

# Rural industrial policy and strengthening value chains

RAMÓN PADILLA PÉREZ

*Editor*

Economic Development



UNITED NATIONS

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Investing in rural people

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Ramón Padilla Pérez  
Editor



UNITED NATIONS



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# Contents

Foreword .....	11
Introduction	
<i>Ramón Padilla Pérez</i> .....	15
Chapter I	
Productive development challenges in the rural areas of Central America and the Dominican Republic	
<i>Verónica Quiroz Estrada</i> .....	25
Introduction.....	25
A. The rural environment.....	27
1. Defining the rural environment.....	27
2. Characteristics of rural areas in Central America and the Dominican Republic .....	29
B. Institutional challenges .....	35
1. Rules, conventions and coordination .....	35
2. Policies and strategies .....	37
C. Environmental sustainability challenges.....	38
1. Adaptation to climate change.....	38
2. Mitigation of climate change .....	41
D. Commercialization challenges .....	43
1. International commodity price volatility .....	43
2. Market access and the role of intermediaries .....	44
3. Extraregional and intraregional trade .....	45

E.	Productivity and innovation challenges .....	47
1.	Productivity .....	47
2.	Size and technological performance .....	49
3.	Education and training .....	51
4.	Innovation activities .....	53
5.	Financing .....	56
6.	Value chains .....	58
F.	Conclusions .....	60
	Bibliography .....	62
 Chapter II		
Rural industrial policy		
	<i>Ramón Padilla Pérez, Verónica Quiroz Estrada</i> .....	69
	Introduction .....	69
A.	The rural environment .....	72
1.	Definition .....	72
2.	Importance of the rural environment .....	75
3.	Cross-sectoral interdependence and complementarity .....	79
B.	Definition and scope of rural industrial policy .....	83
1.	What is rural industrial policy? .....	83
C.	Rural industrial policy tools .....	87
1.	Trade, competitiveness and competition policies .....	88
2.	Productive development policies .....	90
3.	Environmental policies .....	95
D.	Experiences with public strategies that can be synchronized with rural industrial policy .....	97
1.	Chile .....	97
2.	New Zealand .....	100
3.	Costa Rica .....	101
E.	Conclusions .....	104
	Bibliography .....	105
 Chapter III		
Methodology for strengthening value chains		
	<i>Ramón Padilla Pérez, Nahuel Oddone</i> .....	113
	Introduction .....	113
A.	Value chains and structural change .....	114
B.	Key definitions and concepts .....	116
1.	Value chains .....	116
2.	Strengthening and upgrading .....	118
C.	Methodology for strengthening value chains .....	120
D.	Diagnostic .....	125
E.	Roundtables .....	130
F.	Good practices .....	133

G.	Strategies, implementation support and launch .....	135
1.	Strategy development .....	135
2.	Implementation support.....	137
3.	Launch.....	139
H.	Concluding reflections.....	139
	Bibliography .....	142

## Chapter IV

### Value chain selection and industrial policy

*Caroline Gomes Nogueira, Ramón Padilla Pérez, Francisco G. Villarreal.....* 147

	Introduction .....	147
A.	Why are value chains selected?.....	148
1.	Do horizontal industrial policies really exist? .....	148
2.	Market failures .....	149
3.	The challenge of comparative advantages and creating winners.....	150
4.	Windows of opportunity .....	151
5.	Structural change.....	151
B.	Selecting sectors in practice: tools and strategies .....	151
1.	Identification of high-potential clusters in Central America: Central American Institute of Business Administration (INCAE) and Harvard Institute for International Development .....	152
2.	Selection of priority sectors in Mexico by productivity and growth potential .....	152
3.	Targeting efforts in Chile .....	153
C.	Chain selection methodology .....	155
D.	Developing the indicators on the basis of the proposed meta-objectives .....	158
E.	Applying the methodology: chain selection in Mexico .....	159
F.	Concluding reflections: strengths and challenges of chain selection .....	163
	Bibliography .....	165

## Chapter V

### Strengthening value chains in primary and agro-industrial products

*Ramón Padilla Pérez.....* 167

	Introduction .....	167
A.	Defining meta-objectives.....	168
B.	Value chains .....	170
1.	The links in value chains .....	170
2.	Value chain governance.....	177
3.	Estimation of costs and margins.....	178
4.	Institutions and organizations that support and regulate chains .....	180

C.	Bottlenecks .....	181
D.	Strategies for strengthening rural value chains .....	185
	1. Institutional strengthening.....	186
	2. Agricultural development policy for value chain strengthening.....	186
	3. Rural industrial policy for value chain strengthening .....	188
E.	Conclusions .....	192
	Bibliography .....	193
 Chapter VI		
Strengthening tourism value chains in rural settings		
	<i>Stefanie Garry, Nahuel Oddone</i> .....	195
	Introduction.....	195
A.	Regional context for tourism .....	197
B.	Meta-objectives .....	198
C.	Tourism value chains .....	201
	1. Tourists.....	203
	2. Distribution .....	203
	3. Transport.....	204
	4. Accommodation and gastronomy.....	205
	5. Excursions.....	206
D.	Bottlenecks .....	207
E.	Strategies and public policy recommendations for tourism value chains.....	211
F.	Concluding reflections.....	217
	Bibliography .....	219
 Chapter VII		
Conclusions		
	<i>Ramón Padilla Pérez</i> .....	221
A.	Strengthening value chains, rural industrial policy and progressive structural change.....	222
B.	The creation of value chains .....	224
C.	Strengths, challenges and future lines of work.....	227
	Bibliography .....	229
 ECLAC recent publications .....		
		231
 <b>Tables</b>		
I.1	Central America and the Dominican Republic: personal income distribution in rural and urban areas, by quintile, for 2014 or the last available year .....	31
I.2	Central America and the Dominican Republic: distribution of the employed rural population, by type of employment, 2000 and 2014 .....	35

I.3	Central America and the Dominican Republic: constraints on the implementation of agrarian reforms.....	36
I.4	Central America and the Dominican Republic: average yield of basic grain crops, 1980-2013.....	48
I.5	Central America and the Dominican Republic: indicators for science and technology in the agricultural sector.....	54
I.6	Central America and the Dominican Republic: the share of rural credit in total lending by microfinance institutions, 2014.....	57
I.7	Central America and the Dominican Republic: examples of constraints on the various links in rural value chains.....	59
II.1	Criteria for defining the rural environment.....	72
II.2	Recent changes in the rural paradigm.....	74
II.3	Latin America and the Caribbean (8 countries): agricultural GDP as a percentage of total GDP at constant prices, 1990-1995, 2000-2005 and 2010-2015 .....	77
II.4	Latin America (8 countries): economically active rural population as a percentage of the total economically active population, 1990 and 2015 .....	77
II.5	Latin America and the Caribbean: contribution to value added to GDP, by sector of economic activity, in selected years.....	81
II.6	Definition and examples of economic upgrading in the rural environment.....	85
II.7	Trade, competitiveness and competition policies .....	88
II.8	Productive development policies.....	91
II.9	Environmental policies .....	95
II.10	Chile: examples of rural industrial policy tools and initiatives.....	99
II.11	Costa Rica: examples of policy tools and initiatives for strengthening rural tourism.....	102
III.1	Value chains supported under the ECLAC-IFAD project “Inclusive growth, rural productive policy and participatory value chains in Latin America and the Caribbean”, 2014-2016.....	115
III.2	Dialogue spaces: types and characteristics .....	132
IV.1	Central America: high-potential clusters .....	152
IV.2	Sectoral approach.....	153
V.1	Estimation of costs and margins along the chains.....	179
V.2	Bottlenecks in the value chains of primary products and agro-industrial analysed .....	185
V.3	Strategies for strengthening the rural value chains analysed .....	191
VI.1	Tourism value chains in rural areas: link-specific restrictions .....	209

## Figures

I.1	Central America and the Dominican Republic: rural population, 1985 and 2015.....	30
I.2	Central America and the Dominican Republic: portions of the urban and rural populations living in poverty or indigence, 2014 or the last available year .....	31
I.3	Central America and the Dominican Republic: agricultural GDP as a share of total GDP at constant prices, 1990-2015.....	33
I.4	Central America and the Dominican Republic: employed rural population, by major economic sector, 2014 or the last available year .....	34
I.5	Central America and the Dominican Republic: distribution of extreme events, by type, 1990-2015 .....	39
I.6	Central America and the Dominican Republic: land area used for farming and land area covered by forests, 1990 and 2015 or the last available year .....	42
I.7	International basic grain prices, annual averages, 1980-2016 .....	44
I.8	Central America and the Dominican Republic: exports and imports of agrifood products, 2015 or the last available year .....	45
I.9	Central America and the Dominican Republic: average labour productivity growth rates in the agricultural sector, 1990-2002 and 2002-2012.....	47
I.10	Central America and the Dominican Republic: distribution of the rural economically active population (EAP) of 15 years of age or older, by number of years of schooling, 2014 or the last available year .....	51
II.1	Rural population as a percentage of the total population, 1990 and 2015 .....	75
II.2	Agricultural value added as a percentage of total GDP, 1990-2014.....	76
II.3	Latin America (selected countries): employed rural population, by economic activity, 1997, 2005 and 2014 .....	78
II.4	Latin America (19 countries): poor and indigent population groups, by geographical area, 1990 and 2014 .....	79
V.1	El Salvador: national tomato production and imports, 2000-2013.....	170
V.2	Mexico: proportion of business units devoted to the preparation of sausages and other preserved forms of livestock, poultry and other edible animals, by size, 2004, 2009 and 2013 .....	173
V.3	Dominican Republic: estimated dairy production, 1980-2014.....	174
VI.1	Central America and the Dominican Republic: international tourism arrivals, 2007-2014.....	197

**Boxes**

III.1	Baseline questions for the diagnostic.....	126
IV.1	Mexico: meta-objectives and indicators for the pork sausages and other cured pork products value chain.....	160

**Diagrams**

III.1	General structure of a goods value chain.....	118
III.2	Methodology for strengthening value chains.....	120
III.3	A systemic approach to value chains.....	123
III.4	Diagnostic of the chain.....	126
III.5	Process of good practice analysis .....	134
III.6	Process of strategy development.....	136
III.7	Matrix for comparing strategy costs, implementation periods and impacts .....	137
IV.1	Vertical and horizontal alignment.....	156
IV.2	Value chain selection process.....	157
V.1	El Salvador: tomato and green pepper value chain.....	171
V.2	Mexico: pork sausage and other cured pork products value chain.....	172
V.3	Dominican Republic: dairy value chain .....	174
V.4	El Salvador: dried fruit snack value chain .....	176
VI.1	A tourism value chain .....	202
VI.2	Tourism: certification process .....	212
VI.3	Governance of tourism value chains: key actors and their role in developing new destinations or products .....	213
VI.4	Strategies for strengthening tourism value chains .....	214
VII.1	Methodology for the creation of participatory chains.....	225

**Maps**

VI.1	Guatemala: Department of Sacatepéquez.....	199
VI.2	Dominican Republic: the Province of Pedernales and its protected area .....	200
VI.3	El Salvador: Department of La Libertad .....	201



## Foreword

After two years of economic decline, growth in Latin American and Caribbean countries is expected to pick up slightly, by around 1%, in 2017. The recovery is taking place amid growing uncertainty and sluggish growth on the international front. Low or negative growth has exacerbated the economic and social challenges that the region faces, such as insufficient investment, poor productivity growth, widening structural gaps and the risk of social conditions deteriorating in the light of rising unemployment and public spending cuts.

To address these challenges, the Economic Commission for Latin America and the Caribbean (ECLAC) has underscored the need for a progressive structural change, that is, a transformation towards learning- and innovation-intensive production activities and processes, which will boost production, promote environmental protection and employment with rights, and improve people's social conditions.

Such a structural change is a powerful tool for achieving the 2030 Agenda for Sustainable Development and the 17 Sustainable Development Goals adopted by the 193 countries of the United Nations General Assembly in September 2015. The transformation of the production structure would lead to a reduction in poverty and an improvement in people's well-being (Goals 1, 2 and 3), promote decent work, economic growth and innovation (Goals 8 and 9), reduce inequality (Goal 10) and combat climate change and its effects (Goal 13).

The challenges to implementing the Sustainable Development Goals are growing in rural areas. As shown in chapter I of this book,

poverty levels are significantly higher in rural than in urban areas, a phenomenon that is closely linked to other gaps (for example, in education, infrastructure and access to services). In Latin America, 46.2% of the rural population lives in poverty, while 23.8% of the urban population does. In order to move forward with achieving the 2030 Agenda, a new set of institutions and policies is needed and creative and innovative solutions must be put forward to bring about a change in the style of development.

The proposal put forward here to address the challenges facing rural areas is based on a new perspective that recognizes that there is a new rurality that requires new tools and approaches. Innovative policies, which recognize that rural is not synonymous with primitive or backward, are needed to bring about the structural transformation of rural areas. Moreover, rural activities are increasingly aligned and in sync with other activities and build in ever more innovative ideas and technical know-how.

While recognizing the enormous challenges that rural areas face, which must be tackled with a comprehensive set of policies, the proposal focuses on instruments for achieving a productive transformation, which together form what is defined here as a rural industrial policy. As part of this policy, States should adopt instruments for strengthening productive activities in rural areas, in order to bring about a structural change through manufacturing and services. This does not mean abandoning territories' existing productive activities; rather, existing capacities should be scaled up and complemented with secondary (such as agribusiness and handicrafts) and tertiary activities (such as rural tourism, environmental services and professional services).

In order to make progress in the implementation of the 2030 Agenda, new participatory instruments are also needed that involve the government, the private sector and civil society. The value chain methodology developed by ECLAC, which is described and illustrated in this book, has proven to be an effective tool for combining the efforts of different stakeholders. On the one hand, a central pillar of the methodology is the active participation of the public sector, value chain stakeholders and support agencies (business associations, universities and specialized service providers, among others) in all stages of the process, through roundtables, discussion groups and engagement in the implementation of activities. Creating forums for dialogue allows agreements to be concluded between and within public and private stakeholders.

On the other hand, at ECLAC we believe in the value of cross-pollination, in the importance of engaging social development planners, enforcers of environmental standards and drivers of productive development in the conversation on rural development. Our work with the countries of the region to transform rural areas was undertaken in close

collaboration with partners who have traditionally had little interaction with that milieu, such as the ministries of economic affairs, trade and industry—in an effort to find complementarities with the ministries of agriculture and livestock—and with other partners whose work always touches upon rural areas.

This book sets out the rural industrial policy proposal that has arisen from the technical cooperation with countries of the region and from a strategic alliance with the International Fund for Agricultural Development (IFAD). It also summarizes the methodology used and draws cross-cutting lessons from the various chains that have received support. With proposals such as the one presented here, ECLAC reaffirms its commitment to the inclusive and sustainable economic development of the countries of the region.

**Alicia Bárcena**

Executive Secretary

Economic Commission for

Latin America and the Caribbean (ECLAC)



# Introduction

*Ramón Padilla Pérez*

In recent years ECLAC has been working closely with the countries of the region to devise participatory strategies for strengthening value chains, with a view to fostering structural change. This transformation will enable the countries to increase their share in the most knowledge-intensive areas of the production structure and those in which demand is growing the fastest. It will also help reduce the Latin American economies' structural heterogeneity by improving the distribution of the value added that is captured along the chain and by incorporating new producers and service providers.

ECLAC proposals have resonated with governments in the region, which have shown increasing interest in designing and implementing more forceful industrial or productive development policies. Over the past decade, greater attention has been devoted in Latin America and the Caribbean to devising a new equation between the State, market and society. This new equation opens the way for the public sector to play a more active role in promoting economic and social development while at the same time requiring a more active commitment on the part of the private sector and society as a whole. The involvement of all of these stakeholders in partnerships and joint undertakings are key aspects of this new model.

The 2008-2009 international financial crisis marked a turning point in development discourse because it opened up topics for discussion that had been anathema under the prevailing development model, particularly in terms

of the acceptance of industrial policies, the orientation of macroeconomic policies towards growth rather than focusing them entirely on attaining nominal stability and the formulation of rights-based pro-equality policies (ECLAC, 2012). A more active role for the State must thus be coupled with the interlinkage of macroeconomic, industrial development, environmental and social policies, among others (ECLAC, 2012).

This book has two main objectives. The first is to systematize the lessons learned by the ECLAC subregional headquarters in Mexico in relation to the design of targeted industrial policies for rural areas, particularly with respect to technical cooperation aimed at strengthening value chains in Central America, Mexico and the Dominican Republic. This document rounds out a series of publications intended to provide guidance to public agencies or private groups interested in undertaking similar efforts. The documents fall into two different categories:<sup>1</sup>

- (i) The conceptual and methodological material provided in *Strengthening value chains: A toolkit* (Padilla and Oddone, 2017), the first three chapters of *Strengthening value chains as an industrial policy instrument. Methodology and experience of ECLAC in Central America* (Padilla, 2014) and this book.
- (ii) The empirical work on 12 value chains that is summarized in chapters IV through VII of *Strengthening value chains as an industrial policy instrument. Methodology and experience of ECLAC in Central America* (Padilla, 2014), in the eight chapters of *Fortalecimiento de cadenas de valor rurales*<sup>2</sup> (Oddone and Padilla, 2017) and in the studies on the technical cooperation undertaken in connection with each value chain.<sup>3</sup>

The second objective is to discuss the role that rural industrial policy may play in bringing about structural change, on the basis of value chain strengthening processes. A new kind of approach is taken here to a composite examination of industrial policy and rural development—two subjects that are usually dealt with in isolation from one another. Industrial policy in the region has generally been focused on the promotion of low-, medium- and high-technology industries (textiles, the automotive industry, electronics, aerospace and others) and services (e.g. software, information and communications technologies (ICTs) and business services), while little attention has been paid to

<sup>1</sup> All these documents can be found on the ECLAC website [online] <http://www.cepal.org/en>.

<sup>2</sup> Available in Spanish only.

<sup>3</sup> See Antunes and Monge (2013), Oddone and Beltrán (2014), Oddone and Alarcón (2016), Oddone and others (2016), Garry and Martínez (2016), Alvarado and others (2016), Romero, Díaz and Aguirre (2016), Cordero and Padilla (2017), Gomes and Oddone (2017) and Alvarado and Oddone (2017).

processing industries or to the possibility of embedding services in the primary sector. Meanwhile, efforts to spur the development of the rural production sector have chiefly focused on primary sector activities and, in some recent cases, tourism services.

In undertaking technical cooperation activities in these areas, ECLAC has worked primarily with the ministries charged with promoting industrial development (ministries of economic affairs, industrial affairs and trade) but, for each individual value chain, it has also established links with ministries involved in rural development, such as ministries of agriculture and tourism. This approach has helped it to introduce new activities and sectors, in addition to traditional manufacturing and service activities, on the agenda of the former and to incorporate new tools and models for supporting rural development on the agendas of the latter.

Structural change is understood as the transformation of the structure of value added and employment (Krüger, 2008). The conversion of predominantly agricultural economies into industrial economies, or of industrial economies into service-based economies, may or may not be coupled with an increasing degree of economic and social development (Carmignani and Mandeville, 2014; Szirmai, 2012; Lewis, 1954; Kaldor, 1961). An integrated package of public policies must be in place if this transition is to give rise to long-term, inclusive and environmentally sustainable growth—to what ECLAC has described as “progressive structural change” (ECLAC, 2016). In the past few decades, the rural areas of Latin America and the Caribbean have, for the most part, received little support for efforts to achieve progressive structural change even though the rural sector still represents a sizeable portion of the economy. The rural sector is also of vital importance for the achievement of the Sustainable Development Goals.

The rural sector, in turn, is defined in terms of three major dimensions: (i) its economic or sectoral identity; (ii) its demographics; and (iii) its territorial aspect (see chapter II). The first of these dimensions has to do with the main production activities carried out in rural environments (chiefly crop farming, stock raising, aquaculture, forestry and primary sector services such as rural tourism). The second reflects the classification of the population into rural and urban sectors based on population size and density, the frequency and degree of traffic or commuting and the distance from urban centres. As for the third dimension, rural economies can be viewed from the perspective of the geographical siting of economic and social activities. For the work on value chains, a broad definition of “rural” has been used that combines these three criteria and consequently includes not only primary activities,

but also agribusiness, craftwork and services such as rural tourism that are conducted in areas that are far removed from urban centres and have low population densities.

The industrial policy proposed here comprises policy tools designed to strengthen production activities in rural areas with a view to bringing about structural change involving the introduction of manufacturing and services activities and their linking and heightened complementarity with faster-growing and more knowledge-intensive processes, markets and sectors. This policy is a fitting response to recent changes in the rural environment that call for new approaches and tools for providing support. Some of the most outstanding shifts occurring in this regard are primary sector activities' shrinking share in rural employment and value added at a time when the shares of manufacturing and services are expanding (Weller, 2016), a greater interdependence between agricultural activities and other sectors and the growing importance of learning and innovation (see chapter II).

While agriculture remains the foremost activity in rural areas, rural industrial policy is much more than a farming or agricultural policy. Nor is it the same as a rural development policy, since it focuses on upgrading and transforming production activities by integrating them with manufacturing and services. Some examples that can be drawn from the practical experience gained by ECLAC in working with Latin American countries include the development of rural tourism value chains, the introduction of new technologies for processing and marketing dried and vacuum-fried fruit and the strengthening of agribusiness value chains.

The participatory methodology for strengthening value chains that has been developed by ECLAC is a useful tool for moving towards a new State-market-society equation in relation to specific products and locations.<sup>4</sup> First, a microeconomic approach focusing on the agents that make up the various links in the value chain and their interrelationships can be used to identify constraints and to devise targeted strategies. It is therefore an effective instrument for designing specific public policy strategies to underpin more purposeful forms of government action. Second, this methodology entails an analysis of the public institutions and organizations that regulate and provide support for the value chain which then serves as a basis for the coordination of the various instruments employed to strengthen that chain in various areas, such as human resources development, the promotion of innovation, marketing and access to new markets, and environmental protection. Third, one of the main pillars of this methodology is active participation at each stage of the process through dialogue platforms and discussion groups, on

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<sup>4</sup> See Padilla and Oddone (2016).

the part of the public sector, the actors of the value chain and support agencies (business associations, universities, specialized service providers and others). The creation of dialogue forums provides an opportunity for public and private stakeholders to reach agreements and to build consensus within the public and private sectors. An overview of this methodology is provided in chapter III.

