ignacia Fernández<sup>13</sup>*

### 4.1 BACKGROUND

Given the socio-economic problems currently facing many countries of the region, there is clearly a need for public policy innovation in many areas. The problems today are more complex than in previous decades, the causes are many, and social movements more specific and complex. To address these problems, a different relationship between the State and citizens is needed based on the understanding that those affected by public policies are not just beneficiaries, but individuals and communities able to question and react to policies that take time to adapt and respond to social changes.

Clearly, traditional policies such as conditional cash transfer programs are no longer yielding the expected results. Just as today there is the need for a closer link between social and economic policies, which have for a long time taken separate paths, there is also a need for greater coordination between territorial interventions and interventions focused only on households or individuals. In this regard, a more integrated view of today's social problems is required.

Today, the design of territorial policies is far removed from most public policies in rural areas, which tend to be focused on specific population groups such as rural households with certain needs, poor households or family members including youth with incomplete schooling or women heads of households. These policies are often decontextualized from the places where people live and work. While there have been efforts to intervene in certain territorial dynamics, these are not usually linked to the public policies implemented in these territories.

#### 4.1.1 REASONING

The situation mentioned above raises various questions: How is it possible to coordinate social and productive policies? How can territorial interventions be effectively integrated with interventions related to individuals, households and communities?

There are different reasons why greater policy coordination is needed. Here are some of them:

- Conditional cash transfer (CCT) programs, which were considered innovative, are today viewed as traditional social protection policies. Although they have contributed to improving nutritional deficiencies and opportunities of access to education, as well as other issues that are well documented, they have not been able to ensure a sustainable exit from poverty.
- There is very little evidence of the impact of these programs in terms of income generation that allows a permanent exit from poverty once cash transfers or other State support is withdrawn.
- The assumption is that these programs generate the basic conditions in terms of human capital and then other structural reforms allow access to more opportunities, but this does not tend to happen.
- In reality, there is a series of interventions designed specifically to help this population in extreme poverty, which fails to connect with the structure of opportunities in society as a whole. As a result, these groups are not able to achieve self-employment or higher income, which would allow them to permanently exit poverty.
- CCTs have helped to create the basic conditions for these populations to develop, but it is not so evident that they help create soft skills, such as self-esteem or social capital, which would allow this population greater access to public programs for productive inclusion, either in terms of access to paid employment or self-employment. This is partly due to the lack of policy coordination.

How can policy coordination lead to change, not only in productive programs but also in the role and objectives of cash transfer programs in terms of teaching these basic skills to the target population?

The answer relates not only to individuals. The integration of conditional cash transfer programs with other productive programs may have, for example, an important multiplier effect on local markets, both in terms of income, the strengthening of communities and empowerment of local actors.

<sup>13</sup> Executive Director in Rimisp



#### 4.1.2 EXPERIENCES

The Latin American Centre for Rural Development (Rimisp) has decided to support and study specific examples of coordination between social and productive development policies, which has led to the following lessons and reflections.

First, Rimisp worked closely with the Mexican government and the Secretariat of Social Development (Sedesol) on the design of the **Productive Territories** program. In addition, Rimisp was in charge of the institutional component of a study led by Colombia's Universidad de Los Andes, with the support of IFAD, on synergies between rural development and conditional cash transfer programs.

Three main conclusions can be drawn from these two cases:

1. The economic and productive potential of the majority of the rural population is insufficiently realized.
2. The realization of this potential in rural communities faces barriers associated with the provision of productive assets, access to financing, technology, economies of scale and markets, which limit the productivity, production and incomes of the rural poor.
3. The lack of coordination between social and productive development policies has contributed to their failure to effectively reduce these barriers.

Conditional cash transfer programs aim to develop a range of skills in the next generation, but they do not help members of the current generation to develop their own potential, which means they must be subsidized with cash transfers.

It is important to highlight that the rural population in poverty has significant productive potential, which existing development policies are not able to adequately harness as they were designed according to a different logic.

Addressing this lack of coordination and integration goes beyond sitting down together to focus on the same population, and has to do with shared goals, shared purposes and the willingness to change in two main areas: productive development and social policies.

## 4.2 AREAS OF OPPORTUNITY FOR COORDINATION

Public policy coordination efforts can be classified according to these three types:

- First, there is the most common case of different and independent programs implemented by different institutions, which target the same population. When this occurs, whether by coincidence, design or lack of organization, the same population benefits from both programs.
- Second, there is the case of programs implemented by a single institution, which are designed to be complementary and form part of an integrated strategy.
- Third, there is the case of policy coordination efforts between different programs, with complementary objectives, which are managed by different institutions.

An example of the second is Peru's *Haku Wiñay* program, which is part of the strategy *Incluir para crecer* (Inclusion for growth) of the Ministry of Development and Social Inclusion, and showed very good results in terms of income in a recent impact assessment study. The policy design behind the program was driven by then-Minister Carolina Trivelli, who promoted the creation of a productive development program within the Ministry given the difficulties in coordinating with programs in other areas. In this regard, *Haku Wiñay* is designed to complement the conditional cash transfer program, *Juntos* (Together), in certain territories selected through special criteria.

Peru's development fund, FONCODES<sup>14</sup>, initially provided the institutional conditions to fund the *Haku Wiñay* pilot program, and has expanded its support for the program in terms of productive development.

An example of the third type is Mexico's Productive Territories program. This is a pilot program that aims to help reduce extreme poverty among beneficiaries of Latin America's largest conditional cash transfer program, *Oportunidades* (Opportunities), which has been renamed *Prospera* (Prosper). Unlike the previous

---

14 Fondo de Cooperación para el Desarrollo Social

case in Peru, which was developed by a single ministry, here the program relied on inter-ministerial coordination as part of the government's national development strategy. This means there was enough political will to bring together the productive resources from around 30 different programs in various ministries, primarily the Ministry of Agriculture.

Social participation and organization is an important component of the program's design in order to develop organizational capabilities in communities to help them access productive resources. Productive Territories then proposes solutions for these community organizations with a territorial focus and through coordination with other programs.

The lessons of the first phase of the pilot program show that the main difficulty is coordination between Productive Territories and existing programs. Coordination with Sedesol's services was effective, but this was not the case in other ministries. Despite political will - the pilot was launched under the framework of the *Cruzada Nacional contra el hambre* (National crusade against hunger), which helped President Peña Nieto win the presidency - and the Ministry's support to facilitate cooperation, it has been a very complex process.

To analyze these **policy coordination difficulties**, it is important to understand that there are a number of challenges to consider relating to the type of intervention by social and productive development programs:

- Targeting criteria: In general, productive development programs have a territorial focus, while cash transfer programs focus on households.

The coordination seen in Peru, which included working in towns with a high concentration of beneficiaries of the *Juntos* program, as well as supporting those that are not beneficiaries of the program, could not be replicated in Mexico because the *Prospera* program cannot legally give resources to people who are not beneficiaries of the program.

- Scale: The scope of social and productive development interventions is completely different. Increasing the scale of conditional transfer programs is not necessary, as they tend to be large with a relatively efficient management system that allows modest human resources to deliver cash transfers to a large population. This contrasts with productive development programs, which require very personalized technical assistance and support.

- Target population: The beneficiary population of conditional transfers, i.e. the population in extreme poverty, often does not have the skills or the basic conditions to access productive resources.

- Competitive grants: Many productive projects compete for grants, but there is a large population that is unable to participate in these competitions because they lack basic conditions, such as digital access.

A good example of these difficulties is the case of Chile Solidario's *Puente* program. This was designed as a psychosocial program, which sought to empower households in extreme poverty to enable family members to access productive development, employment and education programs, among others.

However, since this was not possible, at least in terms of achieving productive inclusion, a fund was created under the Ministry of Social Development (former MIDEPLAN), FOSIS<sup>15</sup>, to provide public resources in parallel to programs in the Ministry of Economy and Ministry of Agriculture. Today, the productive services offered by SERCOTEC, INDAP and FOSIS, are practically the same, with the same objectives and social components, but aimed at different target populations. What does this mean? The number of services has doubled, but target populations only receive short-term solutions because those in extreme poverty cannot make the jump to access permanent social programs. These services also keep target groups disconnected from the regular structure of social opportunities that exist for the rest of the population, as they remain stuck in their "shell" created by State support and cash transfers.

This analysis ends not with any answers, but rather with a reflection: while the ad hoc design of programs within social development institutions, as in the case of Haku Wiñay, solves the problems of policy coordination often seen in States and has produced relatively good results, this creates bureaucratic difficulties such as the duplication of services and intra-institutional envy. But an even more critical issue is to ask whether the solutions provided by these programs modify the structure of opportunities for the poorest households in such way that they can meet their material needs autonomously and sustainably.

## 5. TECHNOLOGICAL INNOVATION FROM A TERRITORIAL PERSPECTIVE: CHALLENGES OF BUILDING LINKAGES BETWEEN AGRICULTURAL RESEARCH AND RURAL EXTENSION

Marcos H. Easdale<sup>16</sup>

### 5.1 INTRODUCTION

There is a growing global consensus at the political level that one of the main drivers of territorial development is technological innovation. Innovation brings change and is a continuous process based on knowledge accumulated over time. When technology is used as an instrument of change, one of the ways to expand the pool of knowledge is the realization of research and development (R&D) activities. However, other forms of knowledge related to the use of technology can also support the innovation process, including local experience and traditional knowledge or other factors specific to each region. In rural areas, these are usually known as agricultural extension and technology transfer activities (E&T). This document is based on the premise that an integrated view of sustainable development in rural areas, focused on technological innovation as the core driver of change, should adequately link agricultural research and rural extension. To study the possible challenges faced in promoting this linkage, it is necessary to analyse how science and technology institutions, which are key actors in this process, are organized and how they operate. As an example of institutional innovation, Argentina's National Institute of Agricultural Technology (INTA) oversees activities aimed at addressing development problems in various national territories. An advantage of using INTA as a case study is that it is one of the few Latin American institutions with both R&D and E&T as strategic structural pillars. Although this is rare in the region, the evaluation of the institution's innovation process is broadly relevant, especially as an input for future territorial development programs in Latin America.

#### 5.1.1 INTA: A BRIEF INTRODUCTION

INTA is an autonomous, decentralized public institution, which is dependent on Argentina's Ministry of Agro-industry. Created in 1956, its actions are designed to improve the competitiveness and sustainable development of rural areas of the country. Its activities are divided into four strategic components: i) extension and rural development, ii) research and technological development, iii) institutional relations, and iv) technological linkage. The institution has a presence in five eco-regions of Argentina (Northwest, Northeast, Cuyo, Pampeana and Patagonia) through an institutional structure that includes a headquarters, 15 regional centres, 52 experimental stations, six research centres associated with 22 research institutes, and more than 350 rural extension units. Its activities are organized through National Programs (with projects related to specific research and technological development issues), the Federal Program for Rural Development (PROFEDER, with projects that promote technological and organizational innovation, capacity building and strengthening of competitiveness in rural organizations), national agricultural associations, and Territorial-based Regional Projects (aimed at solving specific problems in different territories of the country).

### 5.2 INSTITUTIONAL INNOVATION: TERRITORIAL-BASED REGIONAL PROJECTS (PRETS IN SPANISH)

In 2013, INTA changed its organizational structure to focus most of its resources on the implementation of a more integrated institutional strategy to address the challenges of territorial complexity in rural areas. Part of its analysis recognized that territories are dynamic spaces in permanent development, which are complex both in their problems and in the development of new initiatives, often with biophysical and socio-productive aspects in tension or conflict. From this perspective, territorial innovation in technological, organizational and institutional terms is seen as a process for socio-technical change in production, commercialization or organization. In order to promote the creation or processing of new products or services in a given territory with a specific historical and cultural context, there is a need

<sup>16</sup> National Institute of Agricultural Technology (INTA), EEA Bariloche. Rural Development Area, Bariloche, Río Negro, Argentina. National Council for Scientific and Technical Research (CONICET). Coordinator of the Territorial-based Regional Project: "Fostering Development in Central and Northern Neuquén". Email: easdale.marcos@inta.gob.ar

to integrate scientific-technological knowledge and empirical knowledge (Ledesma and Cittadini, 2015). There is also the need to include strategic tools as part of the institution's management strategy that approaches territorial development through a partnership between public and private stakeholders, while considering local environmental and socio-economic characteristics. To facilitate this process, a total of 120 PRETs will start operations between 2014 and 2020 throughout Argentina with the aim of promoting innovation in different territories and contributing to the development of local actors and production systems. Institutional innovation lies primarily in the formalization of the PRET approach as a practical tool for nearly all of the institution's actions. As a result, National Programs and PROFEDER should coordinate their goals and activities within the mandate of the PRETs. In practice, the idea is that each PRET should function as a planning platform to identify and prioritize management strategies, funding for specific programs, allocation of resources and evaluation and monitoring of results, which was previously done only partially at a local level with less formal recognition. Underlying this change is the assumption that territorial innovation is more effective if: i) a territorial development approach is implemented both in terms of knowledge management and lines of work for the institution's research and rural extension groups, ii) the institution's activities are focused within a geographically defined territory, (iii) R&D activities are coordinated and integrated with E&T processes in lines of work and common objectives in line with the needs of each territory, and iv) inter-institutional and joint management initiatives are promoted in the search for solutions to complex problems in the territory.

### 5.2.1 PRET "FOSTERING REGIONAL DEVELOPMENT IN CENTRAL AND NORTHERN NEUQUÉN"

To illustrate the application of this new institutional tool and its implications in terms of improving linkages between research and rural extension, this analysis will focus on a PRET in northern Patagonia and, specifically, its experience with a cooperative of family livestock producers. The project covers a territory of approximately 7.5 million hectares in the central and northern part of the province of Neuquén, in the northwest of Argentina's Patagonia. One of the key challenges for sustainable and inclusive development in this territory is the tension between a traditional land-use model based on households with transhumant pastoral systems, and the development of other economic activities such as hydrocarbon exploration, tourism and real estate development. In this context, the general objective of the project is to strengthen and stabilize production systems within a framework of sustainability, facilitating institutional integration and the organization of producers to promote rural development.

#### 5.2.2.1 CASE STUDY: AGRICULTURAL COOPERATIVE OF SMALL PRODUCERS IN CENTRAL NEUQUÉN

This second-degree cooperative groups 16 different organizations, and approximately 350 rural families, in an area covering 2 million hectares in the central area of Neuquén province. Most are transhumant families, living with their flocks in valleys or low plains in autumn and winter, generally in arid and semi-arid areas called *invernadas*, and in summer moving to mountainous areas in the Andes, or other nearby ranges, to take advantage of high altitude grasslands. Their production is generally based on breeding small ruminants, mainly Angora and *criollo* goats, and Merino sheep or crossbreeds, in multi-species grazing with cattle and horses. Their main products are fibers of animal origin – mohair and wool (export products) – and meat, both for self-consumption and sale in the local market. Families also develop other activities such as handicrafts, farming and gardening.

The cooperative was formed over the last 30 years (Fig. 1). In the beginning, it was focused on the genetic improvement of Angora goats, as well as collecting, processing and classifying mohair and selling it with the aim of obtaining higher prices. This process was permanently supported by state, provincial and federal government entities through scientific and technological development, as well as by NGOs, and benefitted from other sources of funding at the provincial, national and international level (Sapag and Arrigo, 2010). Although technological innovation processes take time to reach maturity, this case shows the importance of long-term cooperation in rural extension and technological innovation involving different actors. Even more importantly, these processes could not have happened without a process of organizational and institutional strengthening over several decades, as well as timely technical support. The actions carried out within the framework of the PRET in the last three years have also been enhanced by synergies between institutions, which have supported the development of innovative proposals, such as investment in a small textile processing plant (mini milling machine) to transform mohair into high quality yarns, thereby adding value to the finished product. Financial cooperation between the government of Neuquén and the Zapala municipality facilitated this initial and necessary development. Institutions also played a scientific and technical role in the development and training of workers in the creation of textile products, and provided support related to issues of commercialization, markets, and other economic and organizational aspects.



The main institutional innovation was creating a space for planning and execution of actions involving the participation of representatives of the cooperative of producers, the government of Neuquén, the local municipality and national scientific and technological institutions. This space was then formalized by a project promoted by the government of Neuquén, and financed by the Inter-American Development Bank (IDB), called the "Goat-breeders Cluster of the Central Area of Neuquén". Within this framework, issues and new projects were discussed and prioritized in a participative manner, with the intention of creating a local goat-breeders' organization. Focus areas included: i) institutional strengthening, ii) a program for the genetic improvement of Angora goats on producers' lands, iii) a project for productive innovation through grazing models, which was prioritized by organizations in the cooperative, iv) the development of processed fiber with value-added, and v) a plan for production and commercialization of goat meat and leather.

The relative success of these initiatives needs to be evaluated since they are still being implemented, but they cannot be analyzed without understanding that the process that led to their creation began long before. In addition, it is important to identify the characteristics that have facilitated this socio-organizational process, so that the same initiatives may be used to develop similar experiences elsewhere in Latin America. Some characteristics that can be highlighted are: i) the pro-activity and leadership shown by representatives of organizations of producers, ii) the commitment and on-going support of government bodies, as well as scientific and technical institutions, that have provided advice, financing and organizational strengthening, (iii) political will to support agricultural development, including efforts to create innovative products by adding value, iv) long-term lines of action implemented by organizations of producers and public institutions, which transcend the short-term actions of individuals in these organizations.

**Figure 1.** Chronology of the creation of the Agricultural Cooperative of Small Producers of Central Neuquén, including activities related to rural extension, applied research and innovation processes.

FORTALECIMIENTO ORGANIZACIONAL (30 AÑOS)	PROCESOS DE EXTENSIÓN RURAL		PROCESOS DE INVESTIGACIÓN APLICADA Y DESARROLLO
	1987-1994	• INTA Bariloche. Programa de mejoramiento caprino de Angora	
	1995	• Proyecto capacitación tecnológica en genética, sanidad y manejo	
	1998	<ul style="list-style-type: none"> <li>• Comité Mohair (Organización de pequeños productores familiares).</li> <li>• Asociación de criadores de cabras Angora de Neuquén (ACCAN) y Cooperativa Quiñe Raquizum</li> <li>• INTA, Ministerio Desarrollo Territorial Neuquén, SAF, ONG Fundación Hueche.</li> <li>1. Logística, acopio y acondicionamiento de fibra</li> <li>2. Fortalecimiento Organizacional en: <ul style="list-style-type: none"> <li>- Venta Conjunta de fibra acondicionada <i>al barrer</i> (sin clasificar) +40% del precio</li> <li>- Venta Conjunta de fibra clasificada y diferenciada por calidad (n=16) con análisis de laboratorio de Fibras Animales INTA Bariloche.</li> <li>- Venta directa a compradores del exterior (Sudáfrica) +25% precio</li> <li>&gt; Análisis de Mercados</li> <li>&gt; Fondos rotatorios de pre-financiamiento</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Plan Mejora genética en Angora</li> <li>• Técnica de iseminación artificial</li> <li>• Importación de material genético</li> <li>• Feria de productores</li> <li>- Acondicionamiento de fibra de Mohair</li> <li>• Comercialización y mercado</li> <li>• Propuestas de mejoramiento genético y seguimiento en campo de productores</li> </ul>
	2003	• Incorporación de Asociación de Criaderos Unidos	
	2006	• Incorporación de Asociación de Fomento Rural (AFR) MAcho Negro y Laguna Blanca	
	2008	• Incorporación de AFR La Pileta	<ul style="list-style-type: none"> <li>• Campos Demostradores</li> <li>Mejoras prediales &gt; mejorar indicadores productivos, sociales y ambientales</li> <li>Infraestructura predial (capacitación y distribución de agua, potreros, alambrado eléctrico, cobertizos, etc.)</li> <li>Propuestas de manejo pastoril, manejo nutricional y reproductivo, engordes</li> <li>Producción de forraje bajo riego, recuperación de ambientes (vegas y mallines)</li> </ul>
	2011	• Constitución de la Cooperativa Agropecuaria de Comercialización de Pequeños Productores de la Zona Centro de Neuquén (aglomera 16 organizaciones y aproximadamente 350 familias)	
	2015	• Construcción de planta de acopio (cueros) y Mini mills (industria textil de baja escala)	• Valor agregado de fibras animales (Mohair-Lana) > Hilos, fieltros, servicios
	2016	• Proyecto Cluster Caprino de la zona centro de Neuquén	

Source: Sapag and Arrigo (2010)

### 5.2.2 DIAGNOSTIC TOOLS FOR LINKAGES BETWEEN RESEARCH AND RURAL EXTENSION

Considering the experience described above, certain diagnostic tools have emerged which could be useful in future initiatives. First, research and rural extension involve processes with different timeframes, which creates a partial disconnect between technological supply and demand. Rural extension is frequently overwhelmed by demand and so effective planning requires a balance between current and future demand. Meanwhile, research tends to be fragmented and based on traditional methods, while solving complex problems in a territory requires new research methods and scientific knowledge. Research groups and rural extension efforts tend to fall into a comfort zone focused on traditional lines of work, so promoting change in a territory first requires overcoming this organizational and institutional inertia. The integration of different institutions is not just the result of combining fragmented parts or components. New knowledge management strategies are needed (Easdale and Domptail, 2014), not just for the generation of new ideas and their implementation in innovation processes, but also to address the challenge of coordinating the views, opinions and interests of different social groups. For example, promoting the participation of different groups in integrated systems of research and extension in rural areas requires a design that recognizes the roles and responsibilities of each group during the process, as well as the different timescales of their intervention. This is an effort that takes time and new agreements to facilitate the training of professionals and actors involved in territorial innovation. Professionals and decision-makers with academic training in various disciplines are needed, and new skills are required to generate and adapt knowledge to develop integrated development strategies in situations of constant change. Finally, many existing funding programs reward groups that focus on R&D with high scientific output, but which do not necessarily ensure territorial innovation with appropriate technologies or integration into processes of rural extension. The integration of scientific knowledge with traditional knowledge, and the harmonization of the views of policymakers with the visions and expectations of local communities, requires processes of rural extension that function as a bridge between different actors and interests. Scientific and technological development requires fundraising from sources outside of the institution, which means that if there is no effective planning and integration between different groups, the institution's priorities or power relations may be affected. As a result, new financial tools and programs are required that promote technological innovation and territorial development, mainly by helping to strengthen planning platforms and foster interdisciplinary management.

### 5.2.3 CHALLENGES IN DEVELOPING TERRITORIAL INNOVATIONS

As part of the effort to develop new proposals for integrated territorial development, which include linkages between research and rural extension, some future challenges can be highlighted. First, it is necessary to reconcile the interests of various groups. In this regard, it is important to develop participative processes with a territorial approach in the prioritization of problems in the region, and to agree on lines of work for agricultural research and rural extension. It is also necessary to develop capabilities to monitor territorial dynamics in order to plan and adjust strategic lines of action in the medium- and long-term. Finally, greater efforts are required to develop integrated rural scientific-technical proposals at different levels of decision-making, including property regulations, producers' organizations, public programs and policies, and financial support.

## REFERENCES

**EASDALE, M.H., DOMPTAIL, S.E. 2014.** *Fate can be changed! Arid rangelands in a globalizing world- a complementary co-evolutionary perspective on the current 'desert syndrome'.* Journal of Arid Environments 100-101: 52-62.

**LEDESMA, S.E., CITTADINI, E.D. 2015.** *Los PRET como instrumento del INTA para aportar al desarrollo territorial en Argentina. Seminario Internacional: Desarrollo Territorial y Políticas de Innovación, 13-14 Mayo, Rosario, Argentina.*

**SAPAG, A., ARRIGO, J. 2010.** *Programa Mohair Neuquén: Una experiencia de desarrollo articulada entre productores minifundistas organizados e instituciones del Estado.* Online: <http://www.agro.unc.edu.ar/~extrural/Sapag.pdf>

## 6. LINKING SOCIAL PROTECTION WITH FINANCIAL INCLUSION:

Akos Szebeni<sup>17</sup>

### 6.1 INNOVATIONS TO PROMOTE SUSTAINABLE RURAL DEVELOPMENT

In recent years, there has been a growing interest in the potential role of social protection programs in contributing to poverty reduction; food and nutrition security; and the overall structural resilience of the rural poor. On the one hand, this interest can be explained by the impetus of the millennium development goals (MDGs) and the post-2015 UN development agenda; on the other hand, it is also the result of evidence acquired on the positive livelihood impact that can be achieved through effective social protection programming that has been registered across various development indicators including poverty; food security; education; health; nutrition; and achievable economic and productive impacts. These positive livelihood impacts have led to increased resources commitment and a shifting of attention to the potential complementary roles of social protection, financial inclusion and other market development programmes. In tandem, there is a growing body of empirical evidence that produces a consistent narrative: financial inclusion can contribute to reduce rural poverty and promote sustainable livelihoods of rural populations.

Recent evidence suggests considerable opportunities to strategically link social protection programmes with financial inclusion interventions to (1) promote synergies; (2) optimize economic multiplier effects; and (3) institutionalize the durability of the overall development impact.

This paper explores recent trends in both social protection programming and rural financial markets, with a view to understanding these opportunities and the concomitant challenges in linking these agendas, and to delineating an operational model of doing so.

#### 6.1.1 TRENDS IN SOCIAL PROTECTION PROGRAMMES (SPPS)

There has been a growing interest in recent years of the potential role of social protection programmes both at a global level, and more specifically in the Latin America and the Caribbean (LAC) region, coupled with increased resource commitment in this regard. This increased interest is not only the result of the impetus of the millennium development goals (MDGs) and the post-2015 UN development agenda – as codified in the Strategic Development Goals (SDGs) – but also a direct result of the evidence acquired on the positive livelihood impact that can be achieved through social protection programming, that has been registered across various development indicators including those related to poverty, food security, education, health, nutrition, and achievable economic and productive impacts.

Notwithstanding its proven effectiveness, there are indications of a consensus by relevant practitioners that social protection interventions alone are unlikely to sustainably and structurally transform the livelihoods of the poor. This recognition, in turn, has resulted in a paradigm shift towards increased attention to the potential complementary role of social protection, financial inclusion and other market development programmes. As pointed out by Smith, Scott and Shepherd (2015), linking social protection with financial services may have a mutually reinforcing effect that increases the impact of both of these components. To begin with, it has the potential to foster greater financial inclusion: it motivates services providers to expand their rural and branch networks to reach potential clients that they would not consider in other circumstances due to their limited assets and perceived lack of creditworthiness. It also encourages them to develop innovative financial tools that are tailored to the need of poor households. Furthermore, granting access to a range of demand-driven, affordable financial services can contribute to achieve social protection goals, such as increased resilience to shocks.

This paradigm shift is also based on an evolving evidence base that shows that a wide range of objectives can be achieved through this approach: build human capital; strengthen livelihoods engagement; reinforce social inclusion; and enhance local economy multiplier effects. The resulting challenge – and simultaneous opportunity – is how to optimize the mix of policy interventions in order to promote long-term sustainable transformations in rural households' livelihoods.

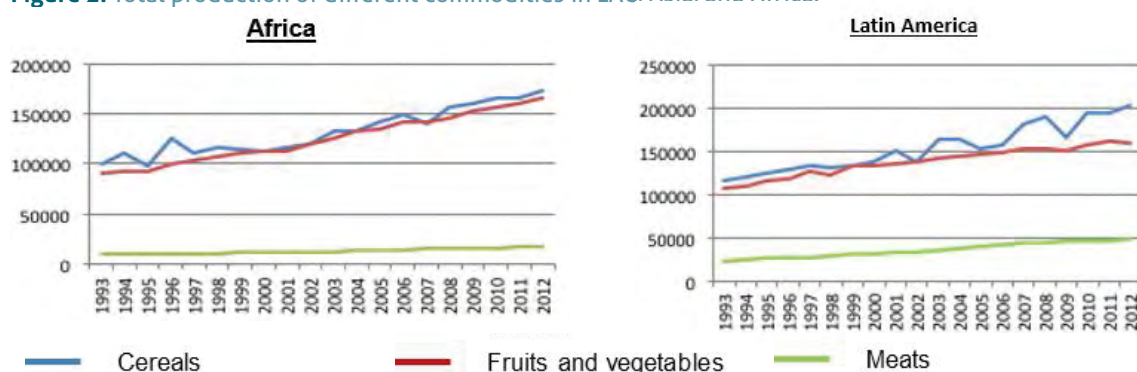
17 *FAO professional in Rome.*

### 6.1.2 RURAL FINANCIAL MARKET DYNAMICS

This section aims at highlighting some of the most recent trends in rural finance and investment at global and regional level, in order to give a proper outline of the dynamics at play in developing rural financial markets. Understanding these dynamics is essential to grasp the potential opportunities for rural development that can be unlocked by promoting linkages between social protection programming and financial inclusion initiatives.

Data has shown that global demand for agricultural products has risen considerably in the past decades<sup>18</sup>. At a global level, producers have managed to respond effectively to this growth in demand, going so far as to maintain a stock reserve to face potential fluctuations in global demand levels. This production trend can be evinced by the figures below, which show the growth in production of different commodities in different macro-regions, in the last decades.

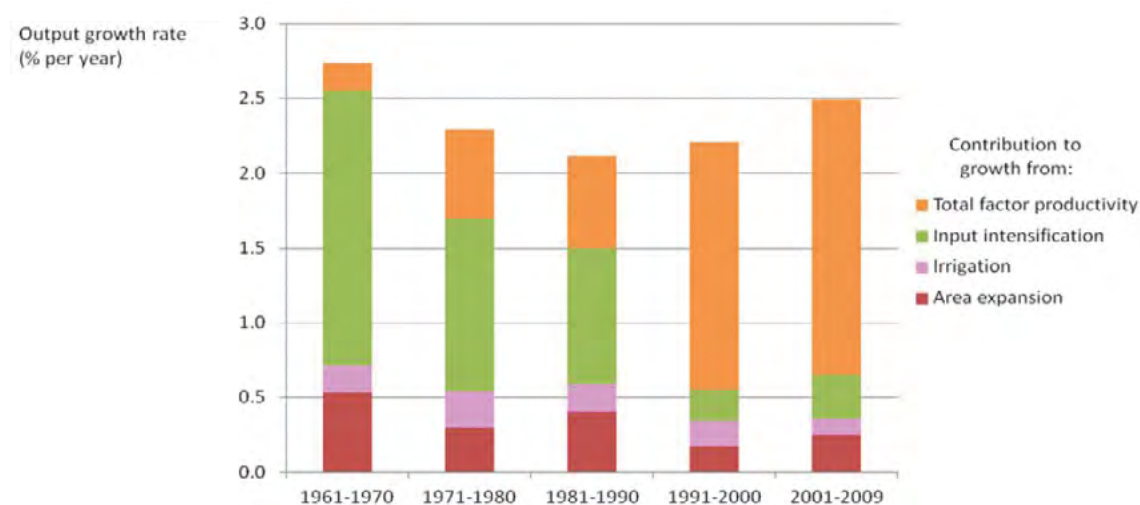
**Figure 2.** Total production of different commodities in LAC, Asia, and Africa.



Source: FAOSTAT

The growth in production has been accompanied by a sustained increase in the average yield of different commodities. Figure 2 below presents a disaggregation of the sources of agricultural output growth, throughout the decades. It is evident that in the past decade yield growth has been mainly a result of the rise in total factor productivity (the orange segment of the pillar in the figure), derived from investments in research and development of new technologies, agribusiness models, improved infrastructure and more effective extension systems (Fuglie, 2012).

**Figure 3.** Sources of agricultural output growth rate at a global level



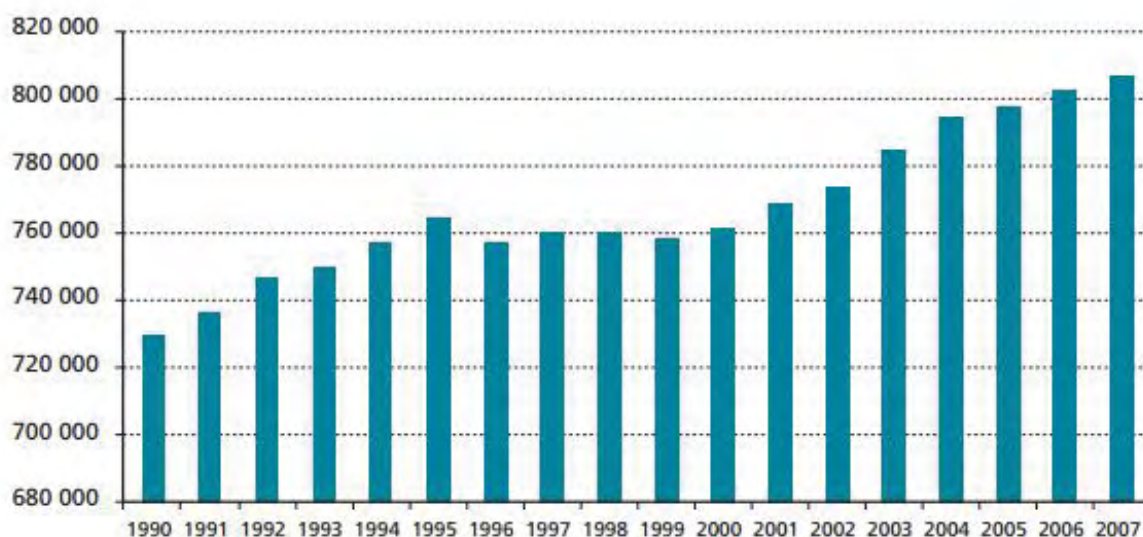
Source: Fuglie, 2012

<sup>18</sup> Detailed data on the rise in agricultural demand and offer can be found in FAOSTAT, FAO's corporate database of food and agriculture statistics. FAOSTAT provides free access to food and agriculture data for over 245 countries and territories, and covers all FAO regional groupings from 1961 to the most recent year available.



It is therefore important to understand which have been the main drivers for this increase in total factor productivity. A critical determinant of productivity can be traced to the rising global levels of investment in the agricultural sector, reflected by the total capital stock in agriculture (i.e. the long-term investment in land, machinery and infrastructure) as shown in Figure 3 below. Long-term agricultural investments in developing world agriculture have focused on seeking more efficient production and business models that allow to satisfy the rising demand level, thereby seizing business opportunities throughout all segments of agricultural value chains, including production, processing, storing and commercialization.

**Figure 4.** Capital stock value in agriculture for LAC countries (USD million as of 2005).

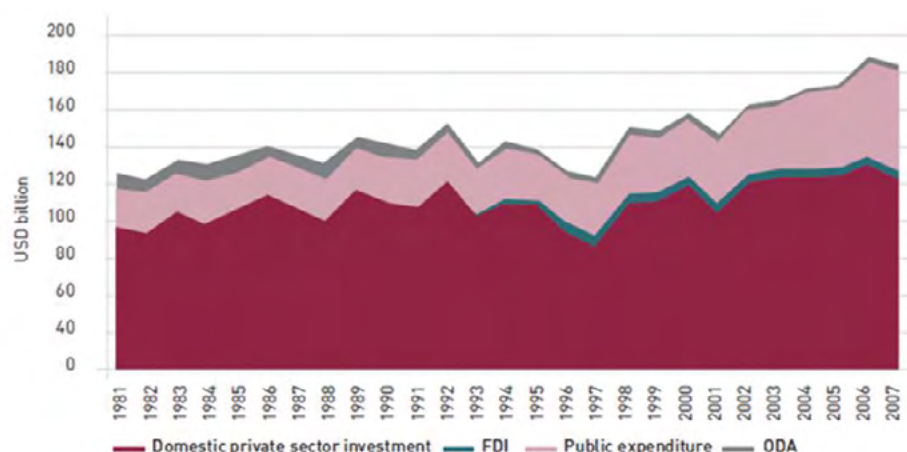


*Source: FAOSTAT*

In the LAC region, the level of capital stock per worker in agriculture has grown in real terms by 0.7% between 1980 and 2007. To make a comparison, this growth rate is similar to that of Asia, but higher than Sub-Saharan Africa or the Middle East. The data suggests that the increase in investment in more efficient production and management models has resulted in sustained increments of the average production levels in the region.