Between 2014 and 2016, the ECLAC subregional headquarters in Mexico worked with the governments of Central American countries, Mexico and the Dominican Republic to strengthen eight rural value chains under a project financed by the International Fund for Agricultural Development (IFAD) entitled “Inclusive growth, rural industrial policy and participatory value chains in Latin America and the Caribbean”. Detailed descriptions of the work undertaken with these chains can be found in the publications cited earlier. This book will focus on the cross-cutting lessons learned in the course of that project concerning public policymaking, the application of the methodology and the use of comparative empirical evidence.

In the first chapter, Verónica Quiroz, an ECLAC consultant, discusses the challenges facing rural regions in Central America and the Dominican Republic, where seven of the value chains dealt with in the project are located. While challenges exist in a number of different areas, this discussion focuses on productive development, as do the other chapters in this study. The author begins with a description of the rural environment based on various economic and social indicators before moving on to the challenges to be overcome, which she divides into four main categories:

- (i) Institutional challenges having to do with regulations, standards, conventions, modes of coordination and public policies;
- (ii) Environmental challenges involved in adapting to the effects of climate change and in their mitigation;
- (iii) Commercialization-related challenges in respect of prices, market access and foreign trade; and
- (iv) Challenges in the areas of productivity and innovation, which involve technological capacities, education and training, funding and value chains.

In the second chapter, Ramón Padilla Pérez, an ECLAC staff member, and Verónica Quiroz examine the nature and scope of rural industrial policy, which is based on a review of the literature and, most importantly, the experience with initiatives for strengthening rural value chains. They start out with a characterization of the rural milieu and then

review the changes that have recently taken place there. The discussion then moves on to a definition of rural industrial policy and its differing scopes and tools, with the latter being divided into three categories: (i) trade, competitiveness and competition policies; (ii) tools for the promotion of productive development; and (iii) environmental tools. The chapter closes with a number of examples of instruments employed by the public sector in other countries which, while not being described as rural industrial policy tools as such, nonetheless have been used to pursue similar objectives.

The third chapter was written by Ramón Padilla Pérez and Nahuel Oddone, an ECLAC consultant, and provides an overview of the methodology that has been used to strengthen value chains as a rural industrial policy tool. Although a toolkit offering detailed guidelines and practical examples has already been published, the general outlines of this methodology are described here in order to provide readers with an understanding of the methodology referred to throughout this book.

In the fourth chapter, ECLAC staff members Caroline Gomes, Francisco Villarreal and Ramón Padilla Pérez delve more deeply into a subject that is of pivotal importance when formulating industrial policies and specifically when working with value chains: selection. Policymakers in Latin America and the Caribbean are often reluctant to embrace the concept of selection because of the distortions that can be introduced if governments are unable to properly identify the best industries and sectors and because it may open the way for rent-seeking in the private sector to bring pressure to bear on decision makers. However, given the limited supply of human and financial resources and the enormous number of value chains involved in the production apparatus of any given country or region, some sort of process for selecting those to be supported in the short run is unavoidable, and the design of a transparent, objective procedure for doing so is therefore crucial. This chapter covers the methodology used for the selection of value chains.

The methodology for strengthening value chains can be adapted to work in various sectors and activities. The following two chapters provide a cross-cutting analysis of its application in different rural contexts. In the fifth chapter, Ramón Padilla Pérez looks at the factors that four different commodity value chains —tomatoes and green sweet peppers (El Salvador), dairy products (Dominican Republic), cured pork products (Mexico) and nutritional dried fruit snacks (El Salvador)— have in common. The main objectives of the effort to strengthen these value chains were to raise productivity, increase local linkages, bring in more small-scale producers and introduce processing activities that would boost the value added to these commodities. These chains all had to grapple with similar constraints in terms of a lack of access to new technologies, a high

degree of heterogeneity in production processes (considerable differentials between small-scale and large-scale producers), limited access to financing and restricted commercialization capacity, among others. This chapter also reviews the strategies associated with rural industrial policies.

In the sixth chapter, Stefanie Garry, an ECLAC staff member, and Nahuel Oddone provide a comparative analysis of three rural tourism value chains in the services sectors of Sacatepéquez Department (Guatemala), La Libertad (El Salvador) and Pedernales (Dominican Republic). The primary objective for these chains was to enhance the existing supply of tourism services as a supplementary source of income in these areas. Although the more specific objectives of these chains varied, these three cases illustrate how the methodology can be applied outside the context of commodity chains. These areas all face a number of similar constraints in terms of efforts to strengthen tourism chains: insufficient infrastructure, a lack of training and of a “culture” of tourism, the fact that tourism destinations and products have not yet been well developed and the rudimentary nature of existing marketing strategies. The strategies that were designed for these three value chains all focus on developing a supply of tourism services that will provide the rural population with greater income and better living conditions without requiring the inhabitants to abandon their established production activities. They also aim to ensure that local service providers and producers capture their fair share of the value added that is generated along the chain.

These two empirical chapters summarize the experience gained in working with seven value chains. In addition, the ECLAC-IFAD project entitled “Inclusive growth, rural productive policy and participatory value chains in Latin America and the Caribbean” also worked with an eighth value chain: vacuum-fried chips in Costa Rica. The chief objective was to support a start-up venture that is seeking to obtain greater value added by using innovative technology for processing primary products. The first step was to select the new technology that was to be brought to the market. It was then necessary to adapt the methodology to incorporate entrepreneurship concepts and tools, including market studies, technical and economic feasibility studies, and the transfer and adaptation of new technologies. The methodology and the main outcomes for this chain are described by Cordero and Padilla (2017).

In the seventh and final chapter, Ramón Padilla Pérez offers some concluding observations regarding the core argument developed in this study: that the strengthening of value chains —as a tool of rural industrial policy— paves the way for progressive structural change in rural environments. The chapter also offers a critical examination of the methodology’s strengths and weaknesses and sets out future lines of work in this field.

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## Chapter I

# **Productive development challenges in the rural areas of Central America and the Dominican Republic**

*Verónica Quiroz Estrada<sup>1</sup>*

## **Introduction**

The rural environment is multifactorial and dynamic and faces special productive development challenges. These challenges are formidable for developing countries, and since their rural populations are so large and the social and economic gaps between rural and urban populations are so wide, efforts to address them have to be inclusive in nature. In recent years, the rural environment has undergone such major changes that the development strategies for rural areas need to be rethought.

The project entitled “Inclusive growth, rural industrial policy and participatory value chains in Latin America and the Caribbean”, which was conducted jointly by the International Fund for Agricultural Development (IFAD) and the Economic Commission for Latin America and the Caribbean (ECLAC), focused on strengthening eight selected rural value chains and was undertaken in close cooperation with the Governments of five countries of the northern

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<sup>1</sup> The author of this chapter is grateful for the valuable comments on the first draft of this text received from Julie Lennox, Ramón Padilla Pérez and José Manuel Iraheta.

subregion of Latin America and the Caribbean (Costa Rica, the Dominican Republic, El Salvador, Guatemala and Mexico).<sup>2</sup> This first chapter will review the main productive development challenges to be met by rural areas in Central America and the Dominican Republic. Although the project also encompassed technical assistance in strengthening a cold cuts value chain in Mexico, this analysis will not cover this country, since it differs significantly from Central America and the Dominican Republic in terms of the size of its firms and the conditions and issues they face.

The aim here is not to present an exhaustive analysis of all the challenges to be dealt with in rural areas of Central America and the Dominican Republic but rather to look at the challenges that are of key importance for an understanding of existing conditions in the rural production structure of the subregion and for identifying opportunities for altering that structure.

These productive development challenges can be divided into four categories:

- (i) Institutional challenges: These challenges have to do with rules, conventions, arrangements or coordination mechanisms that have an impact on the development of rural production sectors.
- (ii) Environmental sustainability challenges: Ways need to be found to make rural production activities more environmentally sustainable, with emphasis on climate change mitigation and adaptation.
- (iii) Commercialization challenges: Challenges in this area have to do with market conditions that have an impact on the ways in which rural products and services can be brought to market and on producers' access to local, intraregional and extraregional markets.
- (iv) Productivity and innovation: Factors that have an impact on productivity and innovation in the rural environment include the size of the enterprise, technological performance, education and training, what innovative activities are being developed and access to financing. This category also includes the challenges associated with efforts to strengthen value chains, which is the central topic of the following chapters.

This chapter is made up of six sections in addition to this introduction. Section A covers the criteria used to define the rural environment and the general features of that environment in Central America and the Dominican Republic. Section B deals with institutional

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<sup>2</sup> The northern subregion of Latin America includes Costa Rica, Cuba, the Dominican Republic, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua and Panama.

challenges, while section C discusses the challenges to be met in terms of the achievement of environmental sustainability. Section D provides an overview of the commercialization challenges to be overcome by rural production activities, and section E looks at innovation and productivity challenges. Section F concludes.

## **A. The rural environment**

### **1. Defining the rural environment**

There is no single, agreed definition of the rural environment in the specialized literature. One of the points of departure for efforts to frame such a definition is the distinction between the rural and urban environments. The different countries use different criteria for distinguishing between these two categories. The rural environment is a dynamic one whose features are changing, and the evolving conceptual characterization of the rural environment is reflecting these shifts.<sup>3</sup> Three of the types of criteria used to define rural areas will be considered here: (i) demographics; (ii) sectoral or economic features; and (iii) territorial characteristics.

#### **(a) Demographics**

This criterion has to do with the size of the population and its geographical location and is generally the main criterion used by national statistical offices. The definitions that they use differ from one country to the next and change over time. They generally rely on factors such as: (i) the size of the population; (ii) population density; and (iii) access to infrastructure and/or services. In most cases, rural areas are treated as a residual category, being defined as whatever is not urban (United Nations, 2007).

One of the main criteria used to delimit rural areas is population size. The Central American countries and the Dominican Republic define the rural population as the non-urban population. Their cut-off points vary, but range between 1,500 and 2,000 inhabitants in low-density geographical areas outside of, for example, county or municipal capitals or administrative centres.<sup>4</sup>

Access to infrastructure and basic services is another criterion used to differentiate rural areas from urban zones. This involves

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<sup>3</sup> Some of these changes have been observed by international agencies and incorporated into what is being called the “new rural paradigm” (OECD, 2006). In the case of Latin America, other authors have begun to talk about a “new rurality” as they explore changes in the diversification of activities conducted in rural areas and the importance of non-farm employment and revenues in rural households’ livelihood strategies (Kay, 2009; Bonnal and others, 2004; Echeverri and Rivero, 2002; Pérez and Farah, 2001).

<sup>4</sup> See the definitions established by each country in CELADE (2016).

identifying tangible features such as sidewalks, electricity connections, sewerage services, health-care centres and communications. Which of these features is used for this purpose varies from one country to the next. For example, while in Nicaragua areas are categorized as rural if they have a population of under 1,000 inhabitants and lack access to urban infrastructure, such as planned roadways, electricity service, and commercial and industrial establishments, in Panama, rural areas are categorized as those area with a population of under 1,500 that do not offer urban services such as electricity service, water distribution and sewerage systems, paved streets, communications and secondary schools (CELADE, 2016).

Another yardstick that is used, especially by developed countries, is population density. In order to provide a standard metric, the Organization for Economic Cooperation and Development (OECD) set the cut-off point for rural communities at a population density of 150 inhabitants per square kilometre (500 inhabitants per square kilometre for Japan) (OECD, 2006).

It is also increasingly the case that the distance between rural and urban areas is shrinking. As this occurs, more members of the rural population are commuting to work in urban centres and then returning to their rural home at night. Thus, new forms of interaction and a stronger link between rural and urban areas are taking shape (Chomitz, Buys and Thomas, 2005).

### **(b) Sectoral or economic criterion**

When this criterion is used, rural areas are defined on the basis of the scale of their contribution to major economic activities. There has traditionally been an association between rural areas and the agricultural sector (Echeverri, 2011), but this idea has started to change, and the rural environment is coming to be viewed as a multisectoral one. Although agricultural activities are still the core economic focus in rural areas in the developing world, this sector's share of GDP and employment is shrinking. The contribution of rural activities such as crop farming, forestry, livestock and fisheries is being added to by other activities, such as agribusiness and craftwork, rural tourism services and environmental services.

### **(c) Territorial criterion**

The use of this criterion in order to determine which areas are rural and which are not involves more than just delimiting a geographical unit on the basis of the quantification of one or more variables. The definition of the rural environment is supplemented by a rationale that encompasses economic and social processes which, although the and are localized, nonetheless correspond to a social construct made up of relationships

that give rise to—and give expression to—an identity that is shared by many different agents (Schejtman and Berdegueé, 2004). In rural areas, the most important sectors are those that centre on natural resources (Echeverri, 2011; Echeverri and Ribero, 2002).

The territorial unit in this case is the site of social action in which the need for connectivity becomes explicit and the location of the shared natural resources that are to be harnessed and conserved. It is also where the regime of governance will be influenced by the ethnic groups in the area, along with the local power structure and the rivalries that exist, and where development projects will be shaped by converging interests and aims (Pomareda, 2016; Dirven and others, 2011).

For the purposes of this chapter, the rural environment is understood in terms of the three criteria discussed above: as a geographic area with a low population density in which social interactions and economic processes take place that reflect shared objectives and a shared identity—one that usually revolves around natural resources—and where, in addition to agriculture, other processing and service activities are also being conducted.

Because the criteria used to define the rural environment have differed from one country to the next and because there is no aggregate estimate of the economic importance of rural areas as such, the statistics used in this chapter will vary depending on what information is available. When information is provided on a given rural area, the definition used by the corresponding information source will be specified. In a number of cases, information is given that has been compiled by the agricultural sector, which accounts for such a large part of the economic activities conducted in rural areas in the subregion. The activities included in the agricultural sector are: farming, stock raising, forestry, fisheries and aquaculture. Some information sources do not distinguish between the terms “farming” and “agriculture”. Information is also provided that characterizes the production structure on the basis of the economic and social features of what has been defined as the rural population.

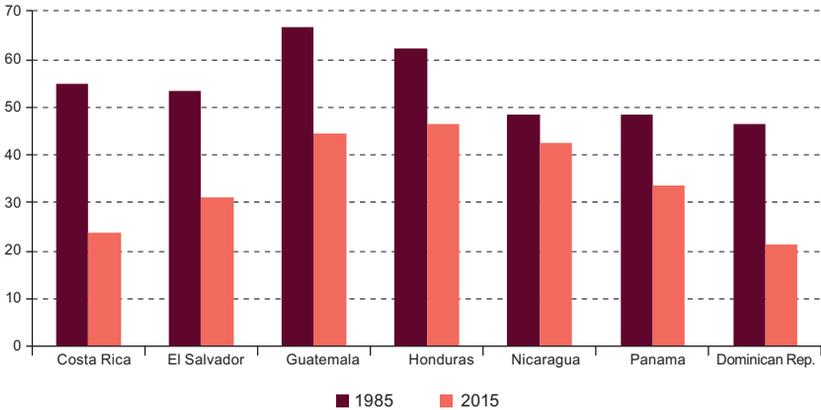
## **2. Characteristics of rural areas in Central America and the Dominican Republic**

### **(a) Population**

As in other parts of the world, the subregion’s rural population has grown smaller over the past three decades, but a large percentage of the population of Central America and the Dominican Republic still live in rural areas. In 2015, the total population of Central America and

the Dominican Republic was estimated as follows: Costa Rica (4,821,000), Dominican Republic (10,531,000), El Salvador (6,298,000), Guatemala (15,920,000), Honduras (8,075,000), Nicaragua (6,086,000) and Panama (3,929,000) (ECLAC, 2015a). When the size of the rural populations in these countries are computed as a percentage of these totals, the results show (see figure I.1) that the countries with the largest rural populations in relative terms are Honduras (46%), Guatemala (44%) and Nicaragua (42%), while those with the smallest are Costa Rica (23%) and the Dominican Republic (21%).

**Figure I.1**  
**Central America and the Dominican Republic: rural population, 1985 and 2015**  
*(Percentages of the total population)*

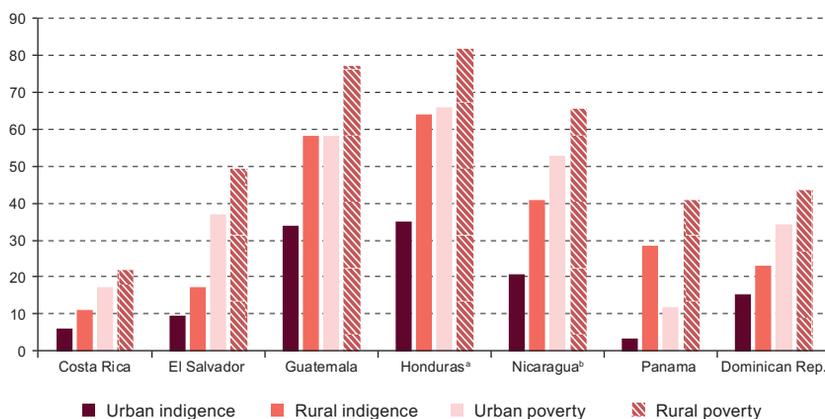


**Source:** Economic Commission for Latin America and the Caribbean (ECLAC), “CEPALSTAT. Databases and Statistical Publications”, 2016 [online] [http://estadisticas.cepal.org/cepalstat/WEB\\_CEPALSTAT/Portada.asp?idioma=i](http://estadisticas.cepal.org/cepalstat/WEB_CEPALSTAT/Portada.asp?idioma=i).

**(b) Poverty**

A large percentage of the rural population in Central America and the Dominican Republic are living in poverty or indigence. Figure I.2 shows that the proportion of the rural population who are poor or indigent outstrips the corresponding proportion of the urban population in every country of the subregion. In Guatemala, 77.2% of the rural population had a mean income below the poverty line as of 2014; in Honduras, the figure was 81.8% in 2013, and it was 65.5% in Nicaragua in 2009. The country in the subregion with the lowest percentage of poverty in the rural population is Costa Rica (22% as of 2014). It can also be seen from figure I.2 how high the coefficients of indigence are in Guatemala and Honduras, while Costa Rica has a much lower rate.

**Figure 1.2**  
**Central America and the Dominican Republic: portions of the urban and rural populations living in poverty or indigence, 2014 or the last available year**  
*(Percentages)*



**Source:** Economic Commission for Latin America and the Caribbean (ECLAC), “CEPALSTAT. Databases and Statistical Publications”, 2016 [online] [http://estadisticas.cepal.org/cepalstat/WEB\\_CEPALSTAT/Portada.asp?idioma=i](http://estadisticas.cepal.org/cepalstat/WEB_CEPALSTAT/Portada.asp?idioma=i).

<sup>a</sup> The last year for which information is available for Honduras is 2013.

<sup>b</sup> The last year for which information is available for Nicaragua is 2009.

The countries in which income distribution is such that the largest amount of income is concentrated in the richest quintile of the rural population are Honduras (58.2%) and Panama (56.6%), while El Salvador has the most even income distribution in rural areas (see table I.1). The differences between these indicators for the urban and rural populations are less sharp than they are in the case of the other indicators looked at before.

**Table I.1**  
**Central America and the Dominican Republic: personal income distribution in rural and urban areas, by quintile, for 2014 or the last available year**  
*(Percentages of total national income)*

Country	Quintile I		Quintile II		Quintile III		Quintile IV		Quintile V	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Costa Rica	3.8	3.8	8.0	8.6	12.8	13.2	21.0	20.8	54.4	53.8
Dominican Republic	3.4	3.6	7.4	8.0	12.4	12.6	21.2	21.0	55.8	54.6
El Salvador	6.0	5.8	10.4	10.6	14.6	15.4	21.4	22.4	47.6	45.8
Guatemala	4.0	4.6	7.6	8.4	11.8	12.8	18.8	19.6	57.6	54.4
Honduras <sup>a</sup>	3.6	2.8	8.2	6.8	13.2	11.8	21.2	20.4	54.0	58.2
Nicaragua <sup>b</sup>	5.0	4.4	9.8	9.0	14.0	14.0	21.0	21.8	50.2	50.8
Panama	4.6	2.4	9.0	6.6	13.6	12.6	20.8	21.8	51.8	56.6

**Source:** Economic Commission for Latin America and the Caribbean (ECLAC), “CEPALSTAT. Databases and Statistical Publications”, 2016 [online] [http://estadisticas.cepal.org/cepalstat/WEB\\_CEPALSTAT/Portada.asp?idioma=i](http://estadisticas.cepal.org/cepalstat/WEB_CEPALSTAT/Portada.asp?idioma=i).

<sup>a</sup> The last year for which information is available for Honduras is 2013.

<sup>b</sup> The last year for which information is available for Nicaragua is 2009.

The rural population of the subregion experiences greater shortfalls in basic infrastructure services than the urban population does. According to the *Quinto Informe Estado de la Región sobre Desarrollo Humano Sostenible* (fifth sustainable human development report on the state of the region), overcrowding was a problem in 35.5% of the households in the subregion in 2014 and, with the exception of Costa Rica, Honduras and Panama, this figure rises to as much as 50% in rural zones. In that same year, 2 out of every 10 households did not have a dwelling of acceptable quality, and the ratio was three times as high for rural areas. An estimated 13% of urban households did not have an adequate supply of drinking water, and the figure rose to 23.6% for rural households. In addition, an estimated 12.9% of rural housing units did not have sanitation services, and 9 out of every 10 homes that do not have electricity connections are located in rural zones (Programa Estado de la Nación, 2016).<sup>5</sup>

The fact that the poverty rate is so high in rural areas is the result of a number of factors, but some of the most influential ones are the shortage of assets and, even more importantly, their uneven distribution, which is clearly reflected in the structure of land tenure. In Central America, over half of all producers have less than five hectares of land (ECLAC, 2016b). As will be discussed later on, the small size of many production units poses a productive development challenge because these smaller units have less of a chance of generating economies of scale, cutting costs, gaining access to technology and raising their productivity.

Unequal access to natural resources and markets and the disadvantages associated with social and political inequities, along with low levels of education, all exacerbate the situation with respect to rural poverty (IFAD, 2010). The members of the rural population of Central America and the Dominican Republic are less well educated than their urban counterparts. In the countries of Central America and in the Dominican Republic, the average number of years of study attained by the rural population between 15 and 24 years of age varies between 5.2 and 9.2, while the corresponding figure for the urban population ranges from 6.9 to 10.5. In the age group of 25-59 years, the years of study attained by members of the rural population ranges from 3.1 to 7.5, while the figures for the urban population vary between 6.3 and 12. The lowest levels of education in the rural population are found in Guatemala, Honduras and Nicaragua, while they are higher for Costa Rica, the Dominican Republic and Panama (ECLAC, 2016a).<sup>6</sup>

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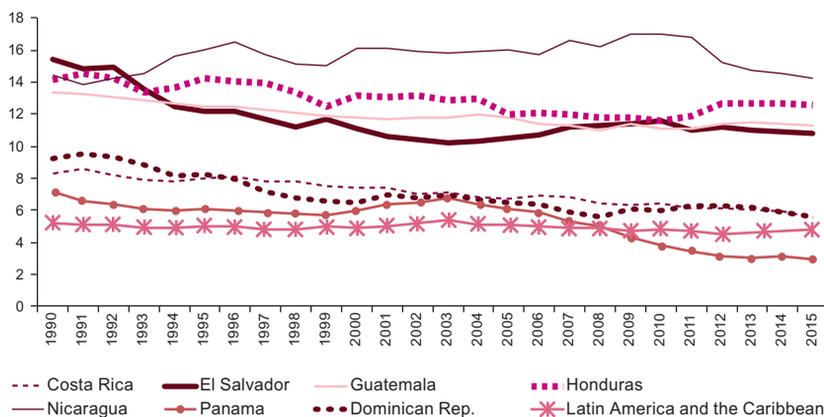
<sup>5</sup> The report does not cover the Dominican Republic.

<sup>6</sup> According to information for 2014 or for the last available year. The last year for which information is available is 2013 for Honduras and 2009 for Nicaragua (ECLAC, 2016a).

### (c) Production and employment

The agricultural sector continues to account for the core activities of rural areas in Central America and the Dominican Republic. Nevertheless, that sector's share of total GDP has shrunk over the past 25 years. In 2015, this sector's share was smaller in Panama (2.9%), Costa Rica (5.5%) and the Dominican Republic (5.6%) and larger in Nicaragua (14.2%), Honduras (12.6%) and Guatemala (11.3%) (see figure I.3). The relative size of the agricultural sector's GDP in the subregion (with the exception of Panama, where the services sector accounts for a large share of the economy) stands above the average for Latin America and the Caribbean (4.8%).

Figure I.3  
Central America and the Dominican Republic: agricultural GDP  
as a share of total GDP at constant prices, 1990-2015  
(Percentages)

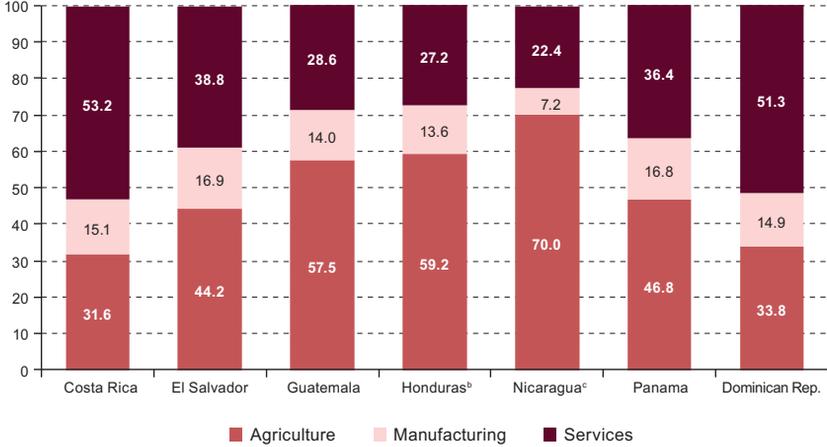


**Source:** Economic Commission for Latin America and the Caribbean (ECLAC), "CEPALSTAT. Databases and Statistical Publications", 2016 [online] [http://estadisticas.cepal.org/cepalstat/WEB\\_CEPALSTAT/Portada.asp?idioma=i](http://estadisticas.cepal.org/cepalstat/WEB_CEPALSTAT/Portada.asp?idioma=i).

The agricultural sector is a major employer in rural areas, but a trend towards diversification can also be observed. Figure I.4 shows that the agricultural sector accounted for the largest proportions of rural employment in Nicaragua (70%), Honduras (59.2%) and Guatemala (57.5%), with all three of these countries' figures exceeding the Latin American average (52.8%).<sup>7</sup> The lowest figures for this indicator were in Costa Rica (31.6%) and the Dominican Republic (33.8%).

<sup>7</sup> Weighted average for 16 países: Bolivia (Plurinational State of) (2013), Brazil (2014), Chile (2013), Colombia (2014), Costa Rica (2014), Dominican Republic (2014), Ecuador (2014), El Salvador (2014), Guatemala (2014), Honduras (2013), Mexico (2014), Nicaragua (2014), Nicaragua (2009), Panama (2014), Paraguay and (2014), Peru (2014), and Uruguay and (2014) (ECLAC, 2016a).

**Figure I.4**  
**Central America and the Dominican Republic: employed rural population,**  
**by major economic sector, 2014 or the last available year<sup>a</sup>**  
*(Percentages)*



**Source:** Economic Commission for Latin America and the Caribbean (ECLAC), “CEPALSTAT. Databases and Statistical Publications”, 2016 [online] [http://estadisticas.cepal.org/cepalstat/WEB\\_CEPALSTAT/Portada.asp?idioma=i](http://estadisticas.cepal.org/cepalstat/WEB_CEPALSTAT/Portada.asp?idioma=i).

- <sup>a</sup> Based on the International Standard Industrial Classification of All Economic Activities (ISIC) (Rev. 2). The major category includes: agriculture, hunting, forestry, fishing and aquaculture.
- <sup>b</sup> The last year for which information is available for Honduras is 2013.
- <sup>c</sup> The last year for which information is available for Nicaragua is 2009.

The rural population’s sources of employment in the subregion are diversifying but in two different ways. In Guatemala, Honduras and Nicaragua and, to a lesser extent, in El Salvador, this diversification is taking place within a production structure in which agricultural activities continue to be the main employers. In Costa Rica and the Dominican Republic, on the other hand, just the opposite is happening, as more than half of all persons employed in rural areas are in the services sector.

As can be seen from table I.2, the percentage of employed persons in rural areas who are wage earners has held steady or grown in all the countries (except Nicaragua) in recent years. The percentage of employed persons in rural areas who are own-account workers or are unpaid family workers is trending in the opposite direction, except in Honduras and Nicaragua.

**Table I.2**  
**Central America and the Dominican Republic: distribution of the employed rural population, by type of employment, 2000 and 2014**  
*(Percentages)*

Country	Employers (total)		Wage earners (total)		Own-account and unpaid family workers (total)	
	2000	2014	2000	2014	2000	2014
Costa Rica	5.8	4.1	66.4	72.6	27.8	23.3
Dominican Republic	1.7 <sup>a</sup>	2.7	36.6 <sup>a</sup>	41.2	61.7 <sup>a</sup>	56.2
El Salvador	4.6	3.6	47.3	50.5	48.1	45.8
Guatemala	2.0 <sup>b</sup>	1.3	42.9 <sup>b</sup>	51	55.1 <sup>b</sup>	47.7
Honduras	3.1 <sup>c</sup>	1.6 <sup>d</sup>	33.5 <sup>c</sup>	33.5 <sup>d</sup>	63.4 <sup>c</sup>	64.9 <sup>d</sup>
Nicaragua	3.3 <sup>b</sup>	1.0 <sup>e</sup>	43.7 <sup>b</sup>	36.0 <sup>e</sup>	53.0 <sup>b</sup>	62.6 <sup>e</sup>
Panama	1.5 <sup>f</sup>	2.0	39.5 <sup>f</sup>	43.7	58.9 <sup>f</sup>	54.3

**Source:** Economic Commission for Latin America and the Caribbean (ECLAC), "CEPALSTAT. Databases and Statistical Publications", 2016 [online] [http://estadisticas.cepal.org/cepalstat/WEB\\_CEPALSTAT/Portada.asp?idioma=i](http://estadisticas.cepal.org/cepalstat/WEB_CEPALSTAT/Portada.asp?idioma=i).

<sup>a</sup> Figure for 2002.

<sup>b</sup> Figure for 1998.

<sup>c</sup> Figure for 1999.

<sup>d</sup> Figure for 2013.

<sup>e</sup> Figure for 2009.

<sup>f</sup> Figure for 2001.

The following four sections will discuss the productive development challenges facing rural areas.

## B. Institutional challenges

### 1. Rules, conventions and coordination

Implementing agrarian reforms and introducing a policy framework that will support smaller production units continue to pose an institutional challenge for Central America and the Dominican Republic. Efforts have been made to start up land tenure programmes and to improve existing ones, but their impact in terms of a reduction in the concentration of land ownership has been slight (ECLAC, 2001). Table I.3 provides an overview of some of the institutional constraints that are holding back the implementation of agrarian reform in Central America and the Dominican Republic, although it should be remembered that there are also a number of factors specific to each country that are also at work.

**Table I.3**  
**Central America and the Dominican Republic: constraints**  
**on the implementation of agrarian reforms**

- 
- Armed conflicts and political instability.
  - Politicization of reforms.
  - Problems with land titling procedures and a lack of legal certainty regarding land ownership.
  - A lack of continuity in agrarian reform programmes.
  - Insufficient funding.
  - Shortage of support services (technical assistance, training, financing and so forth) for target populations.
  - Cumbersome agrarian conversion processes.
  - Dismantling of agrarian reform institutions.
  - Overly complex legal systems that are subject to continuous modifications and that suffer from legal gaps and loopholes.
  - Asymmetry in land tenure processes and in the introduction of technological changes.
  - Foreign land ownership.
- 

**Source:** Prepared by the author, on the basis of A. Baumeister, *Concentración de tierras y seguridad alimentaria en Centroamérica*, Rome, International Land Coalition/Norwegian Development Fund., 2013; F. Edoard, *Gobernanza en la tenencia de la tierra y recursos naturales en América Central*, Rome, Food and Agriculture Organization of the United Nations, 2010; Economic Commission for Latin America and the Caribbean (ECLAC), "La estructura agraria y el campesinado en el Salvador, Guatemala y Honduras" (LC/MEX/L.492), Mexico City, ECLAC subregional headquarters in Mexico, 2001; F. Barea, *La reforma agraria en el istmo centroamericano y República Dominicana durante el periodo 1986-1991*, San Jose, Inter-American Institute for Cooperation on Agriculture (IICA), 1994.

The prevailing centralist model attests to the inability of public agencies to meet the needs of the rural population. At the national level, public agencies in urban areas take up more of the budget and more of the available human resources than agencies located in rural areas do. For example, Jansen and Alwang (2006) studied the concentration of public investment in rural areas in Central America and found that more public funds are invested in rural areas that are closer to urban ones and that public investment is lower in the more remote rural areas of Guatemala, Honduras and Nicaragua.

Central America and the Dominican Republic continue to labour under problems of governance having to do with conflicts that are interfering with the rule of law, the incomplete inclusion of the entire population, as indigenous peoples and people of African descent remain on the sidelines of society, difficulties in maintaining security, civil society's weak response and organizational capacity, and others (ECADERT/CAC/SICA, 2010). The rural population is in a different position than the urban population when it comes to coping with these problems because a larger proportion of the rural population is poor, has fewer economic opportunities, less access to assets and information, must deal with the implications of the centralist model and has lower levels of education.

As regards the various possible forms of coordination, small producers and micro- and small enterprises in rural areas do not have the same social, economic or political capacity to put forward their demands or advocate the public policy proposals that would further their development

(Flores and Rello, 2002). In order to promote associative behaviour and help smaller production units to find new ways to coordinate with one another, governments and other organizations can assist them to overcome those constraints by addressing the high transaction costs that they face and assisting them to overcome other factors at the individual firm level that are holding them back.

## 2. Policies and strategies

Rural institutions are shaped by prevailing national development models or strategies and the ways in which public policies are implemented, among other factors. The State's recognition of the potential contribution to be made by rural economic activities to structural change and economic development must be matched by commensurate budget allocations (Pomareda, 2016). Central government spending on the agricultural sector has declined as a percentage of total public expenditure in most of the countries of the subregion. In fact, in 2014 and 2015, it was less than 3% of the total in the Central American countries and the Dominican Republic (ECLAC, 2016a).

The fact that participatory mechanisms and forums for dialogue among local, regional and national stakeholders are absent from the procedures in place for the formulation, implementation and evaluation of public policies for rural areas is another institutional challenge that needs to be addressed. Participatory mechanisms need to be established to provide a forum for dialogue and consensus-building and a means of monitoring the fulfilment of commitments. Although some initiatives have been taken in this direction, rural policies in Central America and the Dominican Republic have generally been implemented in coordination with a very small social base in which the least powerful stakeholders' participation is very limited (Berdegué and others, 2013).<sup>8</sup> Building a consensus as the foundation for the implementation of rural policies and strategies is a challenge that the subregion has yet to meet, especially since, even in those cases where participatory mechanisms have been introduced, policy implementation processes have proven to be quite complex. In Guatemala, for example, an effort was made to use a participatory model for the formulation of the bill

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<sup>8</sup> One example of this type of initiative is the Central American Strategy for Rural Territorial Development (ECADERT), which is aimed at encouraging the participatory management of inclusive, equitable public policies on land use by introducing participatory processes for policy formulation and consensus-building for institutional, social, economic, cultural and environmental planning and change in the rural areas of Central America (ECADERT, 2011). The Latin American Centre for Rural Development (RIMISP) has launched an initiative that engages subregional stakeholders and public and private agencies in the reformulation of a conceptual framework and the operational collaborative model for use by governments and multilateral agencies in negotiating loans and implementing projects that will have an impact on the countries of the subregion (Rural Dialogue Groups). This project is being conducted in Costa Rica, El Salvador, Guatemala, Nicaragua and Panama (RIMISP, 2016).

that was to become the Integral Rural Development Act, which had been the object of debate since 2002 and was formalized in 2009, with the first steps for its implementation being taken in 2012.<sup>9</sup> The process involved in passing that law was protracted, however, and its implementation has been held up by a lack of consensus among the various stakeholders (Privado, 2016).

## C. Environmental sustainability challenges

### 1. Adaptation to climate change

The climate change brought about by excessive greenhouse gas emissions in the atmosphere has been called “the greatest market failure the world has ever seen” (ECLAC, 2016b). Although the countries of Central America and the Dominican Republic have contributed to this problem much less than other regions have, the rural areas of the subregion are among the zones that are the most vulnerable and the most exposed to extreme weather events. In the past few decades, the threats posed by meteorological and hydrological phenomena have been heightened by the effects of climate change. In fact, Honduras, Nicaragua and Guatemala are ranked first, fourth and tenth, respectively on the worldwide Long-Term Climate Risk Index (Kreft and others, 2015). According to information obtained from The International Disaster Database EM-DAT, in 1990-2015, Central America and the Dominican Republic were impacted by 382 extreme events, as compared to 107 in 1965-1990. Most of these events were meteorological or hydrological in nature (such as floods, storms, landslides and droughts). These are also the types of events associated with climate change that cause the greatest losses and do the most damage (see figure I.5).

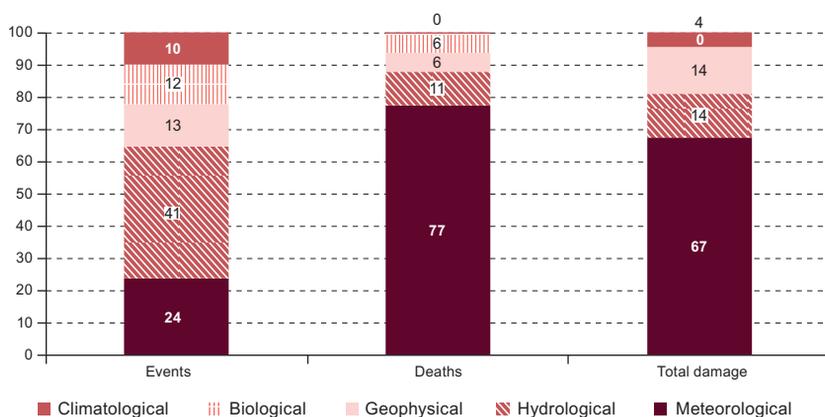
Because weather conditions are so closely connected with the performance of rural economic activities, the losses and damage caused by extreme events have been greater in these areas. According to a report on agricultural risk and insurance coverage in the subregion (*Gestión integral de riesgos y seguros agropecuarios en América Central y la República Dominicana: situación actual y líneas de acción potenciales*), the agricultural sector has borne 67% of the total economic losses occasioned by extreme events in Central America and the Dominican Republic. That report also states that the major disasters that have occurred between 1970 and 2008 have caused losses totalling US\$ 7.125 billion at 2008 prices in the agricultural sector, while total losses amounted to US\$ 1.887 billion for the manufacturing sector,

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<sup>9</sup> The provisions of this law focus on members of the rural population living in poverty or extreme poverty and give priority to indigenous peoples and campesinos who have too little land, unfertile land or no land at all, indigenous women and female campesinos, permanent or temporary wage workers, craftspeople, small rural producers, and persons running micro- or small enterprises (Privado, 2016).

US\$ 1.256 billion for the commercial sector and US\$ 363 million for the tourism industry (ECLAC/CAC/SICA, 2013). Climate change adaptation and risk prevention measures for the agricultural sector and other rural activities have been proposed, along with agricultural insurance as a risk management mechanism.<sup>10</sup>

**Figure 1.5**  
**Central America and the Dominican Republic: distribution**  
**of extreme events, by type, 1990-2015**  
*(Percentages)*



**Source:** Prepared by the author, on the basis of data from "EM-DAT Database", 2016 [online] [www.emdat.be](http://www.emdat.be).

Climate change alters the way water resources are used by rural economic activities, whether as a result of water shortages or flooding, or storms and landslides, which affect soil properties and reduce the output of agricultural and other rural activities. In 2012, available renewable water resources in Central America and the Dominican Republic were estimated at 686,630,000,000 cubic metres per year. The countries with the most abundant water supplies were Nicaragua (23.9%) and Panama (20.3%) and those with the least were El Salvador (3.8%) and the Dominican Republic (3.4%). Total water use in Central America and the Dominican Republic is estimated at 19,137,000,000 cubic metres per year,<sup>11</sup> and the agricultural

<sup>10</sup> For the purposes of this integral risk management analysis, risks were divided into threats and vulnerabilities, and this approach proved to be of key importance in assessing the impact of extreme or potentially disastrous events. Some of the threats are economic (e.g. price volatility) while others are anthropogenic or natural in origin (e.g. extreme events). The subregion's vulnerabilities are associated with its geographic position on a narrow isthmus between two continents and between two oceans, with the areas bordering the Atlantic Ocean being the most exposed to storms and hurricanes and some of the most vulnerable producing areas being those located along rivers and in low-lying and coastal zones (see ECLAC/CAC/SICA, 2013).

<sup>11</sup> The last year for which information is available for each country: Costa Rica (2013), El Salvador (2005), Guatemala (2006), Honduras (2003), Nicaragua (2011), Panama (2010) and Dominican Republic (2010) (FAO, 2016b).

sector accounts for approximately 64% of that figure (12,214,000,000 cubic metres per year) (FAO, 2016b). Although some countries in the subregion have relatively ample water supplies, a number of areas suffer from water shortages due to a lack of the necessary infrastructure to harness that resource and to unstable weather conditions (Pomareda, 2016; ECLAC, 2011). The effects of climate change on the water resources of Central America have been analysed in technical studies undertaken as part of a project entitled “The economics of climate change in Central America” (ECLAC, 2010 and 2011). Based on B2 (lower emissions than the current trend) and A2 (a continuation of the current trend of rising emissions plus global inaction) water supply and demand scenarios for the years 2000, 2020, 2030, 2050, 2070 and 2100, with and without climate change, the increases in water demand and the reduction in the total and per capita water supply in the presence of climate change have been estimated. These calculations indicate that the demand for water could rise by around 300% by 2050 and could climb by over 1,600% by 2100 in a trend scenario and could climb by 20% more than the levels indicated in this baseline scenario, in the case of B2, and 24% more in the case of an A2 scenario. The total water supply is projected to shrink considerably from 2030 on, especially under an A2 scenario (63% by the end year of that period). The average reduction in the per capita water supply for Central America is estimated at 90% under the A2 scenario and 82% under the B2 scenario (ECLAC, 2010).

The implementation of measures that will help the Central American countries and the Dominican Republic adapt to climate-related phenomena such as droughts is another environmental challenge. The subregion, as a whole, and the part of Central America that has been designated as the “Dry Corridor”, in particular, are especially vulnerable to these types of phenomena.<sup>12</sup> Rainfall patterns in the subregion are becoming increasingly variable and extreme. In the Central American Dry Corridor (which takes in 30% of the total land area (53 million hectares) of Central America), 42% of the area (6,684,899 hectares) is at a low risk of drought, 50.5% (8,045,987 hectares) is at a moderate risk level and 7.5% (1,187,385 hectares) has a severe drought risk level (FAO, 2012).