This evidence motivates to analyze more in depth which are the main investors involved in the agricultural sector. Figure 4 below shows a comparative analysis of the sources of agricultural investment in selected low-and-middle income countries (LMIC). It is evident from the data that domestic private sector investment has the lion's share in overall investment in agriculture. It exceeds by four times the annual flows to agriculture from governments (the second largest category) in developing countries. Local domestic actors tend to be those best able at identifying and seizing investment opportunities in the agricultural sector, since they possess critical information advantages about the complexities of agricultural markets and the various dynamics between value chain actors, deriving from their unique perspective from within the field. However, the composition of this group of domestic investors tends to be highly heterogeneous, consisting of smallholder farmers, as well as medium and large farmers, who are often neither well organized nor able to effectively lobby domestic policymakers about their needs

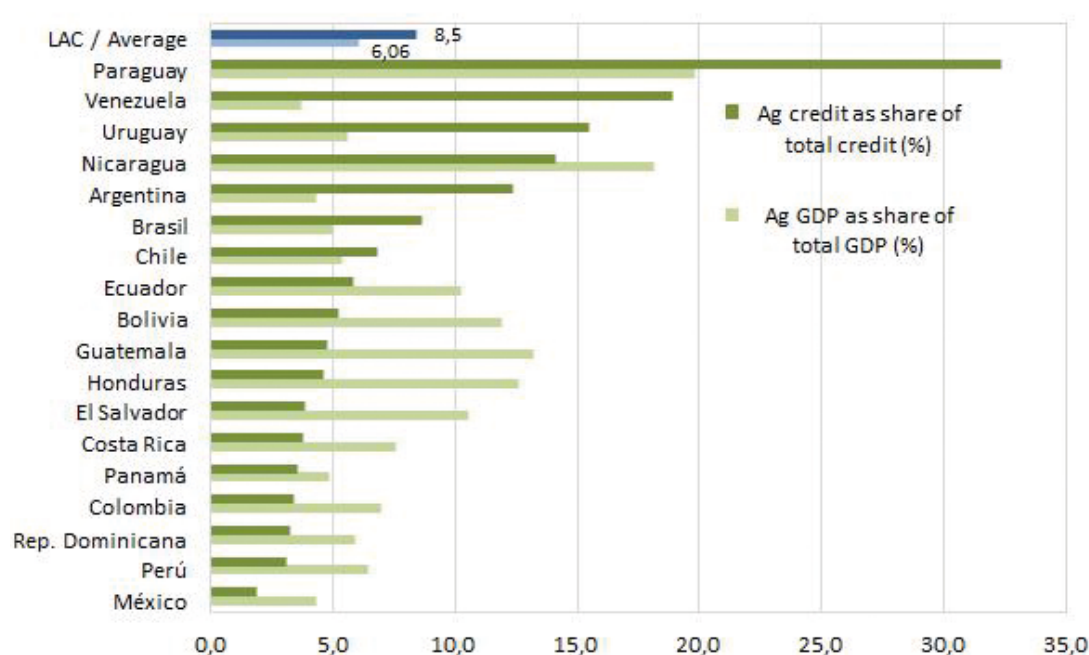
**Figure 5.** Components of agricultural investment for a sample of 31 developing countries.



Source: ODI, 2012

But who are the actors responsible for financing these rising levels of domestic investment? Evidence suggests that in the majority of LAC countries formal financial institutions have played a marginal role in providing credit to the agricultural sector, especially considering the ability of said sector to generate wealth in the overall economy. As can be seen in Figure 5 below, there is a considerable imbalance observed in certain Latin American countries between the share of their national credit portfolio that belongs to agriculture, and the share of their GDP that derives from agriculture, suggesting that the formal financial sector does not serve the agricultural sector to an extent that is proportional to the sector's capacity for generating wealth.

**Figure 6.** Agricultural credit as a share of total credit vs. agricultural GDP as share of total GDP, for selected countries in Latin America (2010).



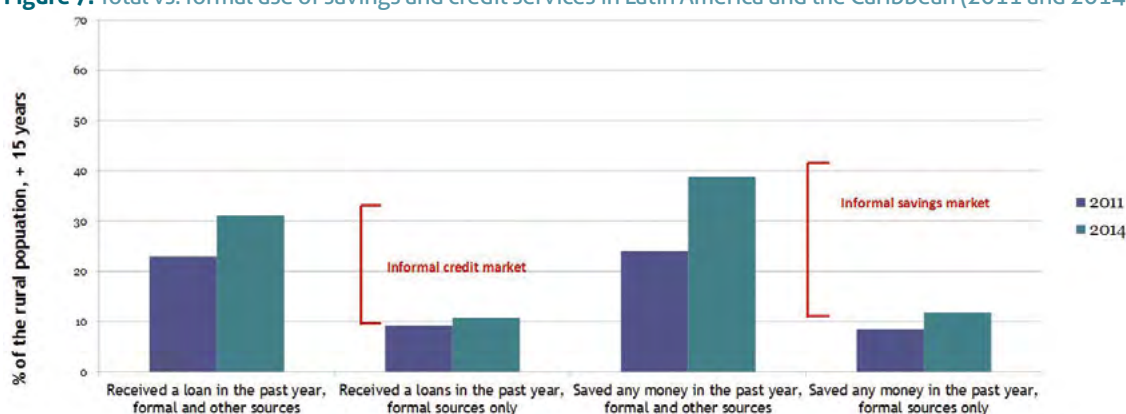
Source: FAO, 2012

Several factors contribute to this financial provision gap on the part of formal institutions. To begin with, rural and agricultural households are considered too risky as potential clients due to their low asset base, inadequate risk mitigation mechanism, the lack of stable and diversified income sources, and their vulnerability to economic, environmental, and social shocks. Furthermore, formal financial institutions often lack a specific expertise in the rural and agricultural sectors, and they are unaware of the internal operational processes of the value chains in which producers operate. They do not understand the specific necessities and issues faced by low-income rural households, and they are incapable of properly assessing their creditworthiness. In short, the presence of strong information asymmetries between formal financial institutions and rural households constitute a core bottleneck to the advancement of formal financial inclusion.

Due to the limited involvement of formal financial institutions, the capital needs for agricultural investment in developing countries have been primarily serviced by actors within the value chain (e.g. input providers, wholesalers, processors, traders, warehouse operators) who are not specialized in offering financial services, but provide them in order to ensure the smooth functioning of the processes within the value chain. In addition, the rural population that is excluded or underserved by formal financial systems is also serviced by informal agents such as money lenders, family, friends, and community-based financial organizations (e.g. savings and credit associations).

It is possible to gauge the extent of the informal financial market in agriculture through Figure 6 below, which shows a comparison between the percentage of the total rural population in the LAC region that uses savings and credit services provided by any source, against the percentage that is only serviced by formal financial institutions, in 2011 and 2014.

**Figure 7. Total vs. formal use of savings and credit services in Latin America and the Caribbean (2011 and 2014).**



*Source: Findex 2014*

Considering the low percentages of loans and savings ascribable to formal financial institutions, it is clear from the data that the majority of these services are delivered by actors who do not belong to the formal sector. Furthermore, although there has been a slight improvement in formal financial provision between 2011 and 2014, the largest part of the overall increase derives from heightened activity of non-formal sources. Similar data can be found for the African and Asian regions (Hernandez, 2015).

Although until now the role of these non-specialized financial actors in rural contexts has proven fundamental to foster the increase of investment in the sector- and in providing an effective response to the rising demand for agricultural products- there are distinctive limitations to the services they offer, which tend to be inflexible, not overtly diverse (i.e. limited to a few forms of credit), and only available to a small percentage of the rural farming population linked to specific commodities or value chain actors (Milder, 2008).

In conclusion, rural financial market dynamics reveal that there are sizeable opportunities for profitable expansion of demand-driven, inclusive financial products and services for rural and agricultural households. In recent years, pioneering formal financial institutions have been increasingly showing that it is possible to deliver these kinds of financial services, in a profitable manner, by leveraging on the local knowledge of value chain agents and informal service providers in rural and agricultural contexts. In other words, by overcoming the information asymmetries that represent a fundamental constraint to financial

provision, these formal institutions have managed to design and promote innovative financial tools that are tailored on the needs of the rural population. Establishing linkages with social protection programmes can represent a strategic opportunity to foster this financial inclusion process, as will be further discussed in the next section.

### 6.1.3 OPPORTUNITIES FOR LINKING SOCIAL PROTECTION WITH THE FINANCIAL INCLUSION AGENDA

As some of the case studies presented in the next pages will show, there are widespread opportunities to strategically link social protection programmes with financial inclusion interventions, in order to 1) promote synergies; 2) optimize economic multiplier effects; and 3) institutionalize the durability of development impact.

Strategic coordination between social protection and financial inclusion initiatives, as well as the sharing of data and experiences, can alleviate key constraints and promote the advancement of both agendas, mutually reinforcing the outcomes of both components. The wealth of household-level information generated by social protection programmes can help to mitigate the information asymmetries that are responsible for the gap in financial provision.

It is evident, nevertheless, that operationalizing the linkages between social protection and financial inclusion requires a complex and multi-layered effort that involves coordination, public and private buy-in, awareness raising and technical assistance. To achieve this, financial institutions have to undergo a process of transformation that allows them to develop, among others: a degree of expertise in the rural and agricultural sector; the capacity to design financial products and services tailored on the needs of target populations; and the ability to support and promote internal information processes, information technology and improved delivery systems.

The figure below shows three simplified models that outline different approaches which can be used to link together social protection programming and financial products' design, repartitioned according to the degree of complexity of such linkages and the potential for a synergic impact. As we begin to analyze in the next section a number of existing case-studies that link together social protection and financial inclusion, we will see how they all fall under one of these three categories.

**Figure 8.** Strategic approaches towards linking financial inclusion initiatives and social protection programming



Source: FAO



## 6.2 EXAMPLES OF EXISTING PRACTICES

### 6.2.1 GOVERNMENT-TO-PERSON (G2P) TRANSACTIONS FACILITATED BY MOBILE PAYMENTS<sup>19</sup>

Government-To-Person (G2P) payments represent an example of a branchless banking approach to reach the poor recipients of public social programmes in a more efficient way. It is an electronic payment mechanism delivering social transfers, public employee payments and pension payments across a country. According to the categories defined at the end of the previous section, this approach represents a good example of a tailored financial service used as a tool to deliver social protection programmes.

Social transfers delivered through G2P payments (via branchless banking channels, such as mobile phones) have proved successful in reaching the poor. Pickens et al. (2009) had identified 49 social transfer programmes using G2P to deliver conditional, unconditional, and workfare payments to 124.6 million recipients in 33 countries.

Electronically transferred funds, instead of paying out in person that requires the recipient to be at a specific location on a specific date, can better reach beneficiaries living in remote rural areas. Accessing transfers through unique personal identifiers ensures that the transfers are disbursed to the right person, which might be especially important when targeting women. For the governments, G2P payments represent a cost-effective alternative, minimizing frauds and corruption losses.

However, electronic delivery itself does not advance financial inclusion, but it does create the basis to deliver financial services to recipients via branchless banking channels, such as debit cards and mobile phones (Pickens et al., 2009). G2P payments might be a good solution for extending financial inclusion to the areas with missing infrastructure required by conventional banking and when targeting specific strata of clients.

### 6.2.2 “JÓVENES CON OPORTUNIDADES” IN MEXICO

*Jóvenes con Oportunidades* is a youth savings component added in 2003 to the Mexican national social protection programme *Oportunidades* (which is active to this day under the name *Prospera*). According to the categories detailed in section 3, it represents an example of a financial service that further supports the benefits of social protection. Its overall objective is to link conditional cash transfers with savings mobilization. The government deposits regular quantities of cash to the saving accounts of high school students belonging to beneficiary households of the *Oportunidades* program. After finishing their studies, young adults can use the money to invest in further education, health insurance, or income-generating activities. They can also keep using this specialized account as a personal savings account, which links them to the formal financial market and carries the potential of deepening their relationship with financial institutions.

The positive results of the *Oportunidades* program have demonstrated that conditional cash transfer programs of this nature can be an effective and feasible tool to reduce poverty and improve the future of children through increased investment in their health and education. They have also proved the feasibility of carrying out targeted conditional cash transfer programs on a large scale, even in poor and isolated areas with scarce access to services (e.g. in developing contexts with limited welfare states) (Parker, 2003).

### 6.2.3 BRAC’S GRADUATION MODEL IN BANGLADESH

The Bangladesh Rural Advancement Committee (BRAC) is one of the world’s largest NGOs, active in 70.000 rural villages and 2000 slums in Bangladesh, and more in general in fourteen countries around the world. Its range of activities range from microfinance (its original vocation), to the provision of primary education and integrated health care services, to disaster relief, among others.

The driving motive behind BRAC’s development of the Graduation Model was the realization that ultra-poor households at the very bottom of the development ladder were not benefitting from the services offered by its microfinance program. Hence, in 1985 the organization partnered with the Government of Bangladesh and the World Food Programme to add a graduation ladder to a pre-existing existing governmental safety net program for ultra-poor families (CGAP 2011). The aim was to help ultra-poor households graduate from extreme poverty, while becoming independent from social safety nets and gaining access to financial services.

<sup>19</sup> This case-study was taken from FAO’s internal discussion paper: “Financial Inclusion and Social Protection”, authored by Renata Baborska

Ultra-poor households face an interrelated set of challenges that place them in a poverty trap from which they are incapable of emerging without external support. These households face food insecurity and inadequate access to healthcare, they have limited or no access to financial services, own few assets and savings, and need to send their children to work in order to guarantee their survival. The goal of the Graduation Model is to provide these households with the “breathing space” necessary to overcome these immediate challenges and focus on a longer-term commitment to improve their livelihoods. (Goldberg and Salomon 2011).

Overall, the Graduation Model represents an example of the third (and more complex) strategic approach towards linking social protection programming with financial inclusion initiatives, described in section 3. It is the product of a synergic programming effort that integrates financial inclusion and social protection to support beneficiaries into achieving sustainable livelihoods. The results of BRAC’s model have been remarkable: since 2002, 95% of the 1.4 million clients who have gone through the programme have graduated from ultra-poverty, while also undergoing improvements in a wide number of welfare aspects: food security, savings and credit access, confidence and empowerment, health, and education levels.

The Graduation Model is structured around five sequential components, each of them essential to aid participants into moving out of extreme poverty. The figure below details these steps and the timings to achieve the overarching goal of crossing above the extreme-poverty line. The components include: 1) targeting, by which ultra-poor households in each program site are identified using a Participatory Wealth Ranking (PWR) that establishes an economic ranking of all community households; 2) consumption support, by which small quantities of cash are transferred to stabilize consumption and ease daily burdens to participants; 3) savings, by which participants are encouraged to save, preferably through formal financial entities, to guarantee their savings and foster an increase in their assets; 4) skills training, focused on financial knowledge, business management and personal development; 5) asset transfer, by which in-kind physical assets (such as breeding stock) are provided to foster income-generating activities.

These components are supported by intensive life-skills coaching that lasts throughout the programme, with program mentors visiting beneficiary households to advise them in the management of their business and provide support and motivation. Furthermore, financial services are provided since the beginning of the programme, either formally or informally, in the form of the regular payment of a stipend and a savings program. They also prepare their members for ongoing participation with financial services, including access to loans for those who graduate and choose to expand their livelihood activities.

**Figure 9.** The Graduation Model.



Source: CGAP, 2011

In 2006, the Ford Foundation and the Consultative Group to Assist the Poor (CGAP) of the World Bank began a research and development effort aimed at adapting and promoting BRAC's Graduation Model in other ten countries through pilot programs. Their aim was to understand more in depth how safety nets, livelihoods support and access to micro-financial services could be employed in a sequential manner to develop exit routes out of poverty for ultra-poor smallholders. On average, in each pilot it took from 18 to 36 months to achieve the overarching goal of crossing the line of extreme poverty, although the criteria for measuring the achievement of this objective varied a lot depending on the context in which the pilot took place (CGAP 2011). Following CGAP's pilots, an increasing number of countries began expressing their interest for implementing a tailored version of the Model, which resulted in 33 countries adapting and successfully introducing ultra-poor graduation programmes as of the end of 2016, according to BRAC.

This experience showed that the Graduation Model carries the potential to bridge the gap between charity and microfinance in widely different developing contexts, providing ultra-poor households with a comprehensive range of services (trainings, productive assets, savings etc.) under the framework of a holistic approach towards poverty reduction. With that being said, the elevated costs and complexity associated with the Model have led to the development of low-touch versions in recent years, in an effort to upgrade the graduation concept and overcome some of its original constraints. The example of the Graduation Programme by Fundación Capital, described below, fits into this narrative.

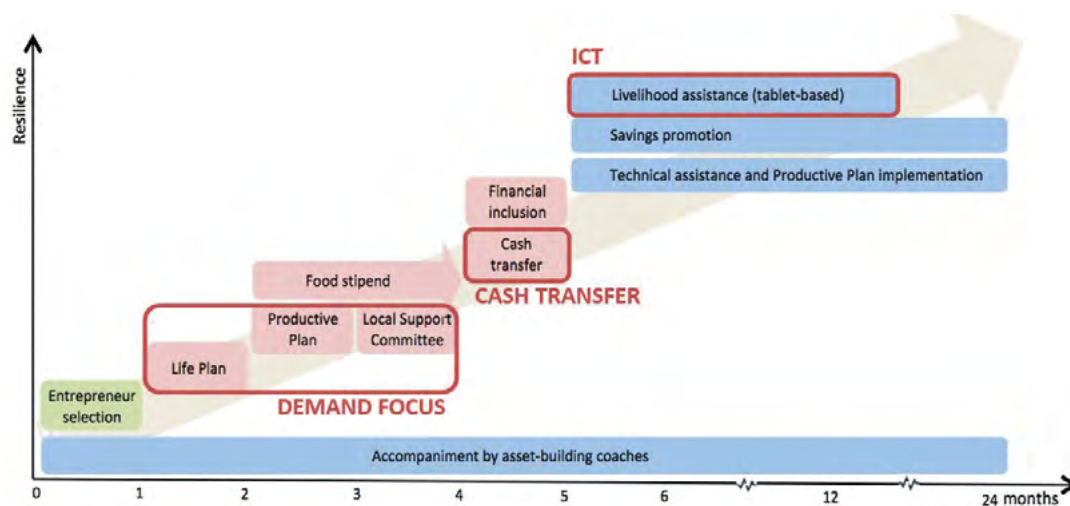
#### 6.2.4 THE GRADUATION PROGRAMME BY FUNDACIÓN CAPITAL (COLOMBIA)

Fundación Capital is a Colombian non-profit organization whose operations spans across 14 countries in Latin America, Africa and Asia, focused on fostering new ideas to challenge the persistence of poverty and exclusion. Founded in 2009, the company is a pioneer in inclusive finance and other innovative practices, with a mission to eliminate poverty by providing access to training, capital and productive opportunities.

In 2011, Fundación Capital began designing its own version of the Graduation Programme (*Programa Graduación*) in an attempt to develop a large-scale ultra-poverty reduction scheme, by exploiting the foundation's connections with governmental social protection programmes. With the support of Ford Foundation, Fundación Capital sought the collaboration of national governments to develop tailored graduation models for each of the initial target countries in Latin America (Colombia, Paraguay and Mexico) and Africa (Mozambique and Tanzania). At the end of 2015, 15000 smallholder families have already graduated from the Programme, approximately 57.000 people.

The Graduation Programme developed by Fundación Capital differs from the original model as it incorporates from the very start the design of a life and productive plan that establishes a long-term route out of poverty for target smallholders, coupled with the establishment of village-level committees for the support of beneficiaries. Instead of assets, which are costly and hard to move around, it provides cash transfers to its participants, as well as financial inclusion support. As the level of smallholders' resilience grows, it incorporates an information and communication technology (ICT) component in its approach, which includes livelihood and technical assistance, as well as savings promotion.

**Figure 10.** The Graduation Programme developed by Fundación Capital.



Source: Fundación Capital

A separate remark must be made for the livelihood assistance component, part of the ICT measures of the Programme, which was implemented by Fundación Capital through the **LISTA Initiative**. Thanks to LISTA, community leaders circulate access to shared tablets that carry an intuitive and easy-to-use financial education app, allowing participants to spend time with the training application on the devices. The app provides trainings on a wide variety of financial topics, such as microcredit, savings, and the use of ATMs. Participants are able to learn from their own homes, study at their own pace, and customize their learning by focusing on topics most relevant to them. One of the most prominent advantages of this training approach is that it implies a certain level of quality, regardless of the teaching capacities of additionally hired trainers. It also allows Fundación Capital to cut down on technical assistance and transaction costs, as it reduces visits to participants.

#### 6.2.5 KEY TAKEAWAYS

There is a growing interest at global and regional level for social protection programming, due to the rising evidence of the positive livelihood impacts these programs can achieve on a wide range of welfare aspects: poverty, food security, health, education and more. Nevertheless, social programming by itself cannot be the sole driver responsible for moving people out of poverty in a sustainable manner, it has to be implemented in tandem with other community development initiatives.

In recent years, a paradigm shift has begun to emerge that gives increased attention to the synergic and complementary role that can be played by social protection and financial inclusion in achieving a positive impact on rural livelihoods, together with an increased recognition that highly coordinated efforts between these two components are required to facilitate the graduation of rural households out of poverty, to foster their self-sufficiency and their independence from social safety nets.

Evolving dynamics in rural financial markets have shown that there are notable unseized opportunities to foster financial inclusion in rural agricultural contexts, which can be unlocked by designing demand-driven, inclusive financial products and services that manage to leverage the informational advantages possessed by internal actors of the value chain. Social protection programming can play a strong support role in this regard, as it can aid in mitigating the informational asymmetries between formal financial institutions and internal value chain actors, which limit the development of tailored financial services for rural populations (leading to a gap in formal financial provision to rural areas).

Overall, strategically linking social protection programmes with financial inclusion interventions can help to: (1) promote synergies; (2) optimize economic multiplier effects; and (3) institutionalize the durability of development impact. Coordinating these two components in the design and implementation phases of programmes, as well as continuously sharing data and experiences, can alleviate the key constraints that impede the advancement of both aspects, mutually reinforcing the outcomes of both kinds of interventions.

Operationalizing the linkages between social protection programming and financial inclusion interventions represents the main challenge that hinders from achieving a synergy between these two components, as it requires complex coordination, awareness raising, and technical assistance involving both the supply and the demand side. In order for financial institutions to overcome this challenge they have to undergo a process of institutional transformation, that can drive them to develop the expertise and strategic coordination required to operationalize such linkages through a long-term, sustainable approach.



## REFERENCES

- BABORSKA R. 2016.** "Financial Inclusion and Social Protection". FAO Internal Discussion Paper. Rome: FAO
- CGAP, 2011.** "Reaching the Poorest: Lessons from the Graduation Model". Focus Note no.69 March 2011. Washington, D.C.: CGAP
- FAO. 2012.** "The state of food and agriculture 2012: investing in agriculture for a better future". Rome: FAO
- FUGLIE, K. 2012.** "Productivity Growth and Technology Capital in the Global Agricultural Economy." In Productivity Growth in Agriculture: An International Perspective, K. Fuglie, S.L. Wang, and V.E. Ball, eds. Wallingford, UK: CAB International.
- GOLDBERG, N. AND SALOMON, A. 2011.** "Ultra Poor Graduation Pilots: Spanning the Gap Between Charity and Microfinance". Paper presented at the 2011 Global Microcredit Summit, November 14-17, 2011, Valladolid, Spain
- HERNANDEZ E. 2015.** "Financiamiento agropecuario: oportunidades, modelos emergentes y diseño de productos". Boulder Microfinance Training. Quito, Ecuador. 9-13 March 2015. Lecture
- MILDER, B. 2008.** "Closing the gap: Reaching the missing middle and rural poor through value chain finance". Enterprise development and microfinance. 19(4), 301–316.
- PARKER, SUSAN W. 2003.** "Case Study: The Oportunidades Program in Mexico". Paper prepared for the Shanghai Poverty Conference on Scaling up Poverty Reduction. April 30, 2003. Shanghai, China.
- PICKENS, M., PORTEOUS, D., & ROTMAN, S. 2009.** "Banking the Poor via G2P payments". Focus Note 58.
- SADOULET, E., DE JANVRY, A. AND DAVIS, B. 2001.** "Cash Transfer Programmes with Income Multipliers: PROCAMPO in Mexico". World Development 29 (6): 1043- 56
- SMITH, SCOTT AND SHEPHERD. 2015.** "Financial Inclusion Policy Guide: Enhanced Resilience through Savings and Insurance via Linkages and Digital Technology". Policy Guide no.6. London: CPAN.
- USAID. 2011.** "Rural and agricultural finance: taking stock of five years of innovations". Micro report 181. Washington, DC: USAID
- WINTERS, P. AND DAVIS, B. 2009.** "Designing a Programme to Support Smallholder Agriculture in Mexico: Lessons from PROCAMPO and Oportunidades". Development Policy Review 7 (5): 617-642

# CHAPTER III: INNOVATION FOR RELOCATION OF FOOD SUPPLY





## 7. TERRITORIAL AGRI-FOOD SYSTEMS: BASIS FOR THE INCLUSION OF FAMILY FARMING<sup>20</sup>

Marcos Rodriguez Fazzone<sup>21</sup>

### 7.1 INTRODUCTION

Food insecurity in Colombia is not so much due to shortages of food products, but the lack of access to these products (Univ. Nac. Colombia, 2011). In addition to the low income of the most vulnerable families, their lack of access to a high quality and diversified diet is due to failures and externalities in food supply and distribution systems (FAO MANA, 2016).

Food systems are structured in territorial spaces based on the socio-economic relationships of the actors involved in the production, distribution and consumption of food; relationships that involve capturing income generated in different stages of the chain. It should be noted that this territorial organization is not necessarily based on the geographical proximity of the economic agents or short supply chains (Azevedo, 2008); generally, food products are the result of long supply chains that involve many processes and actors, leading to an inevitable increase in prices often without any value added to the final product. In this system, family farming linked to food production is the weakest link in the supply chain since family farmers only see between 10% and 15% of the final value of the product, which is indicative of their unequal participation in markets (MANA FAO, 2016).

As a result, in family farming territories there is a phenomenon known as “deterritorialization<sup>22</sup>” (Delgado Cabeza, 2010) caused by inflows and outflows of food that do not prioritize local markets or regional investment. This dynamic causes the transfer of income between territories, as well as the transfer of human and natural resources, higher energy costs and food wastage, among other factors, which translate into inequalities and income gaps that threaten social and territorial cohesion.

The social construction of markets is an innovative process of territorial policy development tending towards more inclusive and efficient food systems. This involves understanding markets and their dynamics not as an abstract mechanism for establishing prices (Abramovay, 2004), but as social processes from which effective policies for inclusion and rural development can be derived. Through this approach, territorial food systems have developed, as well as public procurement programs and initiatives that promote not just a geographical proximity to markets and actors, but also proximity in social and organizational terms, which helps to strengthen the identity of local food consumption and new models of governance for food systems with more active public participation (Santacoloma, 2016)<sup>23</sup>.

As an initial contribution to the development of Territorial Food Systems, this document addresses food supply processes from a territorial perspective, with particular emphasis on finding alternatives to improve the inclusion of family farming, suggesting opportunities for the retention of value added in local territories, and providing strategic information for policy planning based on local food demand and cooperation mechanisms in food supply systems, thereby leading to greater territorial cohesion.

The results presented here are derived from an analysis of the Food Supply System of Antioquia Department (Colombia), carried out within the framework of the 2015-2016 cooperation agreement between the FAO and Antioquia's Plan for Food and Nutritional Security (MANA in Spanish). The study used a methodology with various objectives: understanding the structure and way in which food supply systems operate from a territorial perspective; identifying the relationships between different actors involved in the system, as well as between different territories in terms of food flows; analyzing the infrastructure of markets and added value in each territory; determining the contribution of family farming to the food supply of the territory; and identifying the main challenges in improving the efficiency of the food supply system and increasing the access of family farmers to markets and public procurement opportunities.

<sup>20</sup> This document summarizes the main results of the study “Food supply system: basis for the inclusion of family farming” developed by FAO and Plan MANA in Antioquia (Colombia), 2016.

<sup>21</sup> The author is an economist with expertise in rural/local development. He is a senior specialist and coordinator of FAO's Priority Area of Family Farming and Inclusive Markets in Colombia. [Marcos.rodriguezfazzone@fao.org](mailto:Marcos.rodriguezfazzone@fao.org)

<sup>22</sup> According to Delgado Cabeza, this “deterritorialization” is understood as the lack of capital with roots in physical places and not as the disconnect between economic processes and territory. The author indicates that the dynamics of global food markets represent a strategy of territorial control and coordination with local authorities. However, this network of connections to a corporate and concentrated food market weakens the connections essential to the maintenance of local customs, intensifying the use of natural resources and increasing dependence on inputs – raw materials and energy – from other territories.

<sup>23</sup> Santacoloma, P. en: Short food supply chains. Finding of the workshop for the exchange of experiences. Mexico City, FAO (2016).

## 7.2 THEORETICAL FRAMEWORK

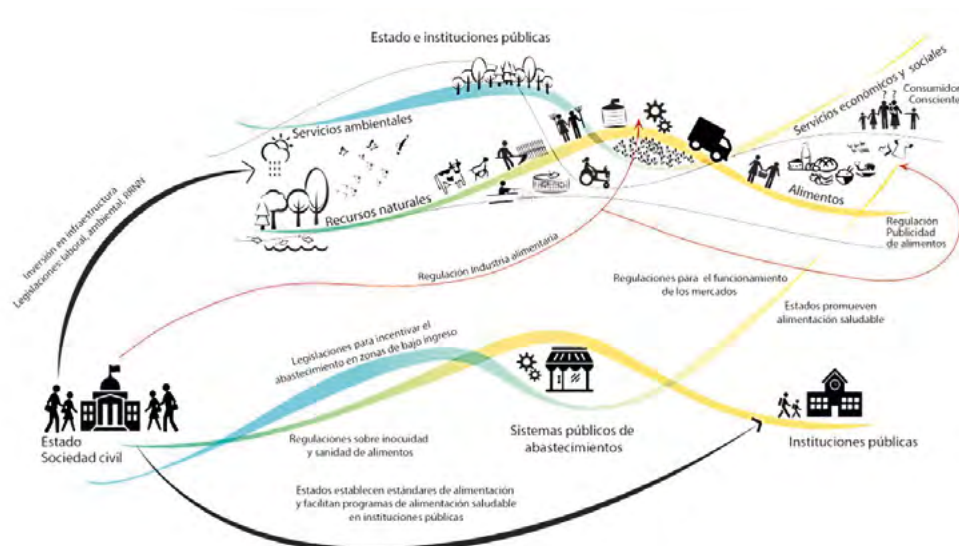
### 7.2.1 SUSTAINABLE FOOD SYSTEMS

*"A food system is the way in which people organize themselves, in space and time, to obtain and consume their food" (Malassis, 1994).*

According to FAO (2008), a Sustainable Food System (SFS) is defined as: *"a food system that ensures food security and nutrition for all so as not to jeopardize the economic, social and environmental conditions for future generations"*.

Therefore, discussions about agri-food systems may refer to the relationships and interactions among the actors that participate in the food chain, as well as the socio-economic, political and environmental factors involved. The food system includes all the activities related to the production, processing, distribution, preparation and consumption of food, as well as their socio-economic and environmental outcomes. Analyzing the agri-food sector from the systemic point of view, the social purpose is food security and nutrition (FSN) while the economic objective is the creation of wealth and income (FAO, 2015).

**Figure 11.** The agri-food system.



Source: FAO, 2008.

### 7.2.2 TERRITORIAL FOOD SYSTEMS

The sustainability and efficiency of Food Systems must be ensured at different levels of production, whether for territorial, national, or global food markets. Over the last few decades, a deepening of the processes of production, processing and marketing of food has occurred in order to supply increasingly specialized and concentrated global food systems. However, while this model has facilitated greater economies of scale, it has generated a number of negative social, cultural and environmental externalities.

As a result, new more responsible, sustainable and regional food systems have emerged (Quebec Declaration, 2015<sup>24</sup>.) A territorial food system can be defined as *"a set of agri-food sectors in accordance with sustainable development criteria, which are located in a regional geographical area and organized by territorial governance"* (Rastoin, 2015<sup>25</sup>). According to Rastoin, territorial food systems represent a new type of organization based on a network of local agricultural and agri-food companies using local

<sup>24</sup> Quebec Declaration 2015, symposium "Local food systems, a source of diversity and tools for integration and competitiveness"

<sup>25</sup> Rastoin, J.L, Les systèmes alimentaires territorialisés: le cadre conceptuel. Journal Resolies, mars 2015, p.11.



resources to serve a nearby market, while also mitigating the risk of crises and migration. In this regard, territorial food systems have the following dimensions<sup>26</sup>:

- **Social dimension:** improve the “overall” quality (nutritional and organoleptic) of food in order to respond to the needs of consumers.
- **Spatial/geographic dimension:** production for market based on territorial proximity.
- **Ethical/corporate dimension:** favour the inclusion of family farming and networks of small and medium-sized enterprises (SMEs), alternative chains of commercialization and improved value distribution through territorial governance.
- **Innovation/technology dimension:** invent new models of environmentally friendly production, protecting the health of consumers and ensuring the good management of natural resources, while limiting environmental impacts.
- **Cultural/environmental dimension:** reduce losses and waste throughout the food chain.

### 7.2.3 FOOD SUPPLY AND DISTRIBUTION SYSTEMS (FSDS)

To develop new Territorial Food Systems it is necessary to understand the functioning of Food Supply and Distribution Systems (FSDS). According to Argenti and Marocchino (FAO, 2007), FSDS are complex combinations of activities, functions, and relationships (production, handling, storage, transport, processing, packaging, wholesale and retail sales, etc.) that allow urban populations to meet their food needs.

These actions are performed by different economic agents: producers, middlemen, importers, transport companies, wholesalers, retailers, food processors, market vendors, street vendors, service providers (credit, storage, loading, information and extension), packaging suppliers, public institutions (e.g.: local and municipal governments, public institutions for the commercialization of food, Ministry of Agriculture, Ministry of Transport) and private associations (e.g.: trade, transport, and consumer groups). These actors need infrastructure, equipment, services, laws and formal and informal regulations that govern their decisions.

Finally, FSDS include the following subsystems:

- **Food supply** in the cities, which includes all the infrastructure and activities related to food production, storage, selection, processing and transportation to demand centers.
- **Food distribution** that includes all formal, informal, traditional and modern activities, as well as infrastructure related to do the distribution of food in cities.
- **Demand** determined by intermediary and final consumers, including both beneficiaries of institutional markets and consumers in general.