At the subregional level, a number of different agendas for adaptation to climate-related risks have been put forward. The Coordination Centre for the Prevention of Natural Disasters in Central America (CEPREDENAC) is undertaking risk-management efforts involving coordination, the sharing of information and experiences,

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<sup>12</sup> The Central American Dry Corridor encompasses a group of ecosystems in the dry tropical forest ecoregion of Central America, starting with Chiapas in Mexico and continuing on along a strip of land that takes in the low-lying ones on the Pacific side and much of the central pre-mountainous regions (0 to 800 metres above sea level) of El Salvador, Guatemala, Honduras, Nicaragua and part of Costa Rica (up to Guanacaste). In Honduras, it includes some areas near the Caribbean coast (FAO, 2012).

and technical and scientific advisory services dealing with prevention, mitigation, and disaster response and recovery. Other initiatives include the Central American Strategy for Rural Territorial Development (ECADERT) and the Central American Agricultural Policy (PACA), which focus on adaptation to climate change, and the integral risk management initiative of the Central American Council for Agriculture (CAC). The Central American Commission on Environment and Development (CCAD)-Central American Integration System (SICA) is working within the framework of its Regional Strategy on Climate Change (ERCC), whose objective is to prevent and reduce the negative impacts of climate change by building resilience and adaptation capacity.

The Central American countries are also entering into agreements with a number of agencies at the national and regional levels to advance an agenda of research, development and innovation (R&D&I). Examples of the issues on these adaptation-oriented agricultural/climate change agendas include: low-carbon technology transfer and research (Costa Rica); vulnerability and adaptation strategies for coffee producers (El Salvador); maize and bean production, drought-resistant genetic material, recovery and preservation of ancestral knowledge, participatory breeding of improved plant varieties and promotion of community seed banks (Guatemala); the research agenda of the Directorate of Agricultural Science and Technology (DICTA), which focuses on addressing climate change impacts (Honduras); adaptation-focused technological innovation in production chains (Panama); and research on the economic valuation of water resources (Dominican Republic) (Rodríguez, López and Meza, 2015).

## **2. Mitigation of climate change**

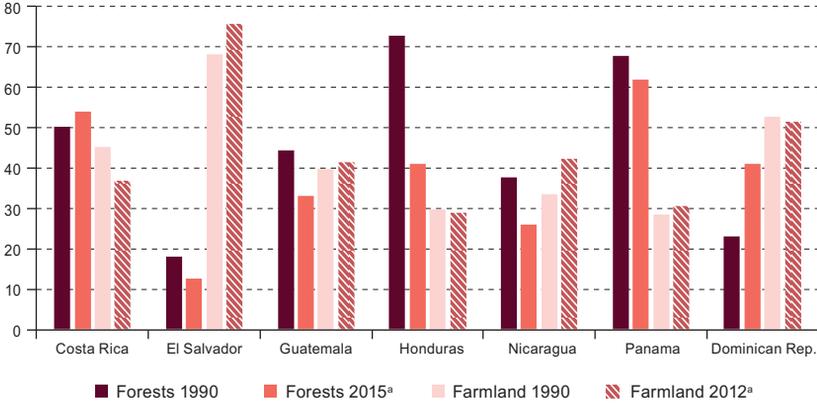
The greenhouse gas emissions from crop farming and stock raising activities in Central America and the Dominican Republic are smaller in volume than the emissions of other subregions in North America and South America, but the subregion's agricultural carbon dioxide emissions climbed from 20 million tons in 1970 to 35.8 million tons in 2010.<sup>13</sup>

This increase can be attributed to the expansion of farming and livestock activity and the reduction in tree cover. As shown in figure I.6, over the past two decades the countries of Central America (with the exception of Costa Rica) have witnessed a decline in the percentage of their total land area that is covered by woodlands, while the area used as farmland has expanded except in Costa Rica, the Dominican Republic and Honduras.

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<sup>13</sup> Does not include Panama (ECLAC, 2015b).

**Figure I.6**  
**Central America and the Dominican Republic: land area used for farming and land area covered by forests, 1990 and 2015 or the last available year**  
*(Percentages of total land area)*



**Source:** Economic Commission for Latin America and the Caribbean (ECLAC), “CEPALSTAT. Databases and Statistical Publications”, 2016 [online] [http://estadisticas.cepal.org/cepalstat/WEB\\_CEPALSTAT/Portada.asp?idioma=i](http://estadisticas.cepal.org/cepalstat/WEB_CEPALSTAT/Portada.asp?idioma=i).

<sup>a</sup> Source: FAO (2016a).

The growth of the agricultural sector needs to be coupled with responsible conservation and management of forests and other natural resources. This poses an enormous challenge for developing countries that are still grappling with wide productivity gaps while striving to increase their output without harming the environment. Proper forest management and conservation techniques can mitigate the effects of climate change by helping to preserve biodiversity and to decouple growth from carbon emissions.

Mitigation can also involve more sustainable practices in various kinds of rural economic activities. The use of external inputs can be minimized, and more environmentally efficient goods and services can be developed. Organic farming, for example, minimizes the use of synthetic fertilizers, pesticides, plant growth regulators (PGRs), antibiotics, genetically modified organisms and other additives that harm the environment and consumers’ health or can do away with them altogether. In Central America, as well as in other developing regions, organic farming makes up no more than a small proportion of total farming activity (in 2009, it accounted for between 0.2% and 0.4% of the total arable land area). In developed countries such as Denmark and Finland, however, the corresponding figures are 5.62% and 7.3%, respectively (FAO, 2016a).

Producing environmentally labelled products and services is another option for rural communities that are looking for ways to boost their incomes on a sustainable basis.

Mitigation challenges will be shaped by the countries' nationally determined contributions (NDCs).<sup>14</sup> The countries of the subregion, with the exception of Nicaragua, have made their contributions public. The contributions communicated by Costa Rica are noteworthy, since that country has reaffirmed its commitment to attaining carbon neutrality by 2021 and has set itself an upper limit for net greenhouse gas emissions in absolute terms (9,374,000 tCO<sub>2</sub>eq for 2030) (INDC, 2017).

## **D. Commercialization challenges**

### **1. International commodity price volatility**

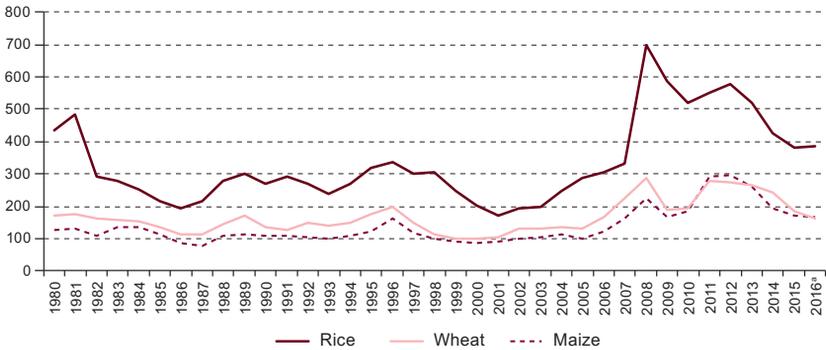
Some of the main agricultural commodities produced in Central America and the Dominican Republic are basic grains such as maize, beans and rice. In 2014, Guatemala was the subregion's biggest maize producer, with output of 1,847,214 tons, followed by El Salvador (819,311 tons) and Honduras (400,000 tons). Guatemala was also the largest producer of beans, at 235,029 tons, followed by El Salvador (120,795 tons) and Nicaragua (183,600 tons). The Dominican Republic was the subregion's biggest rice producer, with output amounting to 718,237 tons (FAO, 2016a).

Figure I.7 depicts the significant variations seen in international basic grain prices over the past 35 years and the peak levels reached in 2006-2008. Some of the factors underlying this increase have been the rising prices of raw materials (such as oil), a stronger demand for crops used as biofuels, shrinking food reserves and reductions in cereal production, as well as other macroeconomic conditions and policies and speculation on futures markets (FAO, 2010). Prices have been trending downward since the international financial crisis of 2008-2009 but have remained highly volatile.

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<sup>14</sup> Nationally determined contributions (NDCs) form part of the agreements made in the United Nations Framework Convention on Climate Change for mitigating the effects of climate change, reducing greenhouse gas emissions and keeping the global temperature rise to below 2°C. These contributions are the commitments made by each country, in accordance with its capabilities and needs, to combat climate change.

**Figure I.7**  
**International basic grain prices, annual averages, 1980-2016**  
*(Dollars per metric ton)*



**Source:** Economic Commission for Latin America and the Caribbean (ECLAC), “CEPALSTAT. Databases and Statistical Publications”, 2016 [online] [http://estadisticas.cepal.org/cepalstat/WEB\\_CEPALSTAT/Portada.asp?idioma=i](http://estadisticas.cepal.org/cepalstat/WEB_CEPALSTAT/Portada.asp?idioma=i).

<sup>a</sup> Average for January-June 2016.

Upward trends in the prices of basic farm commodities should benefit producers, but the increased profits are generally not sustainable over time and often end up in the pockets of agricultural exporters rather than in those of small-scale producers, since it often happens that when consumer prices rise, producer prices do not. Part of the reason for this has to do with the bargaining power of processors and importers, but opportunistic behaviour on the part of middlemen in dealing in information and the concentration of productive capital also play a role (Grandlgruber, García and Nazif, 2014). In addition, the prices of agricultural inputs such as fertilizers and petroleum also have an impact on agricultural production, since higher prices for inputs drive up production costs, and producers do not always have enough bargaining power to set a higher price for their products.

## 2. Market access and the role of intermediaries

Smaller producers and businesses in the subregion have greater difficulty in placing their products and services on local and international markets than their larger counterparts do. Information asymmetries manifest themselves in rural producers’ lack of awareness of possible niches for their products, available distribution channels and market supply and demand conditions. Intermediaries have more market information and greater negotiating power and often take advantage of these asymmetries to provide bulking and distribution services, but they also provide transport, financing and needed inputs. The role of intermediaries is therefore a complex one: on the one hand, they meet producers’ needs in

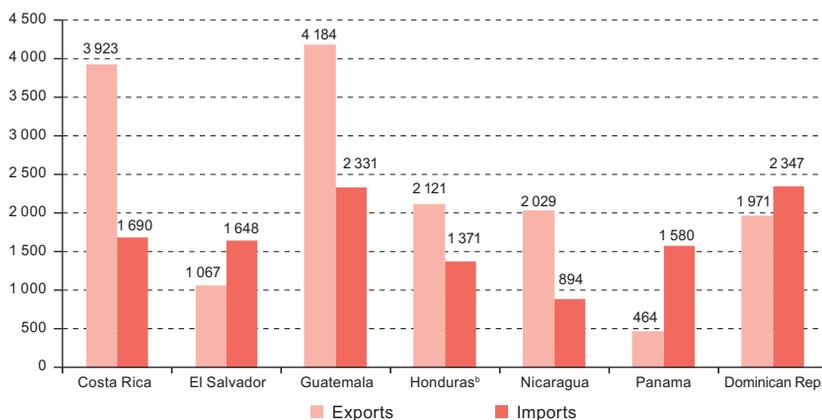
terms of putting their products on the market, but, on the other hand, they capture a significant share of the profits, thereby siphoning off a portion of small-scale producers' earnings (IICA/RED SICTA, 2014).

The differential between the price paid in one segment in the value chain relative to another is a reflection of the challenge to be met in order to upgrade existing production units. In order to obtain a greater profit margin, producers need to move into higher-value segments of the chain, including the commercialization segment. In order to do so, however, they will need to overcome a number of major hurdles owing to their lack of assets, financing, information, transport equipment and the infrastructure involved in processing, storing, packaging and selling their products.

### 3. Extraregional and intraregional trade

Trends in agrifood trade for Central America and the Dominican Republic have been mixed. The countries with the most agrifood export earnings in 2015 were: Guatemala (US\$ 4.184 billion), Costa Rica (US\$ 3.923 billion) and Nicaragua (US\$ 2.029 billion) (see figure I.8). In Panama (US\$ 1.580 billion), El Salvador (US\$ 1.648 billion) and the Dominican Republic (US\$ 2.347 billion), the value of agrifood imports exceed the value of agrifood exports.

**Figure I.8**  
**Central America and the Dominican Republic: exports and imports**  
**of agrifood products, 2015 or the last available year<sup>a</sup>**  
*(Millions of dollars)*



**Source:** Prepared by the author, on the basis of information from United Nations Commodity Trade Statistics Database (COMTRADE), 2016 [online] <http://comtrade.un.org/data/>.

<sup>a</sup> Based on the Standard International Trade Classification (Rev.4). Includes section 0 (food and live animals) and section 1 (beverages and tobacco).

<sup>b</sup> The latest year for which information is available is 2014.

The subregion's agrifood exports continue to account for a considerable portion of total exports. In Honduras, Nicaragua and Costa Rica, the values of agrifood exports shown in figure I.8 amounted to 47%, 43% and 41% of those countries' total export value, respectively, while the corresponding figures were 19% for El Salvador and 24% for the Dominican Republic (COMTRADE, 2016).<sup>15</sup> Central America's main agrifood exports are: coffee; bananas; cane or beet sugar and chemically pure sucrose; dates, figs, pineapples, avocados, guavas, mangos and mangosteens (fresh or dried); palm oil and its fractions (not chemically altered); food preparations; crustaceans; beef (fresh or chilled); breads, pastries, cakes or biscuits; fruit or vegetable juice (including mineral and carbonated water); and nutmeg, mace and cardamoms (SIECA, 2016). Sugar, coffee and bananas continue to account for sizeable shares of total exports in terms of both value and volume and are among the 10 main products of all the Central American countries and the Dominican Republic (FAO, 2016a). A key challenge here is to take the subregion's agrifood exports to more dynamic markets and to add value by exporting processed goods and marketing them in different ways rather than simply exporting traditional agricultural goods (ECLAC, 2016b).

The subregion also needs to diversify its trading partners. The United States is the largest trading partner of all the Central American countries and of the Dominican Republic. In 2015, 45% of Costa Rica's commodity exports went to the United States, and Guatemala and El Salvador exported 53% and 36% of their total exports, respectively, to that country (SIGCI, 2014). Central America's and the Dominican Republic's export markets are covered by the terms of their free trade agreements, one of the most important of which is the Dominican Republic-Central America-United States Free Trade Agreement (CAFTA-DR). Each country has also signed various bilateral agreements and multilateral agreements with various associations (such as the European Union, the Caribbean Community (CARICOM) and/or the Caribbean Forum of African, Caribbean and Pacific States (CARIFORUM)) (OAS, 2016). The possibility of trading with other countries, such as China and other Latin American nations, regions or trade blocs is a factor to be considered in the commercialization of goods produced in rural areas.

Other countries in the subregion are the second-largest export market. In 2015, the total value of exports within Central America (without including the Dominican Republic) was calculated at US\$ 27.999 billion, with intraregional exports accounting for 32.7% of the total (SIECA, 2016). The subregion thus has an opportunity to expand its intraregional trade in agrifood products by capitalizing upon the supply and demand complementarities that exist among the countries of the subregion.

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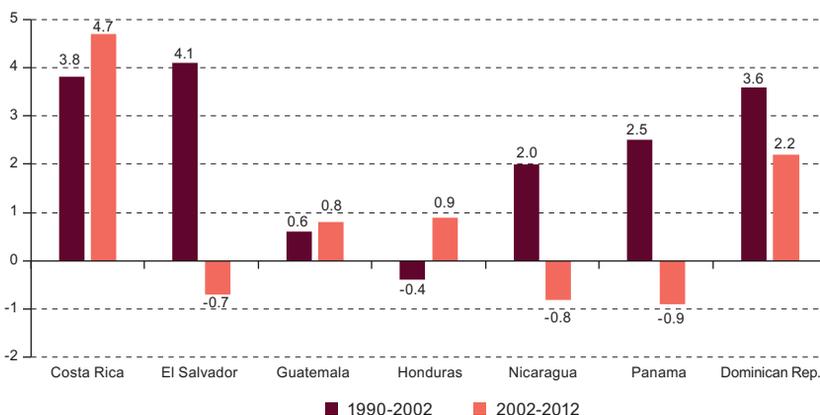
<sup>15</sup> Based on the Standard International Trade Classification (Rev.4).

## E. Productivity and innovation challenges

### 1. Productivity

As can be seen from figure I.9, agricultural labour productivity in Central America (with the exception of Costa Rica) and the Dominican Republic has edged up slowly. The study done by Weller (2016), on the basis of special tabulations of household surveys, found that in 1990-2002 farm labour productivity expanded overall, however, thanks, among other factors, to the spread of peace, modernization and export promotion efforts in the subregion. The situation changed during the following years (2002-2012), however, with the countries that marked up the highest mean growth rates for agricultural labour productivity in that period being Costa Rica (4.7%) and the Dominican Republic (2.2%), while El Salvador, Nicaragua and Panama had negative growth rates of nearly -1% (see figure I.9).

Figure I.9  
Central America and the Dominican Republic: average labour productivity growth rates in the agricultural sector, 1990-2002 and 2002-2012<sup>a</sup>  
(Percentages)



**Source:** J. Weller, "Transformaciones y rezagos: la evolución del empleo agropecuario en América Latina, 2002-2012", *Macroeconomía del Desarrollo series*, No. 174 (LC/L.4209), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2016, page 24.

<sup>a</sup> First and last year in each period for which information was available. First period: Costa Rica (1990-2002), Panama and the Dominican Republic (1991 and 2002), El Salvador (1992-2002), Guatemala (1989-2002) and Nicaragua (1990-2003). Second period: Costa Rica, El Salvador, Honduras, Panama and Dominican Republic (2002-2012), Nicaragua (2003-2010) and Guatemala (2002-2011).

The moderate growth rates for agricultural labour productivity in Latin America are more the result of a decrease in employment in the agricultural sector and a shift in labour to other sectors than of changes in the productivity of the various sectors themselves (Weller, 2016). In the central and northern portions of the subregion, the agricultural sector is bigger, and wider

productivity gaps persist. In Costa Rica and, to a lesser extent, the Dominican Republic, on the other hand, more thorough-going structural changes have been taking place, and productivity gaps are narrower.

Another indicator of productivity in the farm sector is crop yields, which are influenced by a whole range of factors, such as the size of production units, the technology they employ, the capacities that have been gained, resource management techniques and weather conditions (including the effects of climate change). As shown in table I.4, the yields of basic grain crops have grown at a moderate pace in most of the countries over the past three decades. El Salvador has had the highest maize crop yields, with those yields climbing from 1.9 tons per hectare in 1980-1989 to 3.0 tons per hectare in 2010-2013. Nicaragua is the country with the smallest increase in maize crop yields, which edged up from 1.2 tons per hectare in 1980-1989 to 1.4 tons per hectare in 2010-2013. A comparison of these figures with crop yields around the world shows that Central America and the Dominican Republic are far from being on the productivity frontier. In 2010-2013, Brazil had an average maize crop yield of 4.7 tons per hectare, while the average yield in the United States, which is the world's biggest grain producer, was 9.1 tons per hectare. Mexico had an average yield of 3.1 tons per hectare (FAO, 2016a).

**Table I.4**  
**Central America and the Dominican Republic: average yield**  
**of basic grain crops, 1980-2013**  
(Tons per hectare)

	Costa Rica	Dominican Republic	El Salvador	Guatemala	Honduras	Nicaragua	Panama
<b>Maize</b>							
1980-1989	1.7	1.6	1.9	1.7	1.3	1.2	1.1
1990-1999	1.8	1.5	2.0	1.9	1.4	1.2	1.3
2000-2009	1.9	1.5	2.8	2.2	1.6	1.2	1.4
2010-2013	2.1	1.8	3.0	2.0	1.7	1.4	1.8
<b>Beans</b>							
1980-1989	0.5	1.0	0.7	0.8	0.5	0.6	0.4
1990-1999	0.5	0.8	0.8	0.8	0.8	0.6	0.4
2000-2009	0.6	0.8	0.9	0.9	0.7	0.8	0.3
2010-2013	0.6	1.0	0.8	0.9	0.8	0.8	0.4
<b>Rice</b>							
1980-1989	3.0	4.7	3.8	2.6	3.0	3.4	1.9
1990-1999	4.2	5.2	4.7	3.0	3.5	3.3	4.6
2000-2009	3.9	5.1	6.8	2.9	3.0	3.5	5.8
2010-2013	3.5	5.5	6.3	2.9	4.7	4.3	5.9

**Source:** Economic Commission for Latin America and the Caribbean (ECLAC), "CEPALSTAT. Databases and Statistical Publications", 2016 [online] [http://estadisticas.cepal.org/cepalstat/WEB\\_CEPALSTAT/Portada.asp?idioma=i](http://estadisticas.cepal.org/cepalstat/WEB_CEPALSTAT/Portada.asp?idioma=i).

## 2. Size and technological performance

The small size of many production units and the existing land ownership structure act as constraints on rural agricultural activities in Central America and the Dominican Republic. More than half of all production units in the subregion fall into the smallest category (micro-farms or subsistence agriculture). The producers in this category have a plot of less than five hectares, on average. In Costa Rica, Panama and Honduras, 50.5%, 74.6% and 62.1% of all producers are in this category. In Nicaragua, 46.6% of all producers have less than 3.5 hectares of land. In El Salvador, 68.6% have less than 1 hectare and, in Guatemala, 67.5% of all subsistence producers have less than 1.4 hectares (ECLAC, 2016c).<sup>16</sup> While all small-scale producers are not the same and some of them have greater production capacities than others, most of the producers in this segment have fewer assets and have lower crop yields. The great majority are engaged in family farming, subsistence farming or “backyard farming” and have fewer opportunities for achieving economies of scale or of lowering production costs. By contrast, larger-scale producers have better equipment, skilled personnel, access to more sophisticated technology and the ability to gain access to international markets or to upgrade their positions within their respective value chains. There are very few producers of this type in Central America and the Dominican Republic, but they own the largest tracts of land. In Guatemala, for example, only 3.2% of all producers have more than 22.5 hectares, but they own nearly two thirds of all the land (65.4% of the total) (ECLAC, 2016c).

One important component of farm technology has to do with access to irrigation systems. While there are areas in Central America and the Dominican Republic that have abundant water resources, the subregion is faced with challenges in terms of access, infrastructure and training in this regard. Surface irrigation systems are still the most prevalent ones (being used on between 70% and 90% of the total area of farmland), followed by sprinklers and localized systems (FAO, 2016b).

Shortcomings in terms of the proper implementation of good agricultural practices are another constraint. Seed quality, plant and animal feeding practices and soil management techniques, vaccination regimes and the cutback in government outreach services all constrain technological development in agricultural activities. At the same time, the evidence suggests that producers’ are often reluctant to change their practices or techniques; this is often a repercussion of information asymmetries (Pomareda, 2016).

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<sup>16</sup> Based on the most recent agricultural survey results: Costa Rica (2014), El Salvador (2007-2008), Guatemala (2003), Honduras (1993), Nicaragua (2011) and Panama (2000) (ECLAC, 2016c).

Agro-industry makes up a significant part of the manufacturing sector in Central America and the Dominican Republic. In El Salvador, for example, around 69% of manufacturing firms produce food and/or beverages (Ministry of Economic Affairs, 2005). This subsector generally includes many low-productivity enterprises that are not technology-intensive. In Central America and the Dominican Republic, artisanal or semi-industrial agro-industrial production systems (micro- and small enterprises) far outnumber modern industrial firms (Padilla, 2014). In addition, more of the modern agro-industrial companies are not located in rural areas.

Micro- and small non-farm enterprises —for example, artisanal or semi-industrial agro-industrial firms, commercial enterprises and services (e.g. rural tourism and transport) companies— are growing in number in rural areas as households find that they need to diversify their sources of income. These businesses face challenges in gaining access to inputs; dealing with a lack of suitable infrastructure for conducting their production activities; attaining economies of scale; generating enough value added; meeting the food safety, quality and traceability standards required for entry into some markets; overcoming the problems posed by weak production linkages; coping with underskilled staff; and dealing with the consequences of a scarcity or complete absence of innovation activities.<sup>17</sup> Chapter V will look at this issue in greater depth.

Apart from the issues of size and technological performance, the fact that small production units work in isolation from one another acts also as a constraint. Smaller firms that have not joined with others in business associations have greater difficulty in gaining market access, acquiring knowledge and obtaining financing (Hernández, 2001).

The number of rural micro- and small enterprises in the services sector is on the rise, and many of them operate informally. For example, there is a greater degree of informality among the smaller enterprises in Honduras, where 51% of all rural businesses are not registered (Valenzuela, 2013). Remittances are an income source that serves as an incentive for people to set up these kinds of businesses. Rural tourism is another type of service that is beginning to take hold in the subregion. The constraints identified by studies on rural tourism value chains include insufficient infrastructure, underdevelopment of tourism products and destinations, a lack of technical training, the absence of a culture of

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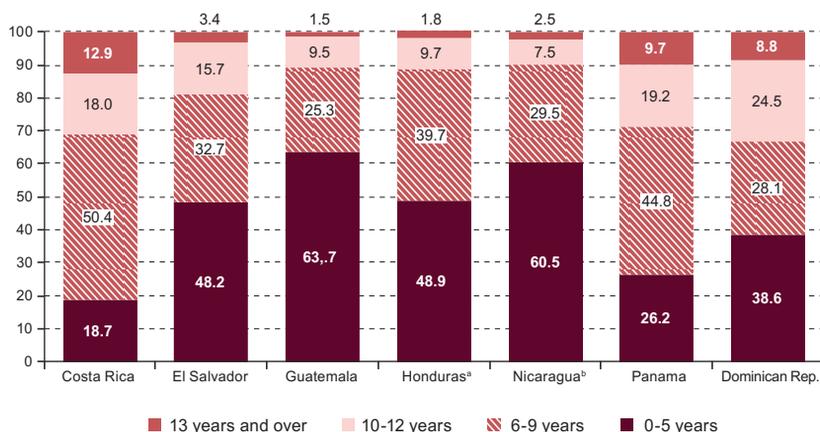
<sup>17</sup> Because there are so few statistics on rural micro- and small non-farm enterprises, the description of the features of these businesses given here is based on other kinds of studies, such as studies on value chains, that do not focus on this sector as such (Garry and Martínez, 2016; Odonne and Alarcón, 2016; Padilla and Cordero, 2016; Romero, Díaz and Aguirre, 2016; Odonne and Beltrán, 2014; Cordero, 2014; IICA/SICA, 2014; Bamber and Fernández-Stark, 2012; AGEXPORT, 2012 and 2014; Angulo and Mata, 2008).

tourism, underdeveloped marketing and sales strategies and problems with inter-agency coordination (see chapter VI).

### 3. Education and training

Education is of crucial importance in raising productivity levels. The level of educational attainment of much of the subregion's population is low, and it is even lower in rural areas. On average, as of 2014, nearly 40% of the rural working-age population had no more than a very basic level of instruction (between 0 and 5 years). The largest educational deficit is in Guatemala, where 63.7% of the economically active population (EAP) in rural areas has between 0 and 5 years of schooling. The smallest percentage of the rural EAP with no more than primary schooling (18.7%) and the largest percentage of the rural EAP with 13 or more years of schooling (12.9%) are in Costa Rica (see figure I.10).

**Figure I.10**  
**Central America and the Dominican Republic: distribution of the rural economically active population (EAP) of 15 years of age or older, by number of years of schooling, 2014 or the last available year**  
*(Percentages)*



**Source:** Economic Commission for Latin America and the Caribbean (ECLAC), "CEPALSTAT. Databases and Statistical Publications", 2016 [online] [http://estadisticas.cepal.org/cepalstat/WEB\\_CEPALSTAT/Portada.asp?idioma=i](http://estadisticas.cepal.org/cepalstat/WEB_CEPALSTAT/Portada.asp?idioma=i).

<sup>a</sup> The last year for which information is available for Honduras is 2013.

<sup>b</sup> The last year for which information is available for Nicaragua is 2009.

The dropout rate at the primary and secondary levels is another of the educational challenges to be overcome in the rural areas of the subregion. A study done by Adelman and Székely (2016) found that poverty, rural residence and membership in an indigenous group

correlated with school dropout rates in Central America. The demand for unskilled or low-skilled labour in the less dynamic rural activities such as agriculture, maquila industries or informal commerce, combined with low income levels, prompt young people to drop out of school so that they can work right away rather than continue with their studies.

The skill levels of the rural labour force are lower than those of the urban workforce, and the size of the rural/urban income gap correlates with workers' educational level. In the agricultural sector, workers who have completed between 0 and 5 years of schooling and those who have completed between 6 and 9 years of schooling earn just 17% and 21.8% as much, respectively, as workers who have 13 or more years of schooling. In urban areas, the corresponding figures are 23.9% and 32.9% (Weller, 2016).

Other factors that influence young people's decisions to leave or stay in the school system include pregnancy, crime and violence, and household income levels. Rural/urban differences in levels of educational infrastructure also have an influence on the costs and benefits for students of staying in school (Adelman and Székely, 2016).

Vocational or job training provides a way for people to acquire skills they did not learn at school. Although it is not a substitute for a formal education, given the rapid advance of technological developments and changes in the production structure, vocational training is an equally important means of investing in human capital and can contribute to productivity gains in economic activities (Llisterri and others, 2014; ILO, 2014; López Acevedo and Tan, 2010).

One of the first challenges that Central America and the Dominican Republic will need to meet is how to go about expanding the coverage provided in rural areas by institutions that conduct human resource training programmes. A report of the International Labour Organization (ILO) (2014) notes that many of these institutions and a large percentage of the persons enrolled in these programmes are in major or capital cities or other urban areas in the countries in the subregion.<sup>18</sup> The heterogeneity of the subregion's labour markets, the diversification of its

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<sup>18</sup> For example, the National Learning Institute (INA) of Costa Rica has 9 regional locations and 60 centres, more than half of which are located in the central region of the country; these centrally located facilities serve 58.3% of the student body. The National Professional Training Institute (INFOP) of Honduras has four regional offices and eight Family Development Centres (CEFEDH) in rural areas, but the main campus in Tegucigalpa is where the bulk of the courses are located. The National Institute of Vocational Training for Human Development (INADEH) of Panama has 22 centres in various parts of the country, but a large part of the student body is in the central areas (Tocumen and Chorrera in Panama City serve 45.5% of the enrolled students) (ILO, 2014).

rural economies and the types of specific needs that arise all influence the areas or sectors in which people register for these programmes. Training programmes therefore need to be geared to the way in which the rural production structure is changing.

#### **4. Innovation activities**

The extent of innovation in the Central American countries and the Dominican Republic is quite limited. The World Intellectual Property Organization's 2016 Global Innovation Index, which is based on an analysis of seven innovation indicators (institutions, human capital, market sophistication, business sophistication, technology and knowledge products, and creative products) for a total of 128 nations, ranks the Central American countries (with the exception of Costa Rica) and the Dominican Republic as some of the least innovative. Nicaragua is ranked the lowest (116), followed by El Salvador (104), Honduras (101) and Guatemala (97). The Dominican Republic (76), Panama (68) and Costa Rica (45) were the highest-ranked countries in the subregion.

There is very little information on rural innovation activities in the subregion. Costa Rica, the Dominican Republic, El Salvador and Panama have conducted innovation surveys, but even these surveys have focused on manufacturing and services. Some of these survey results reflect a similar trend across these countries. For example, only between 30% and 50% of enterprises reported that they had undertaken some type of innovation or viewed innovation as a strategy for their organization. For all the respondents, innovations were mainly in processes and were being carried forward in an incremental, imitative and gradual manner. More than 90% of these enterprises do not have actual research and development (R&D) divisions. Many of the subregion's manufacturing industries are in the agro-industrial sector. The innovation activities reported in these surveys may be reflecting the innovation performance of these types of enterprises, but they may not necessarily be located in rural areas.

Table I.5 gives some indicators for science and technology in the agricultural sector. In most of the Central American countries (the exception being Costa Rica) and in the Dominican Republic, the size of the budget allocation for agricultural R&D, measured as a percentage of the agricultural sector's GDP, is quite small when compared to budget allocations for this purpose in other countries (such as Chile or Mexico). The country in the subregion that spends the most on R&D is Costa Rica (1.1% of the agricultural sector's GDP in 2012), while Guatemala spends the least (0.1% of the agricultural sector's GDP in 2012). The percentage of

agricultural GDP spent on agricultural R&D is greater than the percentage of total GDP spent on total R&D, however. For example, only 0.57% of total GDP was spent on R&D in Costa Rica (2012), while the figure was 0.04% for Guatemala and 0.03% for El Salvador (RICYT, 2016).

**Table I.5**  
**Central America and the Dominican Republic: indicators for science and technology in the agricultural sector**  
*(Percentages and full-time equivalent researchers)*

Country	Expenditure on agricultural R&D (percentages of agricultural GDP)			Researchers			Researchers per million inhabitants			Researchers for every 100 000 producers		
	2000	2006	2012	2000	2006	2012	2000	2006	2012	2000	2006	2012
Costa Rica	0.8	0.8	1.1	248.2	252.6	241.5	63.2	57.5	50.3	75.9	77.0	75.9
Dominican Republic	...	0.5	0.3	...	131.3	199.6	...	13.8	19.4	...	26.2	45.1
El Salvador	0.2	0.2	...	106.0	76.9	...	17.8	12.6	...	16.0	12.4	...
Guatemala	0.1	0.1	0.1	111.1	119.8	141.8	9.9	9.2	9.4	7.5	6.2	6.6
Honduras	0.3	0.2	0.2	76.4	68.9	87.6	12.3	9.8	11.0	10.4	10.1	13.2
Nicaragua	...	...	0.4	...	...	131.5	...	...	21.9	...	...	38.1
Panama	0.6	0.5	0.7	117.6	149.0	133.0	38.5	43.4	35.0	43.9	56.0	51.9
Chile	1.4	1.5	1.8	610.9	665.5	695.6	39.5	40.3	39.8	63.4	67.6	72.5
Mexico	1.0	1.1	1.0	3 620.7	3 723.8	3 988.6	34.9	33.2	33.0	41.0	43.3	50.4

**Source:** Agricultural Science and Technology Indicators (ASTI), "Open-access data and analysis on agricultural research investment and capacity in low- and middle-income countries", 2017 [online] <http://asti.cgiar.org/>.

The supply of human resources in the field of science and technology is quite diverse. The countries with the largest number of experts in the field per 100,000 producers are Costa Rica (75.9), Panama (51.9) and the Dominican Republic (45.1), while in Guatemala there are only 6.6 researchers for every 100,000 producers (2012) (see table I.5). Most of the researchers working in the subregion's agricultural sector have a first-level university degree, although some hold postgraduate degrees. In Costa Rica, 33.9% of the researchers in the agricultural sector had studied at the doctoral level as of 2012; in Guatemala, Nicaragua, Panama and Honduras, the corresponding figures were 13.6%, 11.6%, 10% and 5%, respectively (ASTI, 2017).

One of the challenges facing the subregion in the field of science, technology and innovation is the need to strengthen its agro-productive

innovation systems.<sup>19</sup> These systems are outgrowths of national innovation systems, but they draw on specific types of agents in the sector and on their interactions to generate innovation activities and to form associative institutions that can then launch new agricultural and agro-industrial products on the market (Padilla, 2013).

One of the subregion's strengths is its untapped potential for institutional capacity-building in the fields of science, technology and innovation. All of the countries have a ministry of agriculture and national science and technology agencies, and these two institutions work together to promote science, technology and innovation in the rural sector. Most of these agricultural ministries also run rural development programmes. Universities and specialized technological educational centres also form part of these countries' agro-production innovation systems. Bridging institutions or intermediary organizations help to reduce the level of uncertainty by linking up the various participants in the system, thereby facilitating information sharing and promoting the flow of knowledge. Many international cooperation agencies, civil associations and non-governmental organizations are active in this area in the subregion, and there are also a number of public R&D centres that work to support the sector. Some of the challenges faced by these organizations are a lack of sufficient capacity for undertaking complex research tasks, very limited interaction between them and the production sector, few links with universities and a shortage of funding (Padilla, Gaudín and Parra, 2013).

Innovation in the agricultural sectors of developing countries is quite limited, and the tendency is instead to adapt and incorporate existing technologies. The purpose of extension services is to transfer technology and best practices to rural economic activities (Swanson, 2008). One report on extension services in Central America and the Dominican Republic estimates service coverage at between 15% and 40% of all producers. These services use rural promotion models, farmer field schools, and training and visit extension techniques to transfer technology to family-based agricultural production units. The same study also notes that two of the challenges for agencies using this kind of approach have to do with the formation of interdisciplinary teams and moving past the top-down approach of the training and visit model. The proposal is to transition to participatory methodologies

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<sup>19</sup> This term is used by Padilla (2013). Other similar terms include "national innovation systems in the agricultural sector" (Vera-Cruz and Dutrénit, 2016) and "national agricultural innovation systems" (OECD, 2013). The difference between them lies in whether the system encompasses only agricultural activities or also includes agro-industrial activities and other related services.

while taking into account the differences and needs of the various types of producers (FAO, 2014).

According to the 2017 Global Entrepreneurship Index, the most enterprising economy in the subregion is Costa Rica and the one that faces the most challenges is Nicaragua (GEDI, 2016). Panama is the economy in which the most new firms have taken out business licences and in which the procedural steps involved in starting up a business take the least time and cost the least. In Costa Rica, start-up costs are actually lower (9.1% of per capita national gross income), but the registration procedure takes longer (22.5 days). While the time required to register and start up a new business is less in El Salvador (15.5 days), Guatemala (19.5 days), Honduras (13 days) and Nicaragua (13 days) than in Costa Rica, the cost is higher (40.7%, 24.1%, 41.1% and 68%, respectively, of per capita gross national income) (World Bank, 2016).<sup>20</sup> The costs in terms of the time and money involved in starting up a business are higher in rural areas owing to such factors as the distance from municipal capitals (which is where most of the agencies that process business applications are located), transport and transaction costs, problems in accessing information, the lack of advisory and training services, limited financing options and the population's income levels.

## 5. Financing

The level of agricultural credit, measured as a percentage of total credit, has declined over the past two decades in almost all of the Central American countries and in the Dominican Republic. In 2015, the relative level of such credit was highest in Nicaragua (12%) and Honduras (7%), while in the others, the figure was below 5% (ECLAC, 2016a). The decrease in the involvement of development banks in this area is one of the reasons for this situation.

In Central America and the Dominican Republic, the largest financial institutions with the greatest lending capacity are located in urban areas. The financial institutions located in rural areas, on the other hand, are smaller, have less specialized technologies, are staffed by people with fewer qualifications, lack risk mitigation tools and must deal with deficient regulatory systems (Valenzuela and Cruz, 2017; Vásquez and others, 2016; Reyes, 2016; Argumedo, 2016).

Microcredit has played a key role in financing rural production activities in Central America and the Dominican Republic. Micro-

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<sup>20</sup> Latest year for which information is available.

lenders have set up shop in response to the void left by commercial banks, which tend to turn away smaller production units in remote areas because they generally have little collateral to offer and are higher-risk borrowers. Information provided by micro-lender associations in Central America and the Dominican Republic indicate that 46.8% of their portfolios were made up of rural borrowers in 2014 and that 50.3% of their clients were located in rural areas. Micro-lenders' portfolios and clients in rural areas represent the smallest percentage of their overall lending activity in the Dominican Republic and Panama, while Nicaragua is the country in which the rural sector figures most prominently in these respects (see table I.6).

**Table I.6**  
**Central America and the Dominican Republic: the share of rural credit**  
**in total lending by microfinance institutions, 2014**  
*(Percentages of total credit)*

	REDCAMIF (total)	REDCOM (Costa Rica)	REDOMIF (Dominican Republic)	ASOMI (El Salvador)	REDIMIF (Guatemala)	REDMICROH (Honduras)	ASOMIF (Nicaragua)	REDPAMIF (Panama)
Rural portfolio	46.8	74.9	13.2	56.9	73.3	49.7	54.9	5.0
Rural clients	50.3	70.9	24.2	54.7	52.8	51.8	80.4	17.2

**Source:** Central American and Caribbean Microfinance Network (REDCAMIF), *Revista Microfinanzas de Centroamerica y del Caribe*, No. 22, 2014.

There are other national rural financial inclusion initiatives that deal with other products and services, in addition to microcredit, such as agricultural insurance, and this service is offered by both public and private agencies in Central America and the Dominican Republic. For example, in El Salvador, the Banco de Fomento Agropecuario (BFA) offers a working capital line of credit for basic grain producers that includes insurance coverage for losses. The fact that so few lenders offer this kind of insurance as part of a comprehensive risk management strategy poses a challenge for the subregion (ECLAC/CAC/SICA, 2013). It is extremely important for national financial inclusion strategies that incorporate these types of tools to provide for the participation of a wide array of stakeholders, including agricultural ministries, insurers, financial institutions and credit association, as well as other national and international organizations.

The subregion is faced with the challenge of strengthening financial service schemes of this type both by broadening their customer base in rural areas and by diversifying the rural financial products and services (loans, microcredit, agricultural insurance, deposit accounts, storage, collateral and security bonds) that they offer to producers who do not have access to the traditional commercial banking system.

## 6. Value chains

A value chain is composed of all the various activities that are needed in order for a good or service to reach the final consumer, starting with the original design of the product or service and continuing on through the various stages of processing and commercialization (Kaplinsk and Morris, 2002). All producers, no matter how small, belong to a value chain as soon as they buy inputs and start to market their surplus output, even if they are operating informally.

The challenge is to devise ways of strengthening those chains by upgrading the economic profile of each of the links in the chain and by improving coordination among those links and among the people and businesses who make them up. Chapter III describes the methodology that can be used in strengthening value chains and offers a more detailed conceptual framework for such initiatives. Table I.7 provides examples of the types of constraints that can hold back efforts to reinforce rural value chains in the subregion —constraints that are just that much greater in the case of smaller production units.<sup>21</sup>

In addition to the constraints associated with each segment of the chain, value chains can also be subject to systemic problems, such as institutional failures, low levels of public and private investment or macroeconomic hurdles.

As discussed in detail in chapter III from a conceptual and methodological standpoint and in chapters V and VI from an empirical one, using an approach that focuses on value chains makes it possible to conduct a cross-cutting analysis that takes in a number of the aspects discussed in this chapter: financing, innovation, training and commercialization, among others. One of the main contributions that can be made here is to design comprehensive, coordinated strategies for meeting the challenges being faced in various stages of the production chain.

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<sup>21</sup> As noted in the study conducted by Fernández-Stark and Bamber (2012), small and medium-sized production units are not homogeneous and, although most of them must cope with greater constraints than their larger counterparts, the extent of the limitations that they face is also influenced by their level of training, their socioeconomic stratum and the amount of experience that they have gained.