### 7.2.4 TERRITORY, PROXIMITY TO MARKETS, AND SHORT SUPPLY CHAINS

Given the above, analysing the food supply system means understanding the characteristics of the specific “territory”. According to Flores (2006), a territory is the result of social action that appropriates a space, both in concrete and abstract terms, by what is known as a process of social construction. Territory is therefore perceived as a space of social relations, which generates a feeling of belonging as a result of the network built through collective action, creating ties between people, institutions and the environment. As a result, the territory is valued according to its ability to provide “tangible benefits” i.e. productive activities, as well as “intangible” benefits linked to the development of a local culture. In other words, each territory has a particular “vocation” depending on the characteristics of its natural and socio-cultural heritage (Carenzo, 2007).

In this context, the territory must be understood as the key subject of analysis in any food system. One of the main elements in the methodological approach to territorial food systems is related to **territorial proximity or short supply chains** (Azevedo, 2008). According to the author, the spatial organization of this system reflects a division of labour and capital between spaces and actors involved in the processes of production and commercialization.

In the case of food products, short supply chains are of vital importance, especially for products generated in the rural family economy, because they allow producers to capture the additional income generated from lower costs, price increases, or a reduction of the intermediaries involved in the process. In this regard, supply chains in local and regional markets can be seen not only as a source of opportunities, but also as a way to integrate the different stages of the chain in a territory to allow a more direct appropriation of the income generated, thereby boosting local economies, stimulating local actors as links in the social construction of the development process, and taking advantage of local knowledge and relationships.

The development of territorial markets leads to new models of governance based on innovative mechanisms for social participation, an active role of consumers and the strengthening of social cohesion through a sense of belonging related to local food resources and culinary traditions.

### 7.2.5 PUBLIC PROCUREMENT FROM FAMILY FARMING

The public procurement of food technically refers to the government's action of purchasing foodstuffs (primary and processed), which are distributed to social programs for nutritional or emergency purposes, or to public institutions to meet the requirements of their staff or the communities they serve. Examples of these latter entities are prisons, nursing homes, community kitchens, and army barracks, among others.

Many countries of Latin America and the Caribbean<sup>27</sup> have begun to use public procurement as an innovative policy tool for local development and inclusion based on the territorial proximity of food systems. This policy tool helps to boost local economies, making family farmers and family farming organizations into key providers of food to public institutions, which in turn promotes processes of planning, investment and the development of business skills by small producers.

In Colombia, one of the most important public purchase programs is the Ministry of Education's School Food Program (PAE in Spanish), as well as the Colombian Institute for Family Welfare (ICBF), and the National Penitentiary and Prisons Institute (INPEC). In 2016, these entities acquired food worth a total US\$789 million, much of which was produced by family farmers (FAO, 2016).

## 7.3 METHODOLOGICAL CONSIDERATIONS<sup>28</sup>

First, a supply system can be analysed from different perspectives, given that it generates externalities related to economic, environmental, social, institutional and cultural factors (Argenti and Marocchino, 2007). In this proposal, the focus is on the social, productive and commercial dynamics of food generated by the relationships between economic and institutional stakeholders in the system and the territories in which they operate.

The implementation of this approach involves both quantitative and qualitative techniques, which allows a deeper understanding of the dynamics of supply. In addition to gathering information related to factors such as food supply and demand, prices, profit margins, production costs, transportation costs, processing costs, origin and destination of foods, among others, this approach results in a better understanding of the social and cultural factors affecting the decisions of individuals who are part of the supply chain.

---

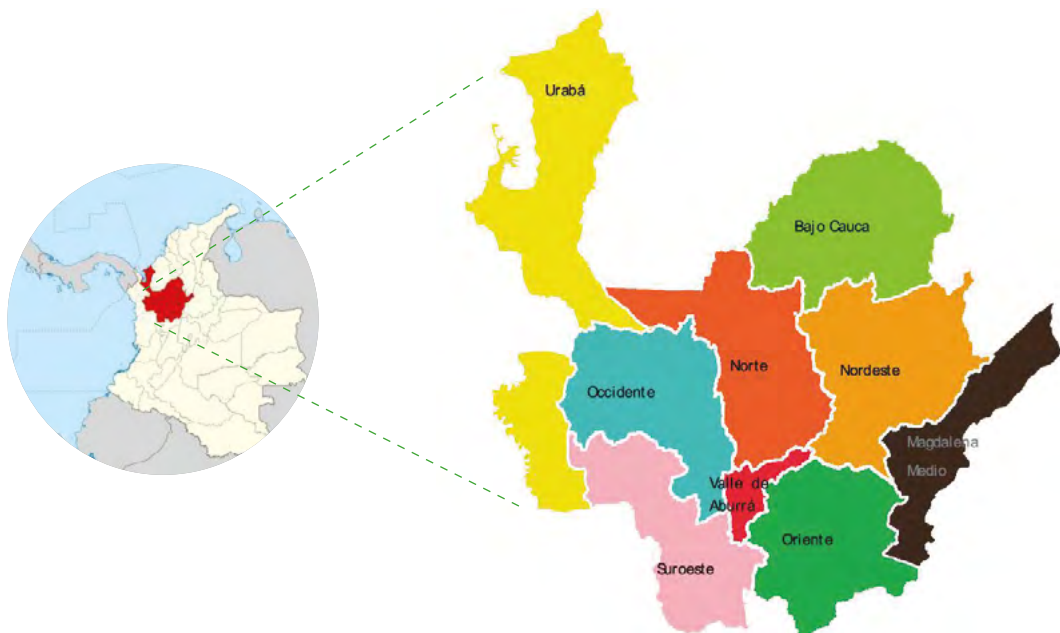
27 One of the main experiences is Brazil's Food Acquisition Program (PAA), based on the modification of Law N.º 11.947/2009, which determined that at least 30% of the resources transferred by the federal government to states and municipalities for the acquisition of food products must be used for purchases from family farms. Similar experiences are being developed in Honduras, Guatemala, and Ecuador, and in other continents such as Africa. For more information, see: *Public procurement in family farming and food and nutritional security in Latin America and the Caribbean. Lessons learned and experiences*. FAO, 2015.

28 For an in-depth analysis of the methodology for analysing food supply systems see: *Food supply systems, methodological document. Mesoamerica Without Hunger*, FAO program.

## 7.4 CASE STUDY: DEPARTMENT OF ANTIOQUIA (COLOMBIA)

This methodology was implemented in nine sub-regions and 124 rural municipalities that make up the department of Antioquia in Colombia, whose capital is the city of Medellín.

**Map 1:** Location of the department of Antioquia in Colombia and its sub-regional divisions



*Source:* <http://www.mapade.org/antioquia.html>

The study analyses trade relations at the different levels of the territory. In this regard, the following categories have been defined, including both food inflows and outflows in the territory:

- **Local/municipal trade:** the trade relationship within a municipality.
- **Intra-regional trade:** the trade relationship between municipalities in the same sub-region.
- **Interregional trade:** the trade relationship between municipalities in different sub-regions.
- **Interdepartmental, national and international trade:** the trade relationship between the department of Antioquia, other departments in Colombia and other countries.

### 7.4.1 STAKEHOLDERS IN THE FOOD SUPPLY SYSTEM

The study is based on the results of 7,418 surveys and interviews with economic and institutional stakeholders in the territories during the period June to November 2015. These included: family farming organizations, community associations, agro-industries, transport companies, wholesalers and slaughterhouses, retailers, public institutions and market operators (food procurement programs), and consumers.

**Figure 12.** Selected stakeholders for analysis of the food supply chain



*Source: Methodology for analysis of food supply chains (Rodríguez Fazzone, M; González Arismendi, S.; Mesoamerica Without Hunger program. FAO, 2017).*

#### 7.4.2 ANALYSIS OF FOOD ITEMS PRODUCED BY FAMILY FARMS

The following food items produced by family farmers in each sub-region of Antioquia were identified and selected.

- 24 agricultural products: rice, oranges, potatoes, Creole potatoes, corn, panela, papaya, mango, lemon, beans, passion fruit, avocado, blackberry, cabbage, strawberry, onion, coriander, banana, plantains, yucca, tomatoes, tree tomatoes, carrots, beets.
- Three livestock products: pigs, eggs and fish.

#### 7.4.3 AGRI-FOOD TERRITORIAL SYSTEMS FOR THE INCLUSION OF FAMILY FARMING

An essential input for more efficient and sustainable territorial agri-food systems is to understand how food supply is structured in the territories, the logistics, and the participation of stakeholders, especially rural family farms.

In this regard, the following is a summary of the main findings of the analysis of food supply in Antioquia. To understand the study in depth, please refer to the publication: Food Supply Systems: Basis for the inclusion of Family Farming (MANA FAO 2016)<sup>29</sup>.

#### 7.4.4 ANALYSIS OF FOOD SUPPLY IN PRIVATE MARKETS

##### 7.4.4.1 FOOD SUPPLY IN THE METROPOLITAN AREA OF ANTIOQUIA

The metropolitan area of Antioquia, comprised of the city of Medellín and its peri-urban areas, is home to 3 million inhabitants, close to 50% of the population of the department. However, while Antioquia produces 3 million tons of food each year (56% is produced by family farming), 64.1% of the food consumed in the department comes from other departments in Colombia. In particular, Antioquia receives food from Tolima (28.04%), Santander and Norte de Santander (21.09%), Boyacá and Cundinamarca (14.98%). In addition, 9.5% of food products are imported from the USA, Argentina, Brazil and Paraguay, including a significant share of corn, rice and beans, all products that are also produced in Antioquia.

From the above, it is clear that food demand in Antioquia is not met through rural-urban coordination. Medellín, the main center of food consumption in the department, does not depend on food from nearby rural areas that produce the same foods consumed in the city. On the contrary, its food supplies come from long national and international supply chains with all the consequences that this entails: higher prices, energy costs, transfer of resources, loss of sense of belonging and productive identity, among others.

29 See: <http://www.fao.org/documents/card/es/c/975c737b-0fda-4b40-aa62-c2dfce241370/>

#### 7.4.5 SUB-REGIONAL / TERRITORIAL FOOD SUPPLY

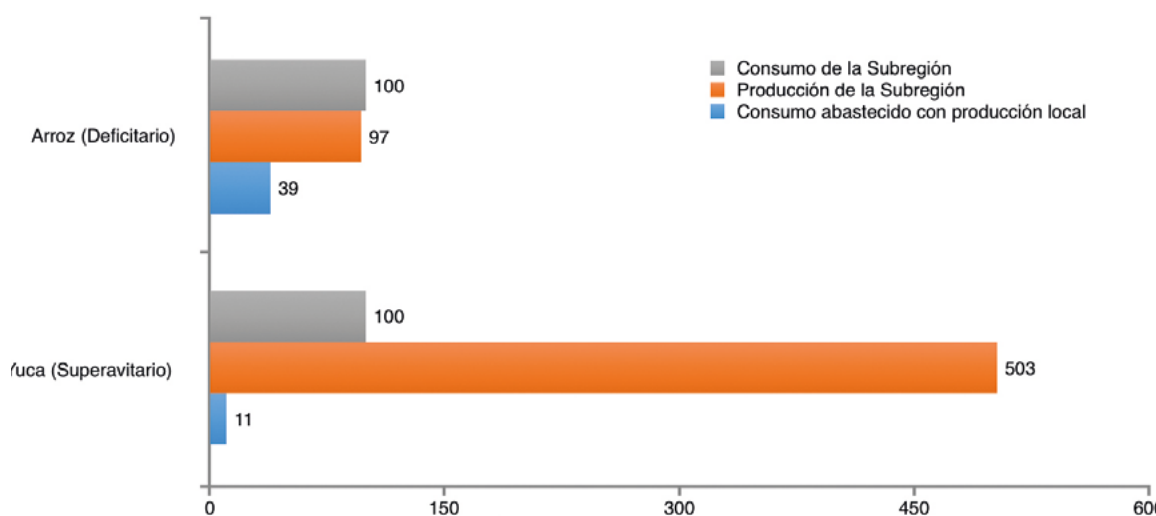
The low level of urban-rural integration of food supply is reproduced at the sub-regional/territorial level. In the nine sub-regions of Antioquia and the municipalities that comprise them, some locally produced and sub-regional food items go mainly to markets outside of the sub-regions where they are produced and even outside of Antioquia.

The trend of commercial entities prioritizing markets other than local markets leaves local demand unsatisfied, which then has to be met with supplies from more distant areas. The study concludes that, on average, only 24.5% of the demand of each sub-region is supplied with local produce and a similar percentage (21.9%) comes from the surrounding sub-regions.

This study reveals a structure of production, distribution and consumption that does not efficiently facilitate vertical integration for self-sufficiency i.e., that begins at the local level and moves up to the sub-regions and the department; an arrangement that could be viable given the productive vocation of the municipalities.

To illustrate the lack of coordination between local demand and supply, the following graph shows that the production of yucca in the Bajo Cauca sub-region exceeds by 503% the consumption of the population in that area, but only 11% of demand is met by local production. It is paradoxical that, despite its surplus, the sub-region should have to import 89% of the yucca needed to meet its demand. It should be noted that these behaviours are not necessarily explained by different qualities of products, or specific varieties, as they are food products without significant commercial differentiation. Based on a qualitative analysis, it was determined that among the causes of this phenomenon is the asymmetry of information in the sub-region due to ignorance and lack of connectivity between economic actors, as well as a lack of basic infrastructure for the collection and processing of food, and historical commercial ties between local intermediaries and buyers outside of the department of Antioquia.

**Figure 13.** Local production of rice and yucca as a share of local demand in Antioquia's Bajo Cauca sub-region

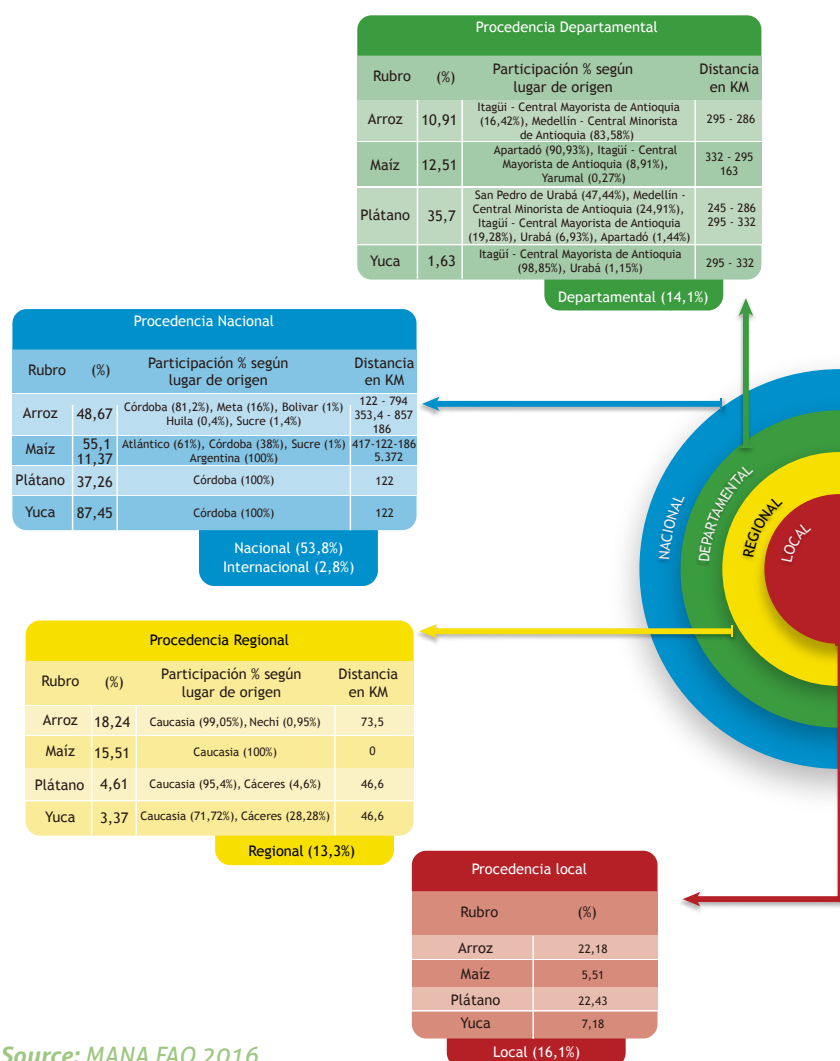


Source: MANA FAO 2016.

In the case of rice, Bajo Cauca produces 97% of the sub-region's demand, i.e. it is practically self-sufficient. However, only 39% of the consumption of the sub-region is supplied from local production, with 61% imported from elsewhere in the country. As shown in the following diagram, 48.67% of the rice consumed in Bajo Cauca comes from Córdoba, Meta, Sucre and Bolívar departments and 10.91% from Medellín's wholesale market, Central de Abastos.



**Figure 14.** Origin of food entering the Bajo Cauca sub-region<sup>30</sup>



Source: MANA FAO 2016.

Similar cases of lack of coordination in the local market include rice in the Magdalena Medio sub-region and potatoes in the Norte sub-region, where the percentage of local production used to meet demand in the sub-regions is relatively low, with outflows for some products increasing the level of deficit that must be covered by imports from other sub-regions and departments.

It is worth mentioning that these two sub-regions have the highest rates of poverty in Antioquia, so dependency on food from more remote areas heightens the vulnerability of the population in terms of access to foods, which are available at a higher price or lower quality.

#### 7.4.6 MARKET INFRASTRUCTURE IN THE TERRITORIES

Another factor limiting more efficient supply systems in terms of proximity, and equitable access of family farming in supply chains, is the absence of local markets that would allow a more direct link between the producer and the consumers, and create more value in the territory.

Of the 125 municipalities that make up Antioquia, only one out of every four has a market square or active farmers market and, of these, only half of the stalls are used to sell food products. In this scenario, it is not surprising that family farmers sold 3.1% of what they produce directly to consumers and only 1% to farmer's markets.

<sup>30</sup> For an overview of the origin and destination of foods from each of the sub-regions of the department of Antioquia, see: <http://www.fao.org/documents/card/es/c/975c737b-0fda-4b40-aa62-c2dfce241370/>

In addition, there is a **considerable geographical concentration of companies that perform food processing**. There are 1,479 such companies registered with the Antioquia Chamber of Commerce, of which 75% are located in the city of Medellín, which implies that many foods need to be transported long distances for value aggregation or seek markets outside of the department.

Related to the above, the current food system introduces important inefficiencies regarding the loss of food. The study indicates that between 5% and 40% of all food produced is lost in the chain, for example: 10% of rice, 12.8% of beans, 25% of yucca, 15% of lettuce and 13.9% of corn, with the greatest losses occurring during production and post-harvest.

Based on interviews, local institutions and governments show a tendency to underestimate the influence of local market infrastructure on food supply systems and its effects on the participation and positioning of actors in the food chain.

#### 7.4.7 PARTICIPATION OF FAMILY FARMING ORGANIZATIONS IN THE FOOD SUPPLY SYSTEM OF ANTIOQUIA.

The new policy paradigm based on a territorial approach has focused on promoting associativity between farming organizations and cooperatives. Despite these efforts, the study determined that production by family farming organizations of the 27 basic food items analysed represents only 5.6% of the total volume of food produced in the department, and 3.52% of the total value of production. In this regard, better community integration policies are needed to improve access to markets and territorial cohesion.

The study also showed that the **participation of family farmers in supply chains is highly inequitable**; farmers in the production stage, for example, receive only 7% of the total of the profits generated in the yucca chain, and 11% in the mango chain, compared to values of between 35% and 48%, respectively, in links closer to consumers. As a result, strategies focused on increasing primary food production will not necessarily result in greater equality for producers and in the generation of employment in the territories. As noted in the infrastructure section, a lack of food processing facilities in rural municipalities inhibits their ability to capture income in the territories or to improve the capacity of family farming to generate income.

#### 7.4.8 FROM INEFFICIENCY TO OPPORTUNITY: TERRITORIAL MARKETS FOR FAMILY FARMING

As mentioned above, food inflows, or food entering the territory to supply demand for products that are also produced locally, translate into a transfer of resources between sub-regions, which restricts the potential of the territory to develop policies that promote greater social and territorial cohesion.

From an economic perspective, food inflows to the sub-regions of Antioquia represent US\$972 million dollars a year (Table 2), a figure that can be interpreted as a loss of income for local development and, in particular, lower income and employment for family farming with the capability to provide food to local markets.

However, the processes of transfer are not only economic. Inflows and outflows of food to anonymous, distant and global markets, result in a transfer of natural resources, employment and socio-productive identity that exacerbates territorial income gaps and inequalities; This phenomenon is linked to what is known as "deterritorialization" (Delgado Cabeza, 2010). The scope of this process is related to the level of demand in each sub-region, which is supplemented by food from other territories and which may be determined, among other factors, by the asymmetry of information and lack of coordination of economic actors, the absence or precariousness of markets and food processing infrastructure, or because local production is linked with agri-food chains aimed at the global market.

The development of local agri-food systems is a response to this problem. Through this approach, the social construction of markets constitutes an important public policy tool, seeking to make problems into opportunities for farmers through the coordination and cooperation of actors that respond to markets and short supply chains in territorial proximity, brought together by a shared social, cultural and productive identity based on their customs and sustainable management of natural resources. This implies new forms of governance, organization and active public participation, as well as greater visibility and valuation of the intangible contributions of family farming such as the adoption of sustainable agricultural practices, the preservation of the environment and the rescue of local food products.

**Table 1.** Economic value of food inflows from FF to Antioquia, by category

FOOD ITEM	VALUE OF INFLOWS (Millions of US dollars)	% FOOD ITEM / TOTAL CONSUMPTION
Fish	286,86	4,40%
Rice	223,44	12,90%
Beans	78,61	3,10%
Potatoes	64,48	12,00%
Panela	47,08	10,50%
Corn	46,75	8,00%
Avocado	39,70	3,80%
Blackberries	31,13	2,20%
Papaya	30,92	3,40%
Strawberries	27,58	1,60%
Lemons	25,89	2,70%
Yucca	14,13	4,00%
Plantains	13,92	8,20%
Coriander	11,51	0,50%
Cabbage	9,88	2,50%
Eggs	9,81	2,10%
Green onions	8,21	1,00%
Pork	2,42	4,40%
Tomatoes	0,05	3,10%
Bananas	0	3,10%
Carrots	0	3,00%
Tree tomatoes	0	2,50%
Beets	0	1,00%
<b>TOTAL</b>	<b>972,40</b>	<b>100,00%</b>

Source: MANA FAO, 2016.

To achieve this objective, governments need to strengthen local capacities and processes of decentralization, generate and disseminate information regarding territorial food proposals, and create institutional and technological innovations based on values such as building trust, health and nutrition, local cuisine, cultural traditions, youth employment and community livelihoods (Santacoloma, 2016). The results of the analysis of Antioquia's sub-regions reflect a wide range of opportunities to advance in developing territorial groups based on specific foods with cultural identity in the rural economy.

#### 7.4.9 ANALYSIS OF SUPPLY FOR PUBLIC FOOD PROCUREMENT PROGRAMS

Another strategy to develop territorial agri-food systems is public procurement of food, which represents an opportunity to promote rural development and linkages between family farmers and public institutions as direct suppliers of food.

The analysis focused on the actors that make up the food supply system of public procurement programs, as well as their logistics, territorial linkages and, in particular, the participation of family farmers as suppliers. As in the section on private markets, below are the main results of the study "Food supply systems: inclusion of family farming in public procurement" (MANA FAO, 2016). For a detailed analysis, please refer to the study<sup>31</sup>.

31 Document available at: <http://www.fao.org/documents/card/es/c/f1701e9c-1dfc-40b4-ba7b-8f19429b0e3e/>

The programs of the three following entities, considered the most important in Colombia in terms of their purchasing power and geographic coverage, were analysed:

- Colombian Institute for Family Welfare (ICBF): Community-based Child Welfare Program (HCB) and Child Development Centres (CDI).
- Ministry of Education: School Food Program (PAE)
- National Penitentiary and Prison Institute (INPEC)

As Table 3 shows, in 2016 public procurement of food by these programs represented US\$709 million in Colombia, and more than US\$28 million in the department of Antioquia alone; in both cases, the figures refer to the acquisition of primary products (fruits, vegetables, meats, grains) associated with the production of family farming.

**Table 2.** Economic value of food demand from family farming for public procurement programs in Colombia and Antioquia (2016)

PROGRAM /PUBLIC INSTITUTION	VALUE OF FOOD PURCHASES (USD/YEAR)	
	COLOMBIA (2016)	DEPARTAMENT OF ANTIOQUIA (2015)
School Food Program (PAE)	276.539.277	13.735.940
Colombian Institute for Family Welfare (ICBF)	319.255.000	9.282.862
National Penitentiary and Prison Institute (INPEC)	113.333.333	5.418.016
<b>TOTAL</b>	<b>709.127.611</b>	<b>28.436.819</b>

*Source: MANA FAO based on information from contracts and public tenders of PAE, ICBF and USPEC (2016)*

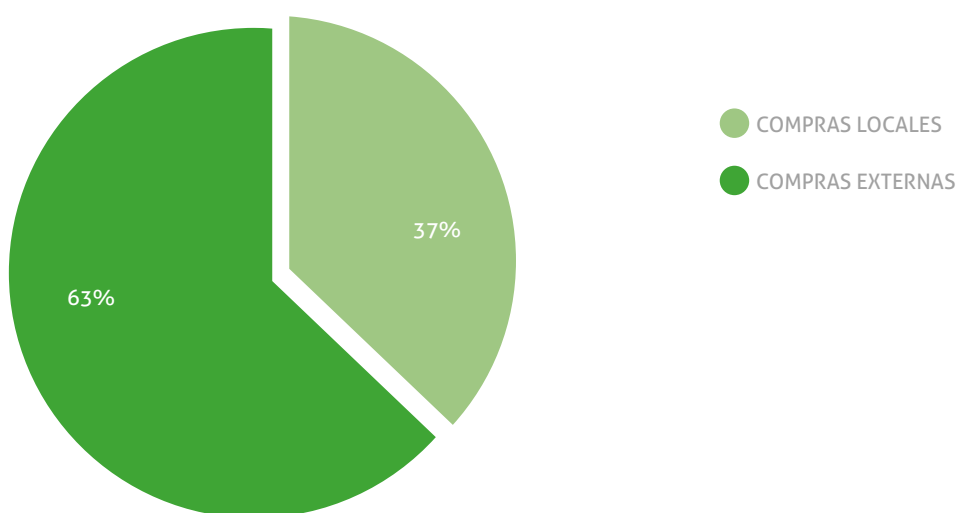
In aggregate terms, in the department of Antioquia the above represents the acquisition of 32,000 tons of food produced by family farms. Analysing the data by food item, 50.78% of purchases were concentrated in four food groups: whole fruits, fruit juice, rice and potatoes.

#### 7.4.10 ORIGIN OF FOOD PURCHASED BY PUBLIC PROCUREMENT PROGRAMS

Supplying food to public programs is the responsibility of the programs' operators, which are private companies, NGOs, or associations that win public tenders for contracts that include food supplies. Given that most of these processes are based on centralized management schemes, the operators use a network of logistics and suppliers to achieve broad geographical coverage.

Graph 2 shows that, in the department of Antioquia, 63% of public purchases of food occur outside of the municipalities where the products are consumed. In other words, the use of local food products is not prioritized. This means that operators do not base their purchasing decisions on the geographic proximity of suppliers, but instead deal with merchants outside the territory, such as wholesalers or national suppliers, which offer a variety of products in a single physical space. Indeed, the study was able to determine that 44% of the total volume of food purchased for public programs in the department of Antioquia is acquired in the Medellin wholesale market, which is used to supply food to municipalities more than eight hours away. The lack of prioritization of local food suppliers (including family farmers) contributes to the process of deterritorialization and limits the possibilities of promoting the local economy, even though the sub-regions often produce the same foods that are purchased from outside those territories.

**Figure 15.** Origin of food purchases for public institutions or public procurement programs in Antioquia, Colombia



Source: MANA FAO, 2016.

Despite the trend towards not giving priority to food produced locally, a comprehensive review of the public institutions (PAE, ICBF, INPEC) suggests that the institutional structure and operation of each public procurement program may affect this behaviour.

The ICBF, for example, has established a methodology<sup>32</sup> to promote territorial spaces for negotiation between suppliers and program operators, as well as a contractual clause stating that a certain percentage of food supplies must come from local suppliers. As a result, 78% of food purchases in ICBF programs are local.

At the other extreme is the case of INPEC. With regard to food supply, this institution is highly centralized with only two operators providing food to all prisons in the department. The direct suppliers of this program include Medellín's wholesale market, accounting for 83.9%, of the total, and other commercial establishments representing 15.4%, leaving no clear space for local purchases from family farmers.

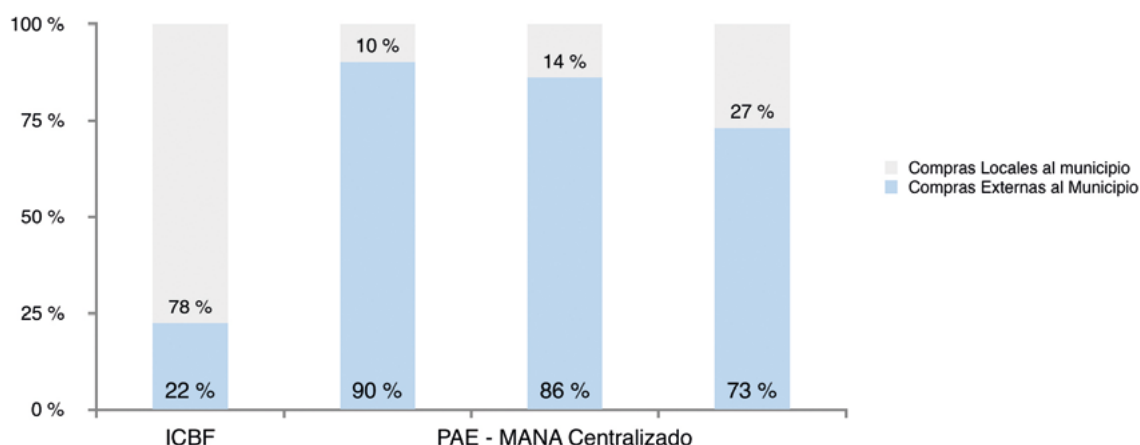
Finally, the case of PAE confirms the outcomes of the two previous cases. The origin of food supplies tends to differ depending on whether the program is implemented in a centralized or decentralized way. In the former case, a single operator must supply 63 municipalities so it seeks to concentrate supply from the fewest number of suppliers possible. In this scenario, local purchases are only 15%, with a clear preference for supply from the Medellín wholesaler (47%) and commercial establishments (12.8%). Conversely, an analysis of the supply chain in decentralized municipalities shows the participation of local purchases increases to 27% and family farming organizations act as direct providers. This shows that decentralized operations contribute to more efficient supply chains in terms of proximity, local linkages and links with family farming.

In conclusion, the operation of programs by local actors, whether by the municipalities themselves or at the sub-regional level, favours the participation of a greater number of local economic agents and also increases their propensity to buy food from local providers.

<sup>32</sup> ICBF includes a clause in contracts requiring operators to purchase 20% of food from local suppliers. To promote this policy, regional representatives of the ICBF regularly promote the realization of territorial business meetings calling on a significant number of rural organizations to offer their food products to operators. In addition, the ICBF publishes public demand for food by region on its website to promote connectivity between buyers and sellers of popular foods. For more information, see: <http://www.icbf.gov.co/portal/page/portal/PortallICBF/bienestar/compras-locales>



**Figure 16.** Origin of public purchases of food by institution / public procurement program in Antioquia, Colombia

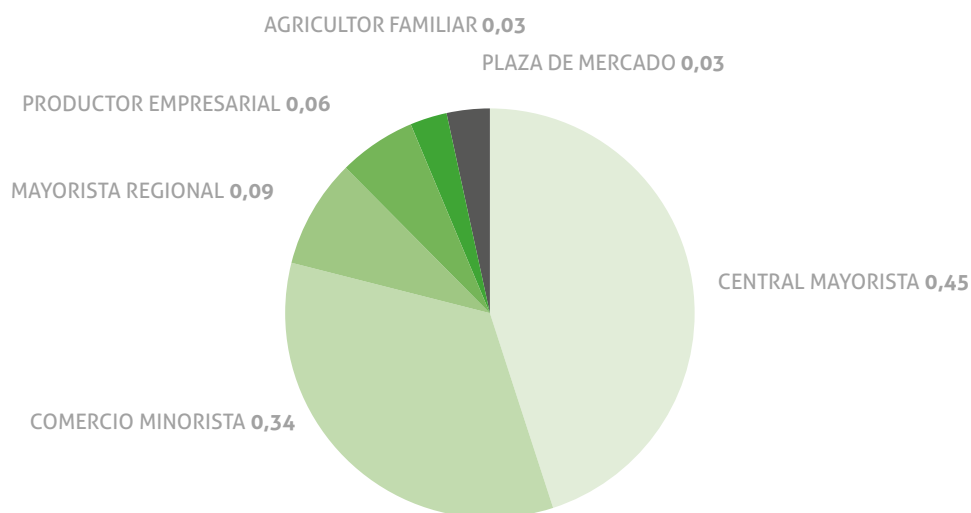


Source: MANA FAO, 2016.

#### 7.4.11 PARTICIPATION OF FAMILY FARMING AS A DIRECT PROVIDER FOR PUBLIC FOOD PURCHASE PROGRAMS

The actor with the least participation in public food purchase programs as a direct provider is family farming, which provides only 3% of the total volume of food in the market of public institutions. In addition, operators only acquire 2% of their food from market squares or farmers markets, which are commercial spaces more closely linked to family farmers.

**Figure 17.** Participation of family farming as a direct provider for public procurement programs in Antioquia, Colombia



Source: MANA FAO, 2016.

It is important to note that the productive capacity of family farming organizations in Antioquia exceeds the amount of food required by the institutional market (MANA FAO, 2016). However, the low level of linkages with the public sector is conditioned by factors related to regulations, organization, food quality and planning; other factors that limit their participation include misinformation about institutional markets at the local level, lack of incentives and terms of payment, as well as lack of organization and specialized technical assistance.

## 7.5 CONCLUSIONS AND POLICY RECOMMENDATIONS

Understanding the social and economic relationships in a particular territory's food supply processes is an important input to move towards more inclusive and efficient food supply systems.

The study in the department of Antioquia shows that from both the urban-rural and intra-regional perspectives, food supply is not based on proximity of markets or short supply chains; on the contrary, the supply system is based on long supply chains that lead to price increases, higher energy costs, and considerable losses in the quality and quantity of food. The failure to take advantage of local opportunities, the inflow of food that could be provided locally, and the low retention of added value tends to accentuate territorial inequalities.

Efforts to strengthen associativity between family farming organizations are necessary, but are still insufficient to achieve effective and sustainable integration with more dynamic sectors; for example, the share of food production distributed through family farming organizations is only 5.31% of the total, which shows rural production is still highly dispersed. Moreover, according to the latest agricultural census, associations or federations of small producers only account for, on average, 1% of food produced, except for cases such as the coffee and cocoa supply chains.

This suggests that a rethinking of the food supply system is needed based on a new vision focused on the territory, including its different groups of family farmers (rural organizations, cooperatives, community organizations, and other groups), which promotes greater connectivity and partnerships with other actors in the territory based on incentives that favour spaces for coordination and cooperation.

In this regard, the promotion of territorial agri-food systems based on short supply chains and proximity of markets is a key strategy in the pursuit of greater social and territorial cohesion. As an innovative tool, this approach should include: promoting greater geographic connectivity between production and regional consumption; promoting territorial markets to reduce the influence of large wholesalers and to ensure greater integration of post-harvest stages and value aggregation in the territory; reactivate farmers markets and municipal marketplaces, which have traditionally been the main links between farmers and consumers; promote mechanisms of territorial governance to develop agricultural proposals with more active participation by local economic agents, while also involving the public in processes of production and consumption, thereby reinforcing the productive and socio-cultural identity of foods produced in the territory.