**Table I.7**  
**Central America and the Dominican Republic: examples of constraints**  
**on the various links in rural value chains**

Link	Constraint
Supply of inputs	<ul style="list-style-type: none"> <li>- Limited supply available from input providers</li> <li>- Costly inputs</li> <li>- Unavailability of technical assistance in the selection of inputs</li> </ul>
Production	<ul style="list-style-type: none"> <li>- Lack of financing</li> <li>- Little or no access to training and technical assistance</li> <li>- Poor resource management and poor quality control</li> <li>- Lack of infrastructure, equipment and technology</li> <li>- Low levels of education</li> <li>- Difficulties in terms of associativity and coordination</li> <li>- Problems in attaining economies of scale</li> <li>- Little or no innovation</li> <li>- Few linkages with other segments of the chain</li> <li>- Very little alignment between production schedules and the demand generated by other segments of the chain</li> </ul>
Processing	<ul style="list-style-type: none"> <li>- Lack of financing</li> <li>- Little or no access to training and technical assistance</li> <li>- Problems in meeting quality, traceability and good practice standards</li> <li>- Lack of training</li> <li>- Problems in attaining economies of scale</li> <li>- Little innovation</li> <li>- Inexperienced and untrained human resources</li> </ul>
Commercialization	<ul style="list-style-type: none"> <li>- Little or no access to market information (prices, distribution channels, supply and demand conditions)</li> <li>- Weak bargaining power and presence of intermediaries</li> <li>- Limited business (management and commercial) capacity</li> <li>- High transaction costs (e.g. in distribution)</li> <li>- Lack of suitable transport equipment</li> <li>- Unfamiliarity with promotional and sales strategies</li> <li>- Lack of links with buyers</li> </ul>

**Source:** Prepared by the author, on the basis of S. Garry and R. Martínez, “Fortalecimiento de la cadena de turismo en el departamento de La Libertad, El Salvador”, *Project Documents* (LC/MEX/W.18), Mexico City, ECLAC subregional headquarters in Mexico, 2016; N. Oddone and P. Alarcón, “Fortalecimiento de la cadena de turismo de Antigua Guatemala y de los municipios rurales del Departamento de Sacatepéquez”, *Project Documents* (LC/MEX/W.15), Mexico City, ECLAC subregional headquarters in Mexico, 2016; R. Padilla and M. Cordero, “La creación de una cadena de valor: los chips fritos al vacío en Costa Rica”, 2016, unpublished; I. Romero, V. Díaz and A. Aguirre, “Fortalecimiento de la cadena de valor de los snacks nutritivos con base en fruta deshidratada en El Salvador”, *Project Documents* (LC/MEX/W.16), Mexico City, ECLAC subregional headquarters in Mexico, 2016; N. Oddone and C.S. Beltrán, “The shrimp aquaculture chain in El Salvador”, *Strengthening Value Chains as an Industrial Policy Instrument. Methodology and Experience of ECLAC in Central America*, R. Padilla (ed.), ECLAC Books, No. 123 (LC/G.2606-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2014; M. Cordero, “Non-traditional export vegetable chain in Guatemala”, *Strengthening Value Chains as an Industrial Policy Instrument. Methodology and Experience of ECLAC in Central America*, R. Padilla (ed.), ECLAC Books, No. 123 (LC/G.2606-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2014; Inter-American Institute for Cooperation on Agriculture (IICA)/RED SICTA, *Cadenas de valor de maíz blanco y frijol en Centroamérica. Actores, problemas y acciones para su competitividad*, San Jose, 2014; P. Bamber and K. Fernández-Stark, *Desarrollo de micro y pequeños productores apícolas rurales en Nicaragua y Honduras*, Multilateral Investment Fund, 2012; Guatemalan Association of Exporters (AGEXPORT), *Estudio de la cadena de valor de la cebolla en el Municipio de Sacapulas, Departamento de Quiché*, Guatemala, United States Agency for International Development (USAID)/Guatemalan Association of Exporters (AGEXPORT), 2014; and *Informe trimestral de avances. Proyecto cadenas de valor rurales*, Guatemala, United States Agency for International Development (USAID)/Guatemalan Association of Exporters (AGEXPORT), 2012.

## F. Conclusions

The rural areas of Central America and the Dominican Republic face a number of productive development challenges. A brief review of those challenges follows.

At the institutional level, the land tenure system and the way in which rural economic and social structures developed over time have maintained a concentrated pattern of land ownership. This is one of the main reasons why the development of agricultural production activities has progressed so slowly and why they have so few opportunities for forming linkages with other economic activities. The centralism characteristic of Central America and the Dominican Republic tends to divert the attention of the public sector away from the needs of rural areas in the subregion.

In terms of environmental sustainability, measures are needed that will help rural production activities in the subregion adapt to the effects of climate change, such as extreme hydrological or weather events, that have an adverse impact on them. By the same token, mitigation measures and action are needed to gradually decouple the rural sector's growth from carbon emissions. Although the subregion's emissions of greenhouse gases are much smaller than those of other subregions, meeting this challenge is closely linked to the process involved in changing rural production patterns.

When the time comes to market rural producers' output, changes in the international prices of agricultural products are an influential factor. Another challenge is posed by the need to gain access to international markets. Agrifood exports account for a substantial share of total exports, but these export activities need to be upgraded by making them more dynamic and more knowledge-intensive and by encouraging producers to diversify their trading partners. Intra-regional trade should be seen as an opportunity to capitalize upon the complementarities of the countries of the subregion. At the local level, the fact that small production units have so little bargaining power poses a challenge that has led to the emergence of intermediaries.

One of the main challenges to be met in order to boost rural economic activities' productivity and level of innovation has to do with the size of many production units and their poor technological performance. The rural population's generally low level of education is another highly influential factor. Training is a means of investing in the development of rural human resources. The lack of indicators or posted information on science, technology and innovation, especially in connection with

non-agricultural activities, is symptomatic of the scant resources committed. However, while it is true that innovation activities are not prevalent, there are certain segments, such as agriculture, where an agroproductive innovation system is starting to take shape.

A major challenge in the area of rural financing is to broaden rural financial service schemes by expanding the customer base of such services in rural areas and the range of rural financial products that are offered in order to meet the financing needs of segments of producers who do not currently have access to those products.

The constraints on efforts to strengthen the subregion's value chains are matched with the challenges that are to be overcome. The value chain approach is a cross-cutting one that is extremely helpful in analysing the linkages and complementarities existing between different stakeholders, sectors, regions and nations.

Although it is difficult to make any valid generalizations given the subregion's heterogeneity, two main behavioural patterns can be identified. On the one hand, Guatemala, Honduras and Nicaragua are faced with more significant productive development challenges, while, on the other, Costa Rica, the Dominican Republic and Panama have witnessed greater changes in rural production patterns. El Salvador's economy is somewhere in the middle of these two types of situations. Each country exhibits various specificities, and an understanding of the situation on the ground in the rural areas of the subregion cannot be achieved by looking at just one study. One of the areas in which improvements are called for is the supply of information on rural zones. While there are some data that can be helpful in analysing certain aspects of the rural environment, notably agricultural activities, information needs to be made available for use in analysing other non-agricultural rural sectors and activities.

The discussion presented in this chapter has focused on the main productive development challenges facing the subregion, but it is important to recognize that there is a wide array of challenges of other types (as in the area of social development) which the subregion will be called upon to meet as it moves forward.

It is of key importance to refocus the attention of the governments of the Central American countries and the Dominican Republic and the use of public policy tools on strengthening the rural production structure. As discussed in chapter II, agricultural and rural development policies should be coupled with a rural industrial policy that is aligned with recent changes in the rural environment and attuned to the importance of changing rural production patterns.

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## Chapter II

# Rural industrial policy

*Ramón Padilla Pérez  
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## Introduction

The debate about whether industrial policy is advisable or necessary can be traced back at least to the discussion between mercantilists and liberals in the seventeenth and eighteenth centuries. The mercantilists advocated government intervention to regulate and promote international trade and the development of production, whereas the liberals believed that markets should be allowed to operate freely.<sup>2</sup> This debate is not new to Latin America either. The acceptance and implementation of industrial policy as a tool of economic development has gone through a number of different stages. In the last 70 years, the region has witnessed a transition from import substitution industrialization (ISI), in which the State played a central role in promoting productive development, to economic openness and liberalization, a stage in which industrial policy was abandoned and even demonized, and then, more recently, to a resurgence of the role of the State in the wake of the 2008-2009 economic and financial crisis.

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<sup>2</sup> The principles of mercantilism are discussed by, for example, Von Hörnigk (1965), Misselden (1954) and List (1856). The ideas advocated by the liberal camp are explored in the classic work of Adam Smith, *The Wealth of Nations* (2001).

A number of recent studies depict industrial policy as a pivotal factor in Latin America's long-term economic development process, although their scope and instruments differ in some cases. There is also agreement that this new brand of industrial policy is emerging in an international context of free trade in which international agreements restrict the use of certain types of instruments and the State is called upon to play a coordinating and promotional role rather than acting as an omnipresent authority and owner of the means of production (Ross-Schneider, 2015; Crespi, Fernández-Arias and Stein, 2014; Salazar-Xirinach, Nübler and Kozul-Wright, 2014; Padilla and Alvarado, 2014; Stiglitz and Lin, 2013; Devlin and Moguillansky, 2012; Bianchi and Labory, 2011; Peres and Primi, 2009; Cimoli, Dosi and Stiglitz, 2009). The Economic Commission for Latin America and the Caribbean (ECLAC) has clearly stated that industrial policy is a key tool for bringing about structural change within a horizon of equality (ECLAC, 2012 and 2016b).

Structural change has been defined as the transformation of the structure of value added and employment (Krüger, 2008). The conversion of predominantly agricultural economies into industrial economies, or the conversion of industrial economies into service-based economies, may or may not be coupled with an increasing degree of economic and social development (Carmignani and Mandeville, 2014; Szirmai, 2011; Kaldor, 1961; Lewis, 1964). An integrated package of public policies must be in place if this transformation is to give rise to long-term, inclusive, environmentally sustainable growth—to what ECLAC has described as “progressive structural change” (ECLAC, 2016).

Industrial policy, broadly defined, includes services and primary activities, although manufacturing has traditionally been its main focus. In Latin America, during the import-substitution period (between the 1930s and 1970s, roughly speaking), the main industrial policy objective was to produce the capital goods needed to fuel the industrialization process, while the agricultural sector's role was to support the development of industry and was thus limited to the provision of surpluses (e.g. raw materials, food, foreign exchange and labour) (FAO, 2004). Then, during the time that the Washington Consensus held sway (approximately from the late 1980s until the international crisis of 2008-2009), the idea of an industrial policy was abandoned. This had an adverse effect on agricultural activities, as production support organizations were dismantled, subsidies and targeted programmes were halted and import duties were reduced or eliminated altogether.

During both of these periods the concept of rural industrial policy appears to have encompassed contradictory elements but, with the re-emergence of industrial policy and the changes that have been taking place

in the rural paradigm, those apparent contradictions between industrial policy and the rural environment have eased. The changes that are being observed in the rural paradigm include a growing interdependence between agriculture and such other sectors as manufacturing, professional services, environmental services, information and communications technologies (ICTs) and rural tourism, along with shifts in the production structure that entail a reorganization of stages of production in the value chain, a decline in the share of total rural employment represented by agriculture, demographic shifts in the rural population and the growing importance of learning and innovation. The social and economic gaps separating rural areas from urban centres create a need for new approaches to the promotion of inclusive forms of productive development. As of 2014, 46.2% of the rural population in Latin America was poor and 27.6% was indigent, whereas, in urban areas, the corresponding figures were 23.8% and 8% (ECLAC, 2016a).

Rural industrial policy will be defined in greater detail in the following sections of this chapter, but it can be understood as the implementation by the State of policy tools for strengthening production activities undertaken in rural areas with a view to bringing about structural change through the introduction of manufacturing and service activities and the promotion of greater integration and complementarity with faster-growing and more knowledge-intensive activities, markets and sectors.

This policy shift constitutes a fitting response to recent changes in the rural environment —changes that call for new approaches and new policy tools which can also make a significant contribution to efforts to level up economic and social conditions in rural areas and to attain the Sustainable Development Goals of the 2030 Agenda.

This chapter aims to define the concept of rural industrial policy and the nature of the corresponding policy tools and to discuss their importance in spurring progressive structural change. This will provide the conceptual framework for the discussion of the work done with specific rural value chains that will be presented in the following chapters.

This chapter is organized as follows. After a brief review of what the term “rural environment” means and a discussion of its importance and how it fits in with other sectors (section A), it goes on to define rural industrial policy (section B). Then, in section C, it outlines three categories of rural industrial policy tools, while, in section D, it provides a survey of different countries’ experiences with the implementation of industrial policy tools and measures. Section E concludes.

## A. The rural environment

### 1. Definition

Before exploring what is actually meant by the term “rural industrial policy”, it is necessary to define the term “rural environment”. Three criteria, which are summarized here in table II.1, are generally used for this purpose: (i) an economic or sectoral criterion; (ii) a demographic criterion; and (iii) a territorial criterion.

**Table II.1**  
**Criteria for defining the rural environment**

Economic or sectoral criterion	Demographic criterion	Territorial criterion
This category includes the main economic activities conducted in rural areas (crop farming and stock raising, forestry, fishing and aquaculture). In a broader sense, it also includes agribusiness, the food and beverages industry, and services located in rural areas, such as rural tourism, and craftwork.	This category divides the rural population from the urban population on the basis of the size and population density of different areas, along with the frequency and extent of traffic or commuting and the distance from urban centres.	This category is based on a definition of the rural environment as a social construct in which localized economic and social processes give expression to an identity and to shared aims. The economic base for these processes is multisectoral and within a specific territory, but usually revolves around a supply of environmental goods or natural resources and the convergence of various agents whose activities correspond to specific operational models and production structures.

**Source:** Prepared by the authors, on the basis of R. Echeverri, “Reflexiones sobre lo rural: economía rural, economía de territorios”, *Hacia una nueva definición de “rural” con fines estadísticos en América Latina*, Project Documents (LC/W.397), M. Dirven and others, Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2011; Organization for Economic Cooperation and Development (OECD), *The New Rural Paradigm: Policies and Governance*, Paris, OECD Publishing, 2006; United Nations, *The Wye Group Handbook. Rural Households’ Livelihood and Well Being. Statistics on Rural Development and Agriculture Household Income*, New York, Economic Commission for Europe (ECE)/Statistical Office of the European Union (Eurostat)/Food and Agriculture Organization of the United Nations (FAO)/Organization for Economic Cooperation and Development (OECD)/World Bank, 2007.

The economic or sectoral criterion relates to the main production activities conducted in rural areas. Crop farming and stock raising, forestry, fishing and aquaculture are the core activities in rural zones. As will be discussed later on in this chapter, the contribution of these activities to GDP and total employment has been shrinking in recent years. Nonetheless, in many areas of the countries of the region, they are still the principal economic activities. Rural areas and agriculture are often thought of as synonymous, but a more inclusive view of the rural environment also encompasses agribusiness and other manufacturing and service activities, such as rural tourism and craftwork.

The way in which rural and urban areas are defined on the basis of demographic criteria varies across countries and has changed over time as

well. For some statistical offices in Latin America and the Caribbean, rural areas are defined as a residual of urban ones. In Argentina, for example, the urban population is defined as being composed of the inhabitants of locations having populations of 2,000 people or more, and the rural population is thus made up of the inhabitants of any locations with a population of less than 2,000. In Mexico, the cut-off figure for the urban population is 2,500. Access to infrastructure and basic services is also used as a criterion. International organizations are in agreement, however, that measuring rural areas as a residual of urban centres, without taking into consideration the actual characteristics of the rural environment, is an approach that falls short of what is needed and may yield inconsistent comparative results (United Nations, 2007).

In response to the varying sets of criteria used to delimit rural environments, the Organization for Economic Cooperation and Development (OECD) (OECD, 1996) proposed a standardized classification for its member countries based on population density at the local level. According to this approach, areas which have a density of 150 or fewer inhabitants per square kilometre are defined as rural. At the regional level, three categories have been defined on the basis of the percentage of the population that inhabits rural zones: (i) predominantly rural (over 50% of the population lives in rural communities); (ii) intermediate (between 15% and 50% of the population lives in rural areas); and (iii) predominantly urban (less than 15% of the population lives in rural communities).

Increasing attention has recently been devoted to the third (territorial) criterion. This is because the rural economy can be better understood when viewed from a perspective that focuses on economic and social processes in which the common denominator is the territory in which those processes take place. Defining rural areas on this basis underpins an analysis of the interrelationship between geographical location and location-based specialization. It also provides a means of orienting development projects on the basis of the convergence of interests and aspirations among public and private agents who share a common sense of identity and a common sense of purpose. This territorial perspective highlights opportunities for the participatory construction of new approaches for the achievement of growth, investment and sustainability that embody a respect for the local culture (Dirven and others, 2011).

The rural environment is multifactorial and dynamic. Its multifactorial identity stems from the numerous demographic, economic, social and environmental factors that converge to make up the rural environment, while its dynamism arises from the technological, ecological, economic and social changes and adjustments that it is undergoing over the medium and long terms (United Nations, 2007). Insofar as rural areas are perceived

as dynamic zones, policy tools for promoting the development of these communities must be adapted to these emerging changes. Table II.2 summarizes recent changes observed in the rural paradigm.

**Table II.2**  
**Recent changes in the rural paradigm**

<b>Sectoral</b>
<ul style="list-style-type: none"> <li>- A shrinking share for the agricultural sector in total employment and in total value added</li> <li>- Greater interdependence between the agricultural and other sectors (e.g. manufacturing and services)</li> <li>- Growing importance of learning processes and innovation</li> <li>- Stronger production linkages and greater opportunities for upgrading</li> </ul>
<b>Demographic</b>
<ul style="list-style-type: none"> <li>- A shrinking rural population</li> <li>- Changes associated with population shifts within rural areas</li> <li>- Changes in distances from urban centres</li> </ul>
<b>Geographical</b>
<ul style="list-style-type: none"> <li>- Changes in the way rural areas are perceived (not as backward areas)</li> <li>- Growing appreciation of the value of local resources</li> <li>- Changes in the production structure that entail a spatial and geographical reorganization of activities</li> <li>- New stakeholders and new forms of coordination (governments and local interest groups)</li> <li>- Increasing interaction with urban centres</li> </ul>

**Source:** Prepared by the authors on the basis of Organization for Economic Cooperation and Development (OECD), *The New Rural Paradigm: Policies and Governance*, Paris, OECD Publishing, 2006.

For the purposes of this chapter, the rural environment is defined in a way that incorporates the three criteria discussed above, together with the recent changes that have occurred in that environment. The rural environment is understood as a geographical space which generally has a smaller population and a lower population density, as measured by the standards used in each country (demographic criterion), and in which social and economic interaction occurs among multiple stakeholders that confers a certain identity on the community in question (territorial criterion). Rural economic activities are multisectoral: while the agricultural sector still accounts for these areas' core activities, complementary manufacturing and service activities (e.g. agribusiness, rural tourism and craftwork) are growing in importance (economic or sectoral criterion).

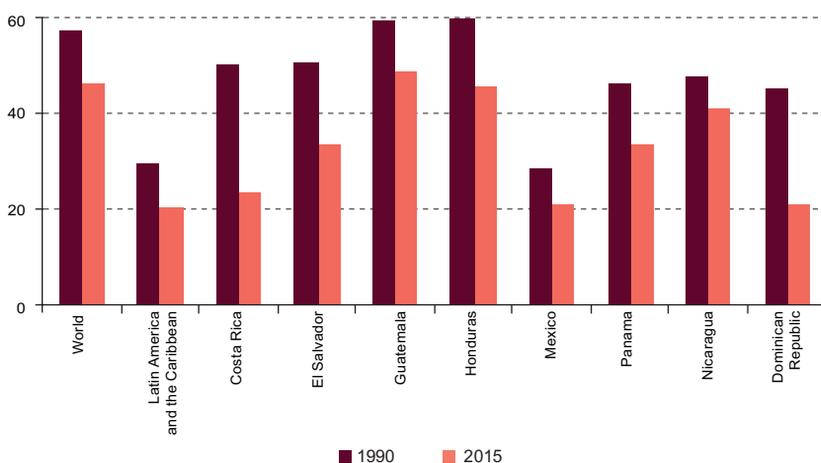
The statistical definition of rural areas is based on the concepts used by each country's statistical office. In this chapter, if the unit of analysis is an economic activity conducted in a rural area, the definition will be aligned with the definition established by the corresponding information source. The agricultural sector is usually understood as being composed of the activities included in the first major division of the International Standard Industrial Classification of All Economic Activities (ISIC): crop and animal production, hunting, forestry, fishing and aquaculture. References to the primary sector encompass these activities plus mining.

## 2. Importance of the rural environment

The contribution of rural areas in Latin America and the Caribbean—and, in particular, in Central America, Mexico and the Dominican Republic, where the ECLAC/IFAD project on strengthening value chains was sited— will be explored in this section. Since there is no standard measurement for defining rural areas and their economic activities are multisectoral, official statistics do not provide any aggregate measure of their contribution to GDP or the economy's value added. The indicators presented illustrate the significant contribution of rural areas in economic, social and demographic terms.

In recent decades the percentage of the population living in rural areas has been on the decline, but as of 2015 rural areas still accounted for 46% of the world's population. In Latin America and the Caribbean, the corresponding figure was 20.1% in 2015, down from 29.5% in 1990. In Guatemala and Honduras, rural areas continue to account for a large part of the total population, and the figures for these countries far exceed the regional average: 48.4% and 45.3%, respectively, as of 2015. In that same year, the countries in the northern part of Latin America with the smallest percentage of rural population were Mexico (20.8%), the Dominican Republic (21%) and Costa Rica (23.2%) (see figure II.1).

**Figure II.1**  
Rural population as a percentage of the total population, 1990 and 2015<sup>a</sup>  
(Percentages)

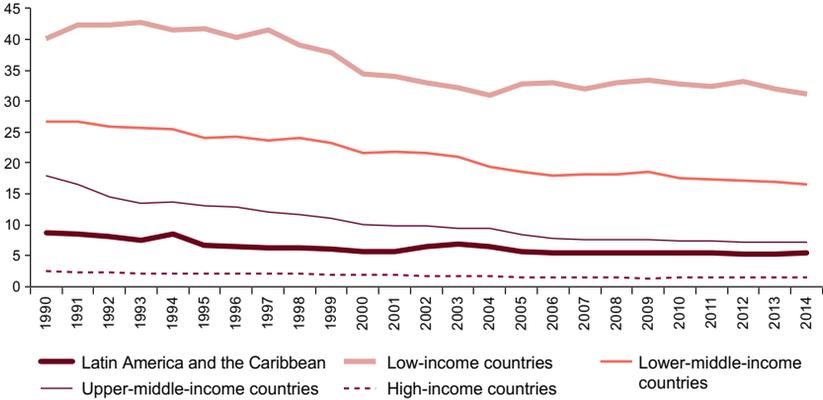


**Source:** World Bank, 2016 [online] <http://www.worldbank.org/>.

<sup>a</sup> The rural population is equivalent to the number of persons living in rural areas according to the definition used by each country's national statistical office and is calculated as the difference between the total and urban populations.

The agricultural sector’s share of GDP tends to shrink as an economy’s average income level rises. In 2014, the agricultural sector’s mean share of total GDP in high-income countries was 1.5%, whereas it was 31.1% in low-income economies (see figure II.2). In Latin America and the Caribbean, that sector’s share was 8.5% in 1990 and had fallen to 5.5% by 2014.

**Figure II.2**  
**Agricultural value added as a percentage of total GDP, 1990-2014<sup>a</sup>**  
*(Percentages)*



**Source:** United Nations Conference on Trade and Development (UNCTAD), “UNCTAD STAT”, 2016 [online] <http://unctadstat.unctad.org/EN/>. World Bank, 2016 [online] <http://www.worldbank.org/>.

<sup>a</sup> Agricultural value added includes activities 1 through 5 of the International Standard Industrial Classification of All Economic Activities (ISIC) (Rev. 3): agriculture, hunting, forestry, fishing and aquaculture.

Over the past 25 years, the agricultural sector’s share of GDP has shrunk in Central America, Mexico and the Dominican Republic, but it is still greater than the average share for the Latin American and Caribbean region. Within the subregion, the countries in which this sector accounts for the largest share of GDP are Nicaragua, Honduras and Guatemala, while those in which it is smallest are Mexico, Panama, Costa Rica and the Dominican Republic (see table II.3).

Employment statistics provide a clearer picture of the valuable contribution that rural areas make to the overall economy, despite the structural change that Latin America has witnessed in recent decades. The largest shares of the total economically active population (EAP) accounted for by rural areas as of 2015 were found in Honduras (42.6%), Nicaragua (39.2%) and Guatemala (38.7%). In countries that have undergone a more sweeping structural change in the past few decades, such as Costa Rica, Mexico and the Dominican Republic, the rural EAP represented 21.6%, 20.2% and 20.1% of the total EAP, respectively, in that year (see table II.4).

**Table II.3**  
**Latin America and the Caribbean (8 countries): agricultural GDP as a percentage of total GDP at constant prices, 1990-1995, 2000-2005 and 2010-2015<sup>a</sup>**  
*(Percentages)*

	1990-1995	2000-2005	2010-2015
Costa Rica	8.1	7.1	6.0
El Salvador	13.9	10.5	11.1
Guatemala	13.0	11.8	11.3
Honduras	14.0	12.9	12.4
Mexico	3.8	3.4	3.0
Nicaragua	14.8	16.0	15.4
Panama	6.4	6.4	3.3
Dominican Republic	8.9	6.7	6.0
Latin America and the Caribbean	5.0	5.1	4.7

**Source:** Economic Commission for Latin America and the Caribbean (ECLAC), "CEPALSTAT. Databases and Statistical Publications", 2016 [online] [http://estadisticas.cepal.org/cepalstat/WEB\\_CEPALSTAT/Portada.asp?idioma=i](http://estadisticas.cepal.org/cepalstat/WEB_CEPALSTAT/Portada.asp?idioma=i).

<sup>a</sup> GDP at constant 2010 prices.

**Table II.4**  
**Latin America (8 countries): economically active rural population as a percentage of the total economically active population, 1990 and 2015**  
*(Percentages)*

	1990	2015
Costa Rica	47.3	21.6
El Salvador	44.9	27.7
Guatemala	60.5	38.7
Honduras	54.6	42.6
Mexico	25.5	20.2
Nicaragua	43.9	39.2
Panama	41.8	30.0
Dominican Republic	42.1	20.1
Latin America	27.4	18.8

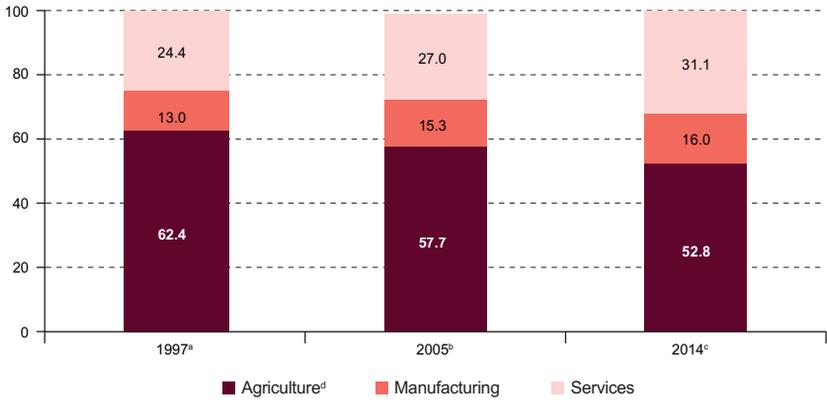
**Source:** Latin American and Caribbean Demographic Centre-Population Division of ECLAC (CELADE), "Long term population estimates and projections 1950-2100", 2016 [online] <http://www.cepal.org/en/long-term-population-estimates-and-projections-1950-2100>.

The proportional size of the rural female workforce in Latin America has climbed from 42.7% in 1997 to 45.7% as of 2014. Despite this slight increase, however, the female workforce remains highly concentrated in domestic work (30.4% of the rural EAP as of 2014), while the percentage of men employed in these activities was just 0.9% in that same year (ECLAC, 2016a).<sup>3</sup>

<sup>3</sup> The weighted average for 2014 for 16 Latin American countries was the result of the figures compiled for the Bolivarian Republic of Venezuela (1997), Brazil (2014), Chile (2013), Colombia (2014), Costa Rica (2014), Dominican Republic (2014), Ecuador (2014), El Salvador (2014), Guatemala (2014), Honduras (2013), Mexico (2014), Nicaragua (2009), Panama (2014), Paraguay

The agricultural sector continues to be a core economic activity in rural areas. On average, in Latin America 52.8% of the employed rural population was working in this sector in 2014, compared with 62.4% in 1997. At the same time, however, the share of rural employment accounted for by other sectors was on the rise, with the result that, during that same year, 16% of the rural workforce was employed in manufacturing and 31.1% in the services sector (see figure II.3).

**Figure II.3**  
**Latin America (selected countries): employed rural population,**  
**by economic activity, 1997, 2005 and 2014**  
*(Percentages)*



**Source:** Economic Commission for Latin America and the Caribbean (ECLAC), “CEPALSTAT. Databases and Statistical Publications”, 2016 [online] [http://estadisticas.cepal.org/cepalstat/WEB\\_CEPALSTAT/Portada.asp?idioma=i](http://estadisticas.cepal.org/cepalstat/WEB_CEPALSTAT/Portada.asp?idioma=i).

<sup>a</sup> Weighted 12-country average: Bolivarian Republic of Venezuela (1997), Brazil (1996), Chile (1996), Colombia (1997), Costa Rica (1997), El Salvador (1997), Guatemala (1989), Honduras (1997), Mexico (1996), Nicaragua (1998), Peru (1997) and Plurinational State of Bolivia (1997).

<sup>b</sup> Weighted 15-country average: Brazil (2005), Chile (2003), Colombia (2005), Costa Rica (2005), Dominican Republic (2005), Ecuador (2005), El Salvador (2004), Guatemala (2002), Honduras (2003), Mexico (2004), Nicaragua (2005), Panama (2005), Peru (2003), Paraguay (2005) and Plurinational State of Bolivia (2004).

<sup>c</sup> Weighted 16-country average: Brazil (2014), Chile (2013), Colombia (2014), Costa Rica (2014), Dominican Republic (2014), Ecuador (2014), El Salvador (2014), Guatemala (2014), Honduras (2013), Mexico (2014), Nicaragua (2009), Panama (2014), Paraguay (2014), Peru (2014), and Plurinational State of Bolivia (2013) and Uruguay (2014).

<sup>d</sup> Based on the International Standard Industrial Classification of All Economic Activities (ISIC) (Rev. 2), this category includes: agriculture, hunting, forestry, fishing and aquaculture.

The study prepared by Rodríguez (2016) on rural employment traces the following trends in Latin America and the Caribbean: (i) increasing non-farm employment (employment diversification); (ii) an increasing female labour participation rate in rural areas, particularly in non-farm

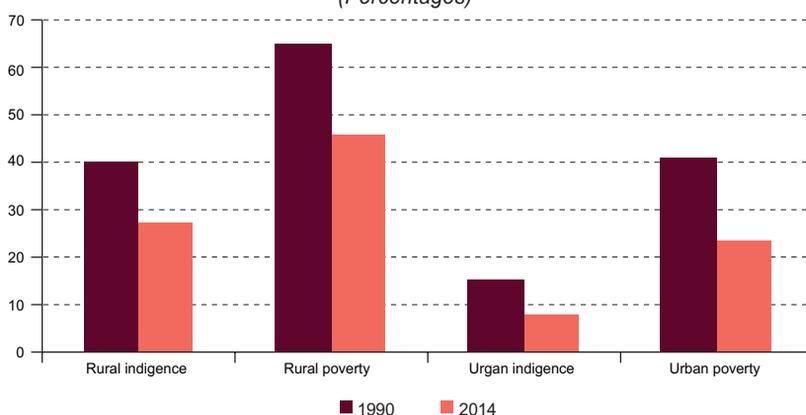
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(2014), Peru (2014) and Uruguay (2014). The weighted average for 1997 was the result of the figures compiled for 12 Latin American countries: Bolivia (Plurinational State of) (1997), Brazil (1996), Chile (1996), Colombia (1997), Costa Rica (1997), El Salvador (1997), Guatemala (1989), Honduras (1997), Mexico (1996), Nicaragua (1998), Peru (1997) and the Plurinational State of Bolivia (2013).

activities; (iii) an increasing share of wage employment and a decreasing share of own-account employment; and (iv) an increasing share of farmworkers residing in urban areas.

A large percentage of the rural population in developing countries is living in poverty. According to ECLAC estimates for 2014, 46.2% of the rural population in Latin America was poor and 27.6% was indigent. As shown in figure II.4, the percentages of the population that are poor and indigent have been and continue to be greater in rural areas than in urban centres.

**Figure II.4**  
**Latin America (19 countries): poor and indigent population groups,**  
**by geographical area, 1990 and 2014<sup>a</sup>**  
*(Percentages)*



**Source:** Economic Commission for Latin America and the Caribbean (ECLAC), “CEPALSTAT. Databases and Statistical Publications”, 2016 [online] [http://estadisticas.cepal.org/cepalstat/WEB\\_CEPALSTAT/Portada.asp?idioma=i](http://estadisticas.cepal.org/cepalstat/WEB_CEPALSTAT/Portada.asp?idioma=i).

<sup>a</sup> Estimates based on statistics for 19 countries as of 11 April 2016: Argentina, Bolivarian Republic of Venezuela, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Plurinational State of Bolivia and Uruguay.

### 3. Cross-sectoral interdependence and complementarity

There has been a long-standing debate between the perspectives of “industry first” and “agriculture first”. Traditionally, the term “industrialization” has been understood to refer to the transition from agriculture to manufacturing and has been regarded as a synonym for progress.<sup>4</sup> More recently, this idea has shifted towards the concept of a

<sup>4</sup> This debate about the importance of the economic structure and particularly about the economy’s sectoral composition and the changes in that connection that unfold over time has been taken up by classical authors such as Smith (1958) and Ricardo (2001), but views on this

transition to tertiary or service-based economies. Writings of advocates on both sides of this debate that can be found in the classical literature, with examples including Lewis (1954) and Kaldor (1961), point to the presence of a positive correlation between gains in productivity and the growth of the manufacturing sector, with the correlation turning negative if the increase in employment in non-manufacturing sectors is taken into account. For his part, Hirschman (1961) contends that agriculture has a limited capacity for spurring capital formation. In his view, manufacturing has a greater capacity for creating intersectoral backward and forward linkages, and the development process is therefore equated with a comprehensive transition towards an industrial economy.

More recently, Szirmai (2011) has argued that the factors that account for the centrality of manufacturing as the driver of economic growth in developing countries have to do with the following:

- the correlation between dynamic growth in manufacturing and per capita income over the long term;
- the fact that the manufacturing sector outstrips the agricultural sector in terms of productivity;
- the existence of greater opportunities for capital accumulation and for economies of scale in manufacturing than in the agricultural sector; and
- the greater concentration of technological progress in manufacturing industries.

The structural change experienced by both developed and developing economies has bolstered the preponderant position of manufacturing and, more recently, services in industrial policy. Table II.5 illustrates how the average sectoral structure of GDP in Latin America and the Caribbean has trended over time, with the services sector's share of GDP expanding while the shares of agriculture and manufacturing have been shrinking.

The boom in services and the deindustrialization process may have implications for developing countries, however. Studies such as those conducted by McMillan and Rodrik (2011) and Rodrik (2015) indicate that, in some Latin American and African countries, this process has occurred prematurely in the absence of a prior industrialization process based on increasing technological capacities and has not been accompanied by the expected productivity gains, the creation of quality jobs or social convergence processes. What is more, premature deindustrialization may

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subject have also been voiced by pioneers of structural change such as Pasinetti (1973 and 1993), Sraffa (1960), Nurkse (1935) and Baumol (1967).

block the main channel for achieving the type of rapid growth experienced in the past by today's developed countries.

**Table II.5**  
**Latin America and the Caribbean: contribution to value added to GDP,**  
**by sector of economic activity, in selected years**  
*(Percentages)*

	1965	1985	1995	2005	2015
Agriculture <sup>a</sup>	16	11	7	6	5
Manufacturing	33	41	31	34	27
Services	50	48	62	60	67

**Source:** World Bank, 2016 [online] <http://www.worldbank.org/>.

<sup>a</sup> Includes activities 1 through 5 of the International Standard Industrial Classification of All Economic Activities (ISIC) (Rev. 3): agriculture, hunting, forestry, fishing and aquaculture.

It has also been postulated that these analyses of structural change have been interpreted in ways that do not take into account the complex, cumulative and circular interdependence existing between agriculture and other sectors of the economy. Interventions aimed at bringing about structural change can therefore be creatively supported by intersectoral synergies that will enhance its complementarities and improve the corresponding linkages (Andreoni, 2011; Kay, 2009).

As structural change takes place, primary activities maintain their important role in the associated development strategy owing to their strong linkages with other sectors. The Inter-American Institute for Cooperation on Agriculture (IICA) carried out a study (2004) based on national accounts matrices that looks at the linkages between agricultural activities—defined in a broad sense that recognizes the interdependence between agriculture as such and agribusiness—and the rest of the economy. The study covered 11 countries in the Americas—Argentina, the Bolivarian Republic of Venezuela, Brazil, Canada, Chile, Colombia, Costa Rica, Mexico, Peru, the United States and Uruguay—and found that three fourths of these activities' output is used as inputs in other sectors, whereas just 43% of the output of the rest of the economy serves that purpose.

Another approach involves analysing the complementarities of different sectors in terms of technological learning and building intra- and intersectoral capacities. Since technological change in agriculture, for example, entails improvements in the technical and biological processes required to obtain a given product, technological capacities have to be built and accumulated on the ground, and intersectoral learning has to be fostered. Structural change involves not only a transition for the agricultural sector towards manufacturing but also

a growing interdependence and increase in capacities within sectors. Productivity gains in the agricultural sector are derived from the adoption, adaptation and application of technological innovations that have been developed intra- and intersectorally (Andreoni, 2011). This sectoral interdependence can be seen in the integration of industries, as in the case of information and communications technologies (ICTs) and agriculture or in the application of biotechnologies to agricultural development. The integration of technologies and a process entailing changing and converging production patterns in these areas are what give rise to higher levels of productivity.

An overemphasis in industrial policy on manufacturing has held back the development of agriculture and has indirectly hindered industrial development as well (Szirmai, 2011). The industrialization processes of economies such as those of the Republic of Korea and Taiwan province of China, which have succeeded in closing technological gaps and sharply boosting productivity, illustrate the fact that the development of their manufacturing sectors was preceded by measures that strengthened the agricultural sector (Chang, 2009).<sup>5</sup> The different stages of structural change that countries have reached and their specific needs must be taken into account. Some developing countries in which the rural transition is still in its early stages need to focus on boosting productivity in the agricultural sector. At later stages in this process, when a larger share of the workforce has moved out of agriculture and into other sectors and when productivity gaps have narrowed, intrasectoral change, as well as intersectoral change, can become a factor (IFAD, 2016; Weller, 2016; Rodrik, 2013). In any case, one of the main challenges in rural areas is how to go about changing production patterns and raising productivity in those areas' core economic activities.

If sufficient technology has been incorporated into primary activities, they may become highly capital- and knowledge-intensive. The development of new or improved seed varieties that are more resistant to drought, heat, cold or salt or that are immune to certain pests and diseases, or that are more nutritious, and the development of new genetic varieties of livestock are examples of knowledge-intensive activities that can boost yields and productivity in the agricultural sector. These kinds of innovations require a considerable level of investment and research and development (R&D) in order to be applied on a sustainable basis. Given the importance of productivity gains within the context of structural change, consideration has to be given not only to the intersectoral relocation of

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<sup>5</sup> The development of these Asian economies has also been driven by targeted industrial policies and land redistribution, among other factors (Wade, 1990).

resources but also to the differences that exist within each industry and each production factor (Rodrik, 2013).<sup>6</sup>

In order for structural change in the rural environment to translate into greater economic and social development, it is not enough to simply shift human resources from agricultural activities to manufacturing or from manufacturing to services; these changes need to be coupled with higher productivity and an economic upgrading within the agricultural sector. It must be remembered that it is possible for human resources to move from agriculture to manufacturing but to be employed in low-productivity and traditionally poorly paid jobs in the latter sector, such as component and final-goods assembly, or to move into low-productivity informal enterprises in the services sector. In order for structural change to be progressive, i.e. in order for it to result in steady, inclusive and environmentally sustainable growth, an integrated public policy package must be in place (ECLAC, 2016). Rural industrial policy, as defined in the following discussion, is a crucial component of such a policy package.

## **B. Definition and scope of rural industrial policy**

### **1. What is rural industrial policy?**

Rural industrial policy is part of industrial policy in a broad sense, which comprises State action aimed at spurring the growth of specific economic activities and promoting structural change. It entails a dynamic process involving the introduction of various types of measures designed to pursue or achieve specified objectives based on national development policies (Padilla and Alvarado, 2014; Peres and Primi, 2009; Rodrik, 2008a).<sup>7</sup>

The term “rural industrial policy” is understood to refer to the implementation by the State of measures that will strengthen production

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<sup>6</sup> The analysis of the movement of labour from the (less productive) agricultural sector to a more productive sector, such as manufacturing, and the recent upward trend in the share of services, which were described by Baumol (1967) as a “nonprogressive” sector, can be rounded out with analyses in which productivity is broken down at the level of individual industries and which look at the quality and importance of the types of inputs or factors involved, such as investment in ICTs and human resource skills (Van Ark, O’Mahon and Timmer, 2008; O’Mahon and Timmer, 2009; Jorgenson, Ho and Samuels, 2015).

<sup>7</sup> The similar concept of productive development policy refers to State action aimed at strengthening the production structure of a particular national economy (Melo and Rodríguez-Clare, 2006) and is sometimes not distinguished from industrial policy. For ideological reasons (the criticism that has and still is being levelled at industrial policy) or conceptual ones (the term “productive development” appears to leave scope for other sectors besides manufacturing), some authors prefer to talk about “production (or “productive”) development policies”.

activities located in rural areas with a view to bringing about structural change via manufacturing and services activities and the integration and complementarity of more dynamic, knowledge-intensive activities, markets and sectors. It is important to note that these kinds of initiatives do not seek to set aside the production activities traditionally located in such areas but rather to scale them up and supplement them with activities associated with the secondary sector (e.g. agribusiness and craftwork) and tertiary sector (e.g. rural tourism, environmental services and professional services).

In order for a rural industrial policy to engender progressive structural change, it should be focused on at least three interrelated processes: (i) economic upgrading and the incorporation of technological change and innovation; (ii) social upgrading; and (iii) the upgrading of the production structure on a sustainable basis.

Economic upgrading enables a country, production sector, company or producer to improve its competitive position. The fact that this concept is part of development theory implies that economic actors are not static but can instead upgrade their position within an economy in order to generate more value added and capture a larger proportion of that added value. There are four main categories of upgrading: (i) product upgrading; (ii) process upgrading; (iii) functional upgrading; and (iv) value chain or intersectoral upgrading. Table II.6 offers definitions and examples of each type of economic upgrading within a rural environment. It is important to specify that not all the examples given for each type of upgrading fall within the scope of rural industrial policy, since not all of them involve a transition based on the incorporation of services or manufacturing activities or their integration into rural production activities. For instance, R&D that helps to upgrade the quality of a given agricultural product does not come under the heading of rural industrial policy, whereas assistance with the introduction of new technologies for processing commodities and commercializing them in packaged form (agribusiness) does. As discussed below, however, close coordination among rural development policy, agricultural policy and rural industrial policy is crucial. A description of the array of available rural industrial policy tools is offered in the following section.

Technological change is closely linked to the concept of economic upgrading. In rural environments, as in other spheres, production and technological capabilities are of key importance for learning and innovating. Production capabilities encompass the factors used to produce goods and services at a given level of efficiency with a given set of inputs. Technological capacities, in turn, incorporate additional factors that are needed to produce and manage technological change, including skills,

knowledge, experience, institutional structure and linkages (Bell and Pavitt, 1992). Developing economies generally tend to introduce very few radical innovations, preferring to adapt, imitate and make incremental improvements in technologies developed by more advanced countries.