These mechanisms, which include the social construction of markets, are feasible alternatives to the endogenous development of territories and to promote a more equitable inclusion of family farming. Among them, public procurement programs that seek to include small producers as direct providers and promote local food purchases are an excellent example of coordination and cooperation between actors in the territory, which can be expanded to build linkages with larger private markets.

Finally, based on the conclusions of this study, we recommend that information related to food supply be promoted as a public good; the dissemination of this information among stakeholders in the territory, and the strengthening of local capacities through the identification of opportunities, is essential to reduce asymmetries and move towards more transparent and efficient food systems.

## REFERENCES

**ABRAMOVAY, R. (2004).** *Entre Deus e o diabo: mercados e interação humana nas ciências sociais. Tempo Social – Revista de Sociologia da USP – volume 16, no 2 – no prelo, Brasil.*

**ALCALDÍA DE MEDELLÍN Y UNIVERSIDAD NACIONAL DE COLOMBIA. 2011.** *Plan de acopio y distribución de la ciudad de Medellín (PADAM).* Medellín (Colombia). Recuperado el 15 de abril de 2015.

**ARGENTI, O., & MAROCCHINO, C. (2007).** *Abastecimiento y distribución de alimentos en las ciudades de los países en desarrollo y de los países en transición.* Recuperado el 6 de Diciembre de 2015, de <http://www.fao.org/3/a-y5401s.pdf>

**AZEVEDO, C. OCTUBRE DE 2008.** *La configuración de los circuitos «de proximidad» en el sistema alimentario: tendencias evolutivas.* Recuperado el 10 de junio de 2015 ( <http://www.raco.cat/index.php/DocumentsAnalisi/article/viewFile/139967/191146>).

**CELAC. 2014.** *Proyecto de Plan para la seguridad alimentaria, nutrición y erradicación del hambre.* Recuperado el 17 de junio de 2015, de ( [http://www.ialcsh.org/fileadmin/templates/iniciativa/content/pdf/gt2025/2014/Proyecto\\_de\\_Plan\\_CELAC\\_Resumen\\_Gt2025\\_IALCSH.pdf](http://www.ialcsh.org/fileadmin/templates/iniciativa/content/pdf/gt2025/2014/Proyecto_de_Plan_CELAC_Resumen_Gt2025_IALCSH.pdf)).

**CHONCHOL, J. 1990.** *Revalorización de las comunidades campesinas del tercer mundo.* Citado por Bernak F. Editor en *El campesino en el mundo contemporáneo* Bogotá (Colombia).

**DELGADO CABEZA, M (2010)** "El sistema agroalimentario globalizado: imperios alimentarios y degradación social y ecológica". *Revista de Economía Crítica*, Universidad de Sevilla, España.

**DEPARTAMENTO ADMINISTRATIVO DE PLANEACIÓN. GOBERNACIÓN DE ANTIOQUIA. 2012.** *Anuario Estadístico de Antioquia.* Recuperado el 23 de enero de 2015, de ([http://antioquia.gov.co/PDF2/anuario\\_2012/index2.html?sw=1](http://antioquia.gov.co/PDF2/anuario_2012/index2.html?sw=1)).

**FAJARDO, D. 1996.** *Fronteras, colonizaciones y construcción social del espacio.* Bogotá (Colombia) Universidad Nacional de Colombia, Instituto Sinchi.

**FAO (2014).** *Pérdidas y desperdicios de alimentos en América Latina y el Caribe.* Recuperado el 3 de junio de 2015, de (<http://www.fao.org/3/a-i3942s.pdf>).

**FAO (2013).** *Alimentación escolar y las posibilidades de compra de la agricultura familiar.* Estudio de caso en 8 países. FAO-Brasil.

**FAO (2014).** *Sistematización del taller de compras públicas a la agricultura familiar para América Latina.* Taller regional en Costa Rica. Costa Rica.

**FAO /COOP. BRASIL (2014).** *Catálogo de buenas prácticas en procesos de implementación de mecanismos de compras públicas directas y locales a la agricultura familiar para la alimentación escolar.* Proyecto de Fortalecimiento de Programas de Alimentación Escolar (FPAE), en el marco de la Iniciativa América Latina y El Caribe sin Hambre 2025. FAO.

**FAO (2016).** *Cadenas Cortas Agroalimentarias.* Memorias del Taller de intercambio de Experiencias. Ciudad de México.

**GOBERNACIÓN DE ANTIOQUIA. 2004.** *Perfil alimentario y nutricional de los hogares del Departamento de Antioquia.* Medellín (Colombia): Gobernación de Antioquia.

**GOBERNACIÓN DE ANTIOQUIA. 2012.** *Plan de Desarrollo Departamental 2012 -2015 "Antioquia la más educada".* Recuperado el 25 de febrero de 2015, de Gobernación de Antioquia.. Plan de Desarrollo 2012-2015. Disponible en: ([http://antioquia.gov.co/Plan\\_de\\_desarrollo\\_2012\\_2015/PDD\\_FINAL/PDD\\_FINAL/9\\_Linea\\_5.pdf](http://antioquia.gov.co/Plan_de_desarrollo_2012_2015/PDD_FINAL/PDD_FINAL/9_Linea_5.pdf)).

**GOBERNACIÓN DE ANTIOQUIA. 2013.** *Memorias Foro Subregional: ¿De qué vivirán los pobladores rurales?* Magdalena Medio. Recuperado el 2 de marzo de 2015, de (<http://antioquia.gov.co/PDF2/5%20MEMORIAS%20MAGDALENA%20MEDIO-%20FORO%20RURAL.pdf>).

**HARVEY, D. 2007.** *The limits to Capital.* New York (Estados Unidos): Verso.

**INVIMA. 2015.** *Informe plantas de beneficio de Antioquia.* Recuperado el 6 de febrero de 2015.

**MACHADO A, SALGADO C. Y NARANJO S. 2013.** *Territorios para el desarrollo de las sociedades y economías campesinas*. Recuperado el 10 de junio de 2015.

**MANA FAO. DE PAOLI, L.; RODRÍGUEZ FAZZONE, M.; URREA, J.; ZULUAGA, J. (EDITORES) (2016).** *Sistema de Abastecimiento Alimentario: bases para la inclusión de la agricultura familiar*. Antioquia Colombia. FAO.

**MANA FAO. DE PAOLI, L.; RODRÍGUEZ FAZZONE, M.; URREA, J.; ZULUAGA, J. (EDITORES) (2016).** *Sistema de Abastecimiento Alimentario: inclusión de la agricultura familiar a las compras públicas*. Colombia. MANA FAO. <http://www.fao.org/documents/card/es/c/f1701e9c-1dfc-40b4-ba7b-8f19429b0e3e/>

**MANA FAO. 2014.** *Memorias Foro Internacional de Agricultura Familiar: con educación sembramos oportunidades*. Medellín (Antioquia).

**MONLLOR, N. 2013.** *El nuevo paradigma agrosocial, futuro del nuevo campesinado emergente*. Sánchez, A. (2011). *Agricultura Familiar: Evolución Conceptual, Desafíos e Institucionalidad*. FAO. Recuperado el 5 de Mayo de 2015

**RASTOIN, J. L. (2015).** *Les systemes alimentaires territorialisés: considerations theoriques el justifications empiriques*. Editorial, Economies et Sociétés, Tome XLIX. Serie systemes alimentaires, AG, N 37, Ismea Les Presses, Paris.

**RASTOIN, J.L. (2015).** *Les systemes alimentaires territorialisés: le cadre conceptuel*. Journal Resolies. p.11.

**RODRÍGUEZ FAZZONE, M.; GONZALEZ ARISMENDI, S. (2017).** *Sistemas de Abastecimiento Alimentario: una mirada territorial*. Documento metodológico. Programa Mesoamérica Sin Hambre, FAO. (en proceso de publicación)

**SÁNCHEZ, A. 2011.** *Agricultura Familiar: Evolución conceptual, desafíos e institucionalidad*. FAO. Recuperado el 5 de mayo de 2015.

**SANTACOLOMA, P. Y GÁLVEZ-NOGALES, E. (2013).** *Alianzas público-privadas para el desarrollo de agronegocios*. – Informe de país: Colombia. Estudios de casos de países – América Latina. FAO.

**SECRETARÍA DE AGRICULTURA Y DESARROLLO RURAL. GOBERNACIÓN DE ANTIOQUIA. 2013.** *Anuario estadístico del sector agropecuario en el departamento de Antioquia*. Recuperado el 12 de enero de 2015, de ([http://antioquia.gov.co/images/pdf/Anuario\\_2013.pdf](http://antioquia.gov.co/images/pdf/Anuario_2013.pdf))

**SMITH, N. 1984.** *Uneven development nature, capital and the producción of space*. New York (Estados Unidos): Blackwell.

## 8. “CULTIVANDO AGUA BUENA” PROGRAM

Nelton Friedrich<sup>33</sup> and Javiera Suarez<sup>34</sup>

### 8.1 INTRODUCTION TO THE CULTIVATING GOOD WATER PROGRAM

Our way of life based on production and endless consumption has had serious impacts on our planet, which has been seen as an inexhaustible supplier of natural resources. Combined with an increase in extreme climatic events and the economic vulnerability of affected territories, this has had a direct impact on food and nutritional security, with negative consequences for overcoming poverty, eradicating hunger and achieving sustainable development.

In the Paraná Basin (Argentina, Brazil and Paraguay), agricultural practices have often been unsustainable and have led to deforestation and pollution, mainly of waterways and land resources. A large part of the rural population, particularly small-scale farmers, continues to depend on agriculture as a livelihood. This sector faces significant barriers in terms of access to productive resources, basic infrastructure, public services, financing and community outreach. These obstacles hinder their access to markets, technology and innovation, while impeding the achievement of sustainable productivity gains and linkages to dynamic markets.

The *Itaipu Binacional* hydroelectric project is one of the largest power plants in the world and is responsible for the formation of Lake Itaipu, which has caused major geographical, biological, cultural, social and economic changes in the surrounding area. However, it has also become the focus of development actions to mitigate these impacts, including the development of the Cultivating Good Water Program (CAB in Spanish).

#### 8.1.1 EMERGENCE OF THE CULTIVATING GOOD WATER PROGRAM

Considering the importance of the project in the region, *Itaipu Binacional* reviewed its strategic plan and determined that it could become an important promoter of the Brazilian government's public policies in agriculture, poverty reduction, social inclusion of vulnerable groups and the adoption of climate change adaptation measures. To carry out this new mission it created the Cultivating Good Water Program. The CAB represents a milestone in the history of the environmental management of Itaipu, emphasizing the company's principles and values, and focusing on environmental education to raise awareness.

This change in Itaipu's mission has affected its business ethics, with a greater focus on social and environmental responsibility. As a result of the program, *Itaipu Binacional* has expanded its coverage from 16 municipalities to encompass all 29 municipalities that make up the part of the Paraná River Watershed surrounding the power plant's reservoir, which is known as Paraná River Basin III. The aim of the program is to go beyond the shores of Itaipu Lake and promote the conservation of all sub-basins and micro-watersheds of Paraná River Basin III. The new objective is to ensure social development to eradicate poverty, while respecting the limits of the planet and its atmosphere and creating a culture of sustainability.

More than just an environmental project, CAB is a permanent movement, involving 2,000 partners, including government agencies, non-governmental organizations, educational institutions, cooperatives, community associations and companies. Its actions range from the recovery of watersheds and the protection of forests and biodiversity, to the dissemination of values and knowledge that contribute to the education of citizens about care and respect for the environment. For these actions to be effective, CAB must act in partnership with local municipalities, state and federal public institutions, private individuals, NGOs, universities, schools, cooperatives and companies in the region.

The ultimate goal of this initiative is to develop a culture of sustainability in communities of the river basin, which requires a change in livelihoods and consumption habits. Only through profound changes in the habits of individuals will sustainability become part of the values and beliefs of these communities, and will thus be passed down from generation to generation.

<sup>33</sup> Director of Coordination and Environment

<sup>34</sup> National Consultant in FAO, focal point for Agreement FAO/ITAIPU



## 8.2 INNOVATIVE METHODOLOGY OF THE CULTIVATING GOOD WATER PROGRAM

The first important innovation of CAB is in its methodology. *Itaipu Binacional* has the following main functions: the coordination, sharing and delegation of responsibilities, as well as the consolidation of efforts. This fourfold approach is designed to achieve sustainable results. However, to be successful the program must not only set goals and delegate actions to a third party, but also monitor and verify the results, while acting as a permanent instrument of change.

As CAB is a participatory movement constantly seeking new partners, its initiatives involve various stakeholders with something to contribute. Itaipu decides on the main areas of intervention and, in partnership with the local community, implements the program's initiatives at the municipal level. Itaipu provides technical assistance and support for the projects to obtain sustainable results. For its part, the municipality is in charge of planning the economic, social and environmental development of the territory, building necessary public works and infrastructure, and ensuring the proper management of natural resources and the environment. In addition, local communities provide hours of volunteer work and other services; schools, churches, fire stations, radio stations and others come together to form a platform for volunteers; universities, research centres and private companies offer technical assistance, research and consulting services, and infrastructure for the realization of workshops and conferences; and private companies and NGOs provide human resources to manage projects.

Guided by an integrated watershed management methodology, the initiatives developed by the CAB link environmental and socioeconomic issues with objectives focused on ensuring the sustainability of livelihoods and natural resources to meet local needs. The program promotes watershed management based on the smallest territorial unit, the micro-watershed, as expressed in this saying:

*"Think big (basin), start small (micro-watershed) and work fast (anticipate partners' doubts and discouragement)."*

Local interventions in micro-watersheds are considered in the general context of the Paraná River Basin III. The advantage of starting with the micro-watershed is that activities can be intensive and interaction with local stakeholders is easier. So far, the program has worked with 217 micro-watersheds, which has fostered the sharing of local experiences with good results throughout the river basin.

### 8.2.1 SOCIO-ENVIRONMENTAL STUDY OF THE MICRO-WATERSHED

Each micro-watershed is studied from a social and environmental perspective and then a local development plan is developed that considers the requirements of each territory and community.

In order to adapt the methodology to the characteristics of the micro-watershed, it is necessary to get to know the local reality as much as possible from visits and interviews. Quantitative and qualitative assessments are carried out and potential beneficiaries and professionals who could be involved in the program are interviewed to determine the current situation of the community, especially of the most vulnerable socio-economic groups. In addition, the environmental conditions of the micro-watersheds are monitored, often at the level of each rural property. A multipurpose technical study, bringing together databases, geo-processing and computer and cartographic resources, is then carried out. By means of these tools, information about the territory is collected, organized, and provided for the further development of actions and projects.

### 8.2.2 SELECTION OF THE MICRO-WATERSHED

This occurs through dialogue with the community, authorities and local leaders. Together with the local authorities, Itaipu experts determine the micro-watershed to focus on in each municipality, always giving priority to the headwaters that supply the city. Considering the socio-environmental problems of highest priority, the following conditions for the selection of micro-watersheds have been established:

Criteria for selection:

- Watersheds that contribute to the municipal public water supply system
- Watersheds with a high concentration of rural population
- Watersheds with the highest number of environmental liabilities

These conditions have been defined by the Paraná River Basin III management committee, which is composed of a coordinator and a secretary representing Itaipu, as well as representatives of civil society organizations and rural farmers' associations, public institutions and private companies, among others. In order to facilitate the development of activities in micro-watersheds, the following aspects should also be considered:

- **Accessibility:** The community should not be too far away or inaccessible in order to facilitate technical assistance, paperwork and guided tours.
- **Willingness:** The community and local government should participate in the program, and be willing to engage in participatory management and invest local resources (human, logistical, financial).
- **Diversity:** The selected territory (understood as the pilot micro-watershed, its surroundings and the municipality itself) should preferably present a variety of environmental situations, which could be subject to intervention (environmental liabilities, rural population and vulnerable groups).
- **Community engagement and participation:** The selected micro-watershed must not be a green desert. A minimum number of active groups (neighbourhood committees, producers' associations, cooperatives, schools, churches, health posts, among others) is needed in the micro-watershed and surrounding area.

### 8.2.3 RAISING AWARENESS

The next stage of the process is raising awareness among community leaders, and the local community in general, about the importance and need for the implementation of the program.

Workshops can help explain the program, emphasizing the importance of environmentally friendly practices. The process involves coordination between Itaipu, the authorities, community leaders and communities to adapt their properties and facilities to environmentally legislation and best practices. Through this process, communities also gain greater awareness about climate change, water scarcity and environmental issues at the local and global level.

### 8.2.4 TRAINING THE WATERSHED'S MANAGEMENT COMMITTEE

Coordination between Itaipu, the community, the municipality and other local and regional institutions is required to implement the development plan for the micro-watershed. Within the CAB Management Committee, there are at least three levels of coordination and a committee responsible for each project.

- Regional Management Committee (Itaipu representatives)
- Municipal Management Committee (representatives of authorities and local entities)
- Community Management Committee (representatives of the micro- watershed)
- Project Management Committees or Working Groups

### 8.2.5 FUTURE WORKSHOPS

The CAB methodology, called Future Workshops, calls for three stages called the Wailing Wall, the Tree of Hope, and The Way Forward. These processes help to bring together the whole community (men, women, the elderly, young people and children) to create a lasting bond between members of the community and the environment of the micro-watershed.

It is important to highlight the level of organization and leadership that must be present within the community for the proper development of capacities, social organization and management in all stages of the process.

- **Wailing Wall:** The self-analysis begins with the "Wailing Wall" where the community identifies the socio-environmental problems of the micro-watershed. This includes listing the main problems and their causes. Proposals are subject to a vote and are then sorted by priority.

- **Tree of Hope:** The next step is the “Tree of Hope”. In this stage the members imagine their ideal community. Everyone is asked to answer the question: “What community do I want?” In this stage, the problems on the Wailing Wall become the dreams of tomorrow. This is a time to be hopeful. Every idea is debated and voted on, and goes on the Tree of Hope.

- **The Way Forward:** At the next meeting with residents of the micro-watershed, proposals by the different commissions are considered based on the results of the self-assessment. At this time, the community approves a local development plan, which defines the actions to be taken to address the problems identified. The participants agree to adopt new behaviours based on community solidarity and care for the environment.

#### 8.2.6 WATER MANAGEMENT AGREEMENT

Once the management committees are created, alliances with social actors are formed, and a local development plan for the territory has been approved, an event is held where a document is signed that reaffirms the commitment of all the actors involved and summarizes the whole experience of the process.

#### 8.2.7 OTHER AGREEMENTS

After the conclusion of the workshop, and with the signing of the Water Management Agreement, all the actors sign related agreements and other legal instruments to ensure the correct implementation of the actions to address environmental liabilities.

#### 8.2.8 IMPLEMENTATION

In order for the actions of the CAB to be sustainable, they must comply with the following characteristics:

- Have a clear vision for the future and a public campaign, which shows both the urgent need for change and the goals to be met.
- Use an innovative methodology that ensures its implementation throughout the territory, and is able to be replicated in other environments and by different social actors.
- Allow local territorial organizations, with institutional legitimacy and operational capacity, to play a leading role, which means ensuring mechanisms of permanent participation for these actors from planning to the implementation of projects.
- Implement river basin management at the watershed, sub-watershed and micro-watershed level, giving individuals a sense of space and the systemic interdependence of their actions, which are represented by the movement of the waters.
- Facilitate community participation, emphasizing participatory actions in discussions, decisions and practices.
- Invite all actors, including different socio-economic groups and members of family groups, to participate in the different stages of the process as a condition to ensuring the sustainability of the program.
- Harness local competencies in the development and implementation of actions.

The mechanism used to define projects and distribute resources is clearly defined and the expected results and measures communicated in advance. The objectives, outcomes and activities are decided during the “The Way Forward” stage, and are based on the results of the “Wailing Wall” and the “Tree of Hope” stages. Interventions in the micro-watershed are then planned with the participation of local stakeholders and technical experts from Itaipu, with a medium to long-term perspective. The management committees ensure the co-management and implementation of the program’s actions.

### 8.2.9 FUNDRAISING

Financial and technical resources are provided by the actors involved, including municipalities, civil society organizations, private companies, NGOs and Itaipu, among others. Each initiative has a budget and the management committee is responsible for developing mechanisms for the distribution of resources, where the participants determine how each is able to help, whether financially or technically, according to the principle of shared responsibility.

With regard to Itaipu's private contributions, mechanisms are used to share costs with the municipalities. For example, the municipality performs the maintenance of rural roads according to the technical specifications of the work plan approved by Itaipu and based on the budgetary criteria of the National Department of Roads of Brazil's Ministry of Transport with approval from the Environmental Institute of Paraná. Once the work is completed in accordance with the agreement, Itaipu then proceeds to compensate the municipality.

### 8.2.10 MONITORING AND EVALUATION OF THE PROGRAM

Monitoring and evaluating results through the management committees, with the participation of all actors, is key to achieving the program's objectives. In this regard, the program calls for local meetings and a large annual meeting.

The coordination team and members of the management committees are constantly monitoring the program's processes. They are responsible for publishing weekly news bulletins (short texts and audio-visual records) concerning actions in the micro-watershed. Monthly progress reports (quantitative and qualitative) are prepared according to the evaluation criteria. In addition, meetings for consultations and to make any modifications are held periodically.

### 8.2.11 SYSTEMIZING THE PROCESS

A public communication plan supports the development of a territorial identity, allowing inhabitants to recognize each other as members of a shared and interconnected space. The creation of audio-visual material also supports the dissemination of the project at the internal and external level.

## 8.3 MAIN ACTIVITIES AND PROGRAMS IN PARANÁ RIVER BASIN III

### 8.3.1 ENVIRONMENTAL EDUCATION

Environmental education is one of the main aspects of the CAB intervention in the communities of the Paraná River Basin III. The aim is to train teachers so that environmentally responsible attitudes become part of everyday life for members of the community. So far, it has had the following results:

- 15,100 teachers and managers involved directly
- 29 municipal teachers' associations and one regional teachers' association
- 119 learning communities
- 52 water agreements with 21,000 participants
- 1,600 producers of school snacks

### 8.3.2 MANAGEMENT OF WATERSHEDS

Considering the future of the watershed, good water management is essential for land conservation and management in the territory. So far, 217 micro-watersheds have been intervened and environmental liabilities eliminated with the following results:

- Soil conservation. Construction of terraces to control runoff and improve infiltration (25,717 ha)
- Improvement of rural roads network (2,205 km)
- Fences to protect forests on the riverbanks (1,322 km)
- Introduction of drinking water providers to prevent the contamination of watercourses with agricultural inputs (168 units)

### 8.3.3 BIODIVERSITY, OUR COMMON HERITAGE

The measures taken by this program are intended to protect and conserve the biodiversity of the region, which is our most important heritage for future generations. Currently, the program's initiatives are focused on maintaining and improving the genetic diversity of regional wildlife. An ecological balance has been achieved through protection, research, development and reproduction of species, as well as through reforestation and the creation of refuges and reserves for the conservation of flora and fauna of the region. The results include the following highlights:

- 104,340 ha of protected areas
- 40 million trees planted and/or preserved
- 10 km of channels for fish migration with 148 species identified
- Reproduction of 43 rare or endangered species

### 8.3.4 SUSTAINABLE RURAL DEVELOPMENT

The Sustainable Rural Development Program offers families a range of options for their insertion in the production chain. It provides support in the production process, promotes artisanal processing of products, helps to organize commercialization and also promotes tourism in rural areas. The objective is to promote the transformation to sustainable models of production, offering support and expertise through technical assistance and rural extension. Several initiatives are addressed in this program, including the following:

• **Family Farming:** This program provides support to rural families for the sustainability of small-scale farms. They receive tools for technological development, training in best practices and support in the agro-industry. In the search to add value to the products of family farming, agribusiness has gained an important role within the watershed. Today, the beekeeping agroindustry, organized and accredited to supply the export market, stands out. One of the consequences of this program has been the promotion of knowledge, with capacity-building activities through agro-ecology education units supported by the Research Institute for Agrarian Reform (ITEPA, by its acronym in Portuguese).

• **Organic Farming:** This program encourages farmers to convert their farms to the production of organic foods, without the use of chemical fertilizers, pesticides or herbicides, for use in their own communities including in school meals. More than 700 farms have already converted to total organic production and another 300 are in the process of conversion with the assistance of 26 technical advisors, which shows the great interest of farmers in converting to this new model of production.

• **Agricultural Diversification:** This program seeks alternatives for production on small-scale farms to expand opportunities for income generation. As an alternative to monocultures developed on small farms in the region, farmers have been encouraged to produce fruit, milk from pastures, honey and other bee products, palm hearts and organic cotton, among other products. There are 19 family agribusinesses in the program that benefit 1,533 families directly and 6,132 families indirectly.

• **Medicinal Plants:** This program promotes herbal medicine and knowledge in region, which has great natural diversity and a rich heritage of medicinal plants. Through alliances with universities, laboratories, the municipality and others, 10,300 people have been trained to offer an alternative income for organic farmers. As a result, 38 health posts have been created offering medicine sourced from 35 species of plants.



### 8.3.5 FISHERIES IN OUR WATERS

This program focuses on sustainable cage-based fish farming (aquaculture). It has helped to train 840 artisanal fishermen living in indigenous communities on the shores of the reservoir. In addition, the program includes three aquaculture parks, spawning channels, centres for migration studies, gene banks, and monitoring of professional and sport fishing activities.

To bring the fishing industry into harmony with the conservation of the reservoir, the program has 63 fishing sites with more than 500 fish farming cages. In addition, more than 50,000 juveniles of the pacú species (*Myleus pacu*) have been produced for the cages and more than 2,000 copies of the handbook Aquaculture Management Practices have been distributed.

## 8.4 DISSEMINATION AND POTENTIAL FOR REPLICATION OF THE CULTIVATING GOOD WATER PROGRAM

The CAB has increasingly been adopted as an environmental reference program by local, national and even international institutions and other entities. For example, it has been classified by the hydroelectric sector in Brazil as a very important environmental program. UNESCO, in its International Hydrological Program, defined it as a “watershed management model”, while Brazil’s Ministry of Fisheries and Aquaculture has adopted the fisheries and aquaculture program as a model for other hydroelectric dams.

Eight Latin American countries, namely Brazil, Paraguay, Chile, Uruguay, Panama, Colombia, the Dominican Republic and Guatemala, as well as Spain, have requested the CAB methodology. Guatemala and the Dominican Republic have already signed bilateral agreements for the transfer of the CAB methodology. Through the lessons learned and the potential for replicating the program elsewhere, it can contribute to environmental education in the region and help countries meet global environmental challenges to build a sustainable future based on the following key assumptions:

- Water as a common theme;
- The watershed as the main territory;
- Environmental thinking as a conceptual framework for action;
- Environmental education as a driver for social action; and
- Community participation as key for knowledge-building, initiatives and organization.

## 8.5 FINAL CONSIDERATIONS

The CAB is an initiative that promotes sustainable agricultural and rural development, meeting the needs of current and future generations through innovative programs that do not degrade the environment and that are technically appropriate, economically viable and socially acceptable. Some considerations to be taken into account for the success of similar initiatives are as follows:

- Promoting partnerships among all sectors and actors involved in the sustainable management of natural resources facilitates the pursuit of common goals and the implementation of innovative methods related to planning and management in the territory. This also ensures that the community as a whole benefit, especially small producers and vulnerable sectors of society, through their inclusion in social, environmental and productive public policies and programs.
- Production systems must be integrated at all levels to achieve productive diversification, which, in addition to producing value-added products, includes improving human capital (education and training), upgrading physical and social infrastructure, and innovation and technological development to promote sustainable and equitable structural changes.

- Public policies must be adapted to the territory to promote social development that is in harmony with the community as a whole. The joint implementation of public policies helps to achieve greater coherence at the intersectoral level. In addition, policies related to good governance help to strengthen human, social, economic and environmental capital in an efficient and effective manner.
- The active participation of the community in decisions that impact directly on the watershed or their territory is essential for initiatives to gain legitimacy in the eyes of the community. As a result, there is a need for strong, formal organizations with concrete development proposals, as well as a public system with the willingness to act on them.
- All municipalities, regardless of size, are endowed with natural and human resources that can, if used efficiently, responsibly and transparently, be used to encourage sustainable development for the benefit of the rural and urban population. The sustainable development of the municipality is the political and administrative responsibility of the local authority, which should focus on the effective mobilization of all necessary and available means, without waiting for external agents to take the initiative.
- The role of the municipal government as an agent of local economic development is at odds with the traditional view that understood its role as limited to providing public services. It is responsible for using the means available to support, encourage, motivate and attract entrepreneurs and investors, while also investing in its own projects as a way to ensure the sustainability of municipal development.
- The diversification and modernization of rural production is the main tool to revitalize the local economy, create jobs, increase incomes and encourage families to stay in the area. Small-scale farmers can be transformed into important economic agents that support the development of the municipality.
- Strengthening urban-rural linkages, particularly in those municipalities where rural production plays an important role in the economy, is an important strategy for sustainable economic development. The creation of jobs in any sector of the economy will have an immediate impact on the living conditions of families, whether in rural areas or cities, while improvements in services and infrastructure related to health, education and sanitation should benefit both urban and rural areas.



# CHAPTER IV





## 9. FINAL CONSIDERATIONS

*Luiz Carlos Beduschi, Raúl Contreras<sup>35</sup>*

### 9.1 TOWARDS A NEW UNDERSTANDING OF INNOVATION SYSTEMS

Rural innovation and its associated mechanisms has historically flourished under an economic model dominated by large agribusiness conglomerates, which has in many cases reduced sovereignty over natural and genetic resources. In addition, the form of production imposed by this model has contributed to processes of exclusion affecting millions of farmers, while generating significant concentrations of production and income, as well as multiple conflicts stemming from disputes over land and other natural resources, such as water and forests.

In this scenario, and as a reaction to the impacts produced by this type of “development”, countries have fought rural poverty through social programs such as conditional cash transfer programs (CCTs) and subsidies for health and education, among other initiatives, which have helped to gradually decrease poverty levels. Despite these efforts, inequality indicators have continued rising (or remained unchanged), while the rate of degradation of natural resources in countries of the region has accelerated.

This challenging situation raises the issue of how to improve the material situation of a large part of humanity while also reducing pressure on natural resources. Can new models or types of development simultaneously promote new forms of natural resource use and reduce inequality? These are the kind of questions that need to be answered in terms of innovation for sustainable rural development.

During the last decade, many governments in LAC countries have promoted “social developmentalism” or “Latin American progressivism” to facilitate more sustainable development processes. Although significant progress has been made, certain initiatives promoted by these governments have faced unexpected opposition, especially in the context of the relative decline of commodities prices. This is the reason that today, despite significant natural and productive resources at the regional level, these resources have been depleted in many LAC countries to the point where even technology has not been able to curb the high environmental impacts of human activities.

Currently, under the UN’s 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals, the key question is how to ensure that efforts aimed at different and often conflicting outcomes lead to lower inequality, improved well-being, and greater conservation of the ecosystem. The strategy required for the implementation of these goals has faced many obstacles, including the most frequent obstacle - financing. However, although financing is important, it is not the only problem given that financial resources are often misused with a focus on generating profit instead of meeting social demands.

Meanwhile, social mobilization and the development of technical resources have also taken separate paths, impeding the creation of a joint strategy that would allow different territories in countries of the region to expand policy initiatives. In addition, despite increasing demands, innovative policies and programs have not been extended to the broader population.

Given these challenges, existing social and agricultural policies are clearly insufficient. Their separation prevents coordination at the horizontal and vertical levels, including between government and civil society, and between governments and territories, which is essential to develop innovation systems aimed at achieving sustainable rural development.

### 9.2 INNOVATION SYSTEMS FOR FAMILY FARMING AND SUSTAINABLE RURAL DEVELOPMENT

Agriculture continues to be one of the principal means by which rural society interacts with nature. Although the social dynamics of these territories have changed in recent decades, family farming still plays a key role in production and social relations. In addition, innovation has always been present in food supplies produced by this sector.

However, the traditional definition of innovation, which is focused on “science” rather than local or traditional knowledge, is inappropriate considering the reality of family farming in rural territories. The problem is that innovation is traditionally linked to global markets that have historically excluded family farmers, without any analysis of “power” dynamics in rural territories.

*35 Technical group FAO Regional Initiative Family farming and inclusive food systems for sustainable rural development.*

Rural innovation processes aimed at family farming must consider different factors, including social, productive, environmental, institutional and cultural variables. As a result, innovation moves toward an innovation system, allowing a complex approach to complex problems where the “system” is understood as a group of individuals, organizations and government institutions. This system is focused on developing social and economic uses for new products, processes or forms of organization through the strengthening of family farming and inclusive food systems, and which aims to contribute to sustainable rural development.

Innovation systems should promote individual and collective capacity for innovation, recognizing the diversity of actors in the territories and their various demands, bringing together formal and informal research and promoting inclusive access to different types of markets. To achieve this objective, new legal frameworks are required for public institutions to implement these policies and strengthen institutional capacities.

As mentioned above, innovation systems perform best under a legal framework that recognizes family farmers as drivers of innovation, but which also emphasizes sustainable rural development. In this regard, the improved organization of family farming could provide a solid foundation for the achievement of sustainable rural development.

This should also help family farmers to improve their interaction with institutions, enabling them to negotiate better conditions in line with their own interests considering that policies for the rural sector also require policies linked to the social and economic areas. This integral approach to the challenges faced by family farming represents an innovative approach to achieving sustainable rural development.

Innovation systems that promote sustainable rural development should focus on the link between policies and territoriality in public institutions, facilitating the creation of sustainable development models that support coordination between groups of producers, as well as between scientific research networks, urban networks and distribution networks. Finally, an integral and comprehensive approach to innovation should focus on valorising knowledge obtained from a variety of experiences in the field, linking this knowledge with public policies developed in different countries over the last two decades.

## 9.3 KEY CHALLENGES FOR INNOVATION SYSTEMS AND SUSTAINABLE RURAL DEVELOPMENT

Inequality and climate change are the two greatest challenges of the 21st century. Both are the result of a socio-economic model that has permitted these problems to worsen over time, while institutional innovations designed to curb their advance have ended up supporting the model they sought to change.

Despite this scenario, the LAC region still has an “open door” policy in terms of the development of the commodities sector, but it is increasingly necessary for countries to consider other opportunities, such as new urban/rural links, more inclusive and sustainable markets, higher levels of education and networking in science and technology, sharing of innovation experiences, and inter-institutional policies, among others.

In addition, rural areas have important requirements regarding the implementation of a transition strategy for sustainable rural development that is consistent with the demands of the 21st century. These are:

- Reduce the negative socio-environmental impacts of productive activities;
- Broaden the participation of family farming in all kinds of markets;
- Promote new forms of natural resource use;
- Increase the overall productivity of the economy and well-being; and,
- Revitalise and strengthen the endogenous local base of national economies, diversifying the productive profile of the country's territories.

To address these challenges, the ultimate goal of development strategies should be social and productive change that reduces external dependence and facilitates sustainability. As part of this goal, innovation systems need the support of sectors with the political strength and technical capacity adapted to meet the demands of the current social and environmental context in LAC.

In this regard, all actors in the region should work towards the mobilization of resources, providing incentives and facilitating coordination to promote a new era in sustainable rural development that *does not leave anyone behind*. This change is structural and equivalent to the change that took place decades ago during the green revolution, with the difference that this time it should not only consider an increase in productivity as the main goal, but also increased social well-being and conservation.