**Table II.6**  
**Definition and examples of economic upgrading in the rural environment**

Type of upgrading	Examples
<b>Product.</b> Development of a new or improved product. The final product or service offered by the value chain has technological, functional or aesthetic features that make it more competitive in national or international markets.	<ul style="list-style-type: none"> <li>- Enhance the quality of an agricultural product through R&amp;D.</li> <li>- Develop environmentally certified or labelled products or services.</li> <li>- Upgrade or renew product designs (e.g. certified, handcrafted wooden toys).</li> </ul>
<b>Process.</b> Introduction of new technologies that make it possible to use more efficient production techniques or better product or service distribution systems. Purchases of machinery and equipment, the adoption of sophisticated production techniques or the use of ICTs often provide a means of upgrading production processes.	<ul style="list-style-type: none"> <li>- Introduce a new crop farming technique (e.g. precision farming, soil analysis, use of environmentally sound fertilizers, use of new forestry practices).</li> <li>- Adopt a new agro-industrial product processing technique (e.g. new techniques for frying or drying fruit).</li> <li>- Bring in new cool cargo transportation equipment that will make it possible to maintain an unbroken cold chain for agricultural and agro-industrial products.</li> </ul>
<b>Functions.</b> Introduction of new operational features entailing greater value added or technological complexity in increasingly sophisticated design, production and marketing functions.	<ul style="list-style-type: none"> <li>- Participate in other links of the value chain (e.g. in the coffee value chain, a producer of coffee beans could begin to process the beans and move into the links involved in commercializing and branding in local or international markets).</li> <li>- Transition from crop farming to the processing of agro-industrial products (e.g. nutritional dried fruit snacks).</li> </ul>
<b>Value chain or sector.</b> Transitioning to new production activities or value chains by capitalizing upon previously acquired knowledge and skills.	<ul style="list-style-type: none"> <li>- Make use of experience in community-based forest management to venture into ecotourism or agribusiness activities such as the production of furniture.</li> <li>- Make use of the knowledge and experience acquired through participation in a value chain (e.g. dried fruit) to move into new value chains (e.g. new technologies for vacuum-fried fruit).</li> </ul>

**Source:** Prepared by the authors.

The second element —social upgrading— ties in with rising living standards for the members of a value chain and their communities as a result of decent working conditions in terms of social protection, the protection of labour rights, a safe working environment and gender equity (Gereffi and Lee, 2015). Social upgrading is also understood as the attainment of a better distribution between companies and producers at the core of the chain —particularly the small producers— of the benefits that a value chain generates. These benefits can translate into higher remunerations or profits

and in greater well-being for the members of the chain (Salido and Bellhouse, 2016). It is to be noted that there is not always a direct correlation between economic and social upgrading. For example, a company that processes fruit may upgrade the quality of its products and marketing channels and thus increase its profits, but those profits may be garnered in their entirety by the owner and not benefit workers or other segments of the chain at all.

The third factor is environmental sustainability. In order to achieve a progressive form of structural change, the production sector has to change and incorporate new process and product technologies that are both environmentally responsible and that will mitigate the impact that climate change is having on rural production chains. Opportunities to accomplish this are provided by, for instance, what bioeconomics has to offer, as well as environmentally labelled goods and services and clean production technologies, such as those associated with renewable energy sources (ECLAC, 2016b).<sup>8</sup>

A rural industrial policy with a progressive approach seeks to spur inclusive growth that will open the way for upgrading and for complementarity with more knowledge- and technology- intensive activities that generate more value added, without abandoning local production activities, degrading economic or social conditions for producers or heightening environmental impacts. The beneficiaries of a rural industrial policy include individual producers, producer groups and companies operating in rural environments, specialized suppliers, commercialization agents, packaging firms or even an entire region as a whole.

Although agriculture is generally the main economic activity in rural areas, rural industrial policy is not synonymous with agricultural or farm policy, which focuses on improving the way in which product and factor markets in the agricultural sector function. Agricultural policies comprise the following three categories:

- (i) Pricing policies (the market economy is heavily influenced by macroeconomic policies);
- (ii) Resource policies (including land tenure policies and policies on the management of resources such as land, water, forests and fisheries); and
- (iii) Access policies (including policies on access to agricultural inputs, product markets and technology) (FAO, 2004).

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<sup>8</sup> Bioeconomics links in with various connections between sectors and value chains dealing with agriculture, forestry, fisheries and aquaculture, food and beverage industries, paper and pulp, and segments of the chemical, pharmaceutical, cosmetic, textile and energy industries. ECLAC (2016b) has posited that bioeconomics can open up opportunities for rural development and job creation in such areas as the agricultural production of biomass and the development of value chains entailing the use of non-food biomass and waste (bio-inputs for agriculture).

Rural industrial policy is not a synonym for rural development policy either, although it does share a number of features with the new rural paradigm, which is based on a holistic approach that provides a framework for an analysis of how various components of a local economy interact with one another. This rural development policy approach places emphasis on the importance of the territory in question, economic modernization, investment rather than subsidies and the contribution of services, particularly ITC services.<sup>9</sup> This approach to rural industrial policy does not entail the use of all the policy tools that can be applied in a given rural area but instead concentrates on transforming the production structure.

The design and implementation of a rural industrial policy do not entail a reduction in support for medium- and high-technology manufacturing sectors such as the automotive industry, electronics, the manufactures of medical devices and aeronautics. Rural and non-rural policy approaches are both complementary features of an integrated, inclusive industrial policy. The objective is to give a greater role to rural economic activities, which have been neglected to some extent by industrial policy but which have strong potential as a driver of progressive structural change.

### **C. Rural industrial policy tools**

Rural industrial policy is a component of industrial policy when defined in a broad sense, as mentioned earlier, and the two therefore use many of the same tools, although the geographical location and scope of their application may differ. Rural industrial policy is predominantly vertical in nature, since it is tailored to a specific geographical location or sector, such as the agricultural sector or the rural environment, but it also makes use of some horizontal policy tools.<sup>10</sup> The usefulness of these horizontal tools is not confined to the rural environment, however, since they can entail the provision of telecommunications or transport infrastructure, the introduction of a macroeconomic policy that helps to ensure the stability of the main economic indicators or the implementation of neutral trade policies. The vertical policy tools, for their part, which will be described below, fall into one of three categories: (i) trade,

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<sup>9</sup> The new rural paradigm encompasses an approach that serves as a framework of the individual rural development strategies of the member countries of the Organization for Economic Cooperation and Development (OECD). Within that framework, some of the priority areas for rural development policy are: (i) transport and the development of ICT infrastructure; (ii) the delivery of public services; (iii) the valuation of natural and cultural rural services; and (iv) the promotion of rural enterprise (OECD, 2006).

<sup>10</sup> For further information on the difference between horizontal and vertical industrial policies, see Padilla and Alvarado (2014).

competitiveness and competition policies; (ii) productive development policies; and (iii) environmental policies. The policy tools discussed here are only some examples of the various options that can be tailored to the specific economic, social, environmental and productive features of each country or region.

### 1. Trade, competitiveness and competition policies

Trade, competitiveness and competition policies are primarily horizontal policies but, when targeted at specific rural activities, can be turned into vertical or selective instruments (see table II.7).

Table II.7  
Trade, competitiveness and competition policies

Area	Tools
Trade	<ul style="list-style-type: none"> <li>- Promotion of rural exports (agribusiness, services, craftwork)</li> <li>- Promotion of access to new markets</li> <li>- Promotion of trade defence policies</li> </ul>
Competitiveness	<ul style="list-style-type: none"> <li>- Promotion of a stable macroeconomic environment</li> <li>- Action in support of a competitive exchange rate</li> <li>- Support for investment protection and infrastructure provision</li> <li>- Promotion of foreign direct investment (FDI) in specific rural regions and sectors</li> </ul>
Competition	<ul style="list-style-type: none"> <li>- Monitoring of competition in agrifood markets</li> <li>- Monitoring of price formation in agrifood markets</li> </ul>

Source: Prepared by the authors.

Trade policies are used to improve international market access for rural producers in the agribusiness, services and crafts sectors and may provide for the establishment of specialized agencies and programmes to promote exports, access to new markets and trade defence measures.

Export promotion contributes to the internationalization of enterprises and producers of agricultural and agribusiness goods and services and bolsters participation in more dynamic and more demanding markets. Internationalization may be associated with the beneficial impacts to be derived from technological learning and capacity- and skill-building, but such impacts do not arise automatically (Crespi, Fernández-Arias and Stein, 2014). Increasing participation in international markets by micro- and small-scale rural producers is an important objective of this type of policy.

Bilateral and multilateral agreements can open the door to new markets. In recent decades, Latin American and Caribbean countries have

entered into an increasing number of trade agreements and treaties with other countries and regions. Governments can take action to broaden and diversify these markets in order to forestall reliance on any one trading partner. In addition to bilateral agreements, multilateral accords on a global or regional scale can also be used to further these objectives. In most cases, trade policies establish safeguards and preferential terms for agrifood and other rural products.

When imports do serious harm to a given branch of production in a country, trade defence measures, such as temporary exceptions or safeguards, may be adopted to protect that sector; agrifood goods are often supported by these means. Trade defence instruments may be used to regulate the prices of imported products in agricultural and agribusiness markets, especially during periods marked by a high degree of volatility. Other defence measures may be used to smooth out distortions caused by the subsidies that other countries provide to their producers (Sotomayor, Rodríguez and Rodríguez, 2011).

Another avenue is to develop efficient frameworks for investment and the provision of infrastructure. The objective of this kind of policy tool is to protect investment by furnishing a suitable legal framework for investment activity. The State may step in and provide public goods in order to help the rural production structure to become more competitive.

The promotion of foreign direct investment (FDI) in rural areas focuses on providing specific types of benefits to investors or on bolstering specific activities in rural sectors and regions. Some of the mechanisms used to attract FDI are tax incentives, financial incentives and direct subsidies for investment. The public sector may also seek to publicize the advantages offered to investors by the country or by a given region or sector, provide helpful information to potential investors and facilitate decision-making and the start-up of operations (ECLAC, 2007). Yet opening up areas of activity for investment does not in itself ensure a faster pace of development in rural sectors. The attraction of anchor enterprises should be coupled with the creation of the conditions needed to generate secondary economic and knowledge-related effects for the agents in the relevant area of activity and between them and the rest of the local economy.

Competition policies are aimed at thwarting anti-competitive behaviours, such as the abuse of a dominant market position or the creation of cartels, in agrifood markets. Public policy can also influence price formation through the use of competition policy measures and the

provision of support to shield producers from agrifood price volatility. Institutional arrangements for overseeing price formation can also help to reduce market distortion and to assist markets to function properly. The agents involved in any agrifood value chain will have different degrees of bargaining power. This is where intermediaries come into play, since they can perform a major role in ensuring the governance of a value chain and influencing price formation. Public policy can also have an impact on price formation in both export and domestic markets and through tax, credit and trade regulations and measures dealing with the provision of bulking services and traceability, among other factors (Gandlgruber, García and Nazif, 2014).

## **2. Productive development policies**

Productive development policies are designed to help rural businesses, cooperatives and individual producers to overcome the barriers they face in the areas of productivity, innovation and market access. This broad category of policies can be subdivided into six areas of policy action: (i) productivity; (ii) marketing; (iii) education and training; (iv) access to financing; (v) science, technology and innovation (STI); and (vi) production linkages (see table II.8).

The first policy area includes policy tools and measures for boosting productivity in rural areas, with emphasis on smaller production units, such as rural microenterprises and small enterprises, and on small-scale producers.

The number of micro- and small rural non-farm enterprises is on the rise as rural households look for ways to diversify their incomes, among other factors. Some of the many challenges faced by non-farm enterprises have to do with size, production volumes, low productivity, limited value added, problems in gaining market access, difficulties in meeting quality and traceability standards, technological performance gaps and the factors associated with informality (Angulo and Mata, 2008). Policies for the promotion of micro- and small rural enterprises may, for example, provide for measures to increase access to financing, technical assistance, training, incentives for the formation of business associations, access to inputs and to machinery and equipment, the strengthening of linkages within a given value chain, modernization programmes, measures for achieving greater inclusion of young people and women, the provision of decent work and the incorporation of ICTs.

**Table II.8**  
**Productive development policies**

Area	Tools
Productivity	<ul style="list-style-type: none"> <li>- Support for increasing productivity in rural production activities (manufacturing and services)</li> <li>- Support for improvements in production systems and greater access to rural public goods</li> <li>- Promotion of good practices in the rural environment</li> <li>- Promotion of rural start-ups</li> </ul>
Marketing	<ul style="list-style-type: none"> <li>- Support for the compilation and distribution of information on agribusiness and services markets</li> <li>- Assistance in obtaining certification as a means of improving a product's or service's market position</li> <li>- Support for transport and commercial infrastructure</li> </ul>
Education and training	<ul style="list-style-type: none"> <li>- Promotion of human resource development in the rural environment</li> <li>- Promotion and support of ICT training</li> <li>- Promotion and support of business administration training</li> </ul>
Access to financing	<ul style="list-style-type: none"> <li>- Promotion and support for rural lending and microlending</li> <li>- Support for collateral funding for financial intermediaries</li> <li>- Sourcing of seed capital and venture capital</li> </ul>
Science, technology and innovation	<ul style="list-style-type: none"> <li>- Support for technology transfer and outreach</li> <li>- Promotion and support of technology funds and incentives for innovation within the rural environment focusing, for example, on agribusiness or rural tourism services</li> <li>- Promotion of public and private investment in research, development and innovation (R&amp;D&amp;I)</li> <li>- Strengthening of agribusiness innovation systems</li> </ul>
Production linkages	<ul style="list-style-type: none"> <li>- Promotion of clusters in agribusiness, tourism services and other manufactures and services in rural areas</li> <li>- Promotion and support of the formation of rural business associations</li> <li>- Promotion and support of supplier development activities</li> <li>- Strengthening and support of value chains</li> </ul>

**Source:** Prepared by the authors.

One of the constraints that is mentioned repeatedly in studies on rural value chains is the absence of good farming and manufacturing practices (for case studies on specific rural value chains, see Alvarado and others, 2016; Romero, Díaz and Aguirre, 2016; Cordero, 2014; Oddone and Beltrán, 2014). Tools for promoting good practices include means of assisting producers to obtain certification and to take part in quality and appellation or designation of origin systems and on-call or targeted advisory services aimed at boosting the quality and yields of farm and agribusiness products. There are also quality certification systems for tourism services and, more specifically, for environmentally sustainable tourism.

Governments can also provide incentives for rural start-ups by opening up new business opportunities in rural areas. In rural regions of Latin America and the Caribbean, the percentage of women-headed households and the female rural employment rate have been climbing.

Between 2000 and 2012, the rate of rural female-headed households rose by over six percentage points, on average. Meanwhile, young people are becoming more educated. In the rural areas of Latin America, the participation rate for young people in unpaid (informal) family work is down and their rate of participation in non-farm wage (formal) work is up, although the situation departs from this overall trend in some Central American countries.<sup>11</sup> These demographic changes reflect the presence of new opportunities and challenges for efforts to encourage members of these population groups to start up new rural businesses.

A second group of policy tools is composed of instruments for facilitating the placement of products and services in new or existing markets. These kinds of policy measures pair up effectively with the trade policies discussed in the preceding section. One of the main challenges to be overcome in rural value chains has to do with the different links' asymmetrical access to market information and, in general, information on product and service marketing channels, distribution networks, and supply and demand conditions. Policy action in this area includes assistance with the compilation and dissemination of information on potential markets, the identification of commercialization channels and the determination of supply and demand conditions. Another type of policy tool in this category is the various forms of supporting access to commercialization infrastructure and equipment (such as transport equipment and bulking centres) or to make improvements in these components. This category also includes the provision of technical services in order to assist members of a value chain to obtain certifications that will enable them to position their products or services more successfully in different niche markets.

The third policy area is education and training. Policy action focusing on support for human resource skill-building are aimed at raising the level and quality of technical and professional training while expanding the supply of qualified human resources and ensuring that students stay in school. A constraint that frequently hinders the growth of rural value chains is a lack of business administration skills on the part of their members. In addition to providing a formal education, governments can support training in business management skills. The objective of these types of tools is to build the entrepreneurial skills of small-scale producers or entrepreneurs so that they can enhance the performance of their production activities.

Another constraint that holds back rural agents from gaining greater access to ICTs, in addition to the limited supply and infrastructure, has to do with digital skills and the differing levels of their development

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<sup>11</sup> For a detailed analysis, see Srinivasan and Rodríguez (2016).

in terms of the technological sophistication of their perception and information management (Nagel, 2012).<sup>12</sup> ICT or digital literacy training provides a way of meeting this challenge and laying the groundwork for the integration of new technologies in the rural environment.

The fourth category comprises policy tools for helping rural production activities to obtain financing. Credit access for rural producers is a major challenge in Latin America and the Caribbean. Some of the reasons for this are that commercial banks focus on short-term loans, have large interest-rate spreads and tend to cater to middle- and high-income segments, and they therefore often sideline smaller production units and higher-risk sectors (Titelman, 2003). Development banks and other publicly funded support organizations have therefore stepped in to provide credit to rural borrowers who have been kept out of the formal credit market or to make special types of lending instruments available while introducing new forms of intermediation.

Guarantee funds are another tool that governments can use to facilitate lending by supplementing the collateral that a borrower can provide. Microcredit is a rural financing tool for meeting the funding needs of smaller production units. Another tool that is less commonly used but that the State can employ to furnish funds for innovative businesses in rural areas is support for risk capital or seed capital funds.

The fifth category corresponds to policies for the promotion of science, technology and innovation (STI), which have a direct impact in terms of productivity gains in rural areas. There is scant innovation in rural areas, where the tendency in developing countries is to adapt and make incremental improvements in existing agricultural and agribusiness technologies. By supporting knowledge creation and diffusion, these policies pave the way for the successful introduction of new products, processes and services in the market (Ekboir and others, 2009). The use of these tools involves industrial upgrading and the diversification of production. The different types of economic upgrading in a value chain —of products, processes and functions, for example— are associated with improvements in processes, products and/or organizational patterns or the introduction of new ones.

Technology transfer and outreach activities in the form of technology packages, the promotion of technology exchanges, technology tours and technology demonstrations are very important for rural areas. Technology funds and incentives for innovation within rural areas help

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<sup>12</sup> Most of the digital agendas of the countries of the region mention the importance of the role of ICTs in rural areas, but few proposals have been advanced regarding ways of encouraging rural agents to adopt ICTs (Nagel, 2012).

to enhance the value of rural products and improve the incomes and living conditions of the rural population. These are incentives that can be used for agricultural, agribusiness and rural service activities. Unlike outreach activities, the aim here is to foster the introduction of new products, processes and organizational and marketing models rather than simply transferring technology or promoting its adoption. These tools can also contribute to the formation of stronger linkages among companies, government agencies, universities and R&D centres.

Governments can also take action to promote public and private investment in R&D, public-private partnerships, research projects and the sale of technology inputs. The aim of these policy efforts is to generate and disseminate new types of knowledge that can be applied to the development of production activities. The institutional component is extremely important in these policy instruments, which include tools for strengthening agrifood innovation systems. The use of these policy tools involves a wide range of agents that support, create, transfer or adopt innovations, in addition to the agents that inform producers and the public sector about the relevant innovations (OECD, 2013; Padilla, 2013).

The last group is made up of policy instruments that focus on promoting the formation of production linkages. The use of these tools is based on corporate and inter-agency cooperation agreements whose aim is to improve the productive and competitive performance of production units, with the emphasis being on smaller units (Ferraro, 2010). In rural areas of Latin America and the Caribbean, smaller manufacturers and service providers usually are unable to attain the production volumes required by the market, suffer from quality shortfalls and have a limited ability to scale up to higher value-added segments. Promoting the formation of producer associations and cooperation among these smaller units is one way of overcoming these challenges.

The public sector can also provide support for the formation and consolidation of rural production clusters, which usher in a number of advantages and positive externalities and are the starting point for a wide range of success stories in terms of collective efficiency (Schmitz, 1999). Rural clusters face lower costs for transport and supply, for example. They attract more customers, boost specialization and productivity, disseminate knowledge and create inter-agent synergies. It is important to remember, however, that these externalities do not arise on their own and that these kinds of initiatives do not take place in other areas, such as the provision of technical assistance, financing, inter-agent coordination skill-building, the introduction of innovations and helping production units to position themselves more advantageously (Crespi, Fernández-Arias and Stein, 2014).

One of the constraints that has been noted in studies on linkages in rural regions has to do with weak ties with potential clients. Supplier development offers one way of overcoming this challenge. Policy action in this area involves promoting programmes that help to integrate production units into supply chains, building production and technological capacities and providing information on markets and marketing channels.

Finally, strategies to strengthen value chains are another instrument of rural industrial policy. This can be done by transforming the chains in order to overcome the constraints that they face so that they can then make a greater contribution to the economic and social development of the area in which they operate (Padilla and Oddone, 2016). These policy interventions are aimed at strengthening both the different links in the chain and the connections between them. In order to accomplish this, policymakers have a vast array of tools that they can employ (while never losing sight of the fact that improvement of the entire chain is the policy objective), such as training, the promotion of innovation, financing, support in gaining market access and so forth. Chapter III contains a description of the methodology developed by ECLAC for strengthening value chains, while chapters V and VI provide overviews of the action taken in connection with various kinds of chains.

### 3. Environmental policies

In order to bring about progressive structural change, it is necessary not only to boost productivity but to do so in a sustainable way (ECLAC, 2016b). In rural areas, environmental policy has become an essential component of productive development policies. Table II.9 provides an overview of some environmental policy tools that can complement and be integrated with the types of measures discussed in the preceding sections.

**Table II.9**  
**Environmental policies**

Area	Tools
Mitigation of climate change	<ul style="list-style-type: none"> <li>- Support for waste management and the use of alternative energy sources in rural manufacturing and service activities</li> <li>- Support for the delivery of environmental services</li> <li>- Promotion of research and outreach services dealing with the mitigation of climate change</li> </ul>
Adaptation to climate change	<ul style="list-style-type: none"> <li>- Support for risk management in the delivery of services in the rural environment (tourism)</li> <li>- Promotion of private investment in research, development and innovation (R&amp;D&amp;I) dealing with adaptation to climate change</li> </ul>

**Source:** Prepared by the authors.

The first group includes support for the delivery of environmental services that will help to mitigate the environmental impact of manufacturing and service activities in rural areas. It also includes the delivery of services for agroecological systems that will promote sustainable production methods in forestry, farming, stock raising and fisheries. These systems make use of local resources and generate synergies at the ecosystem level with the help of biological control practices and synthetic-free nutrients. Organic farming is an agroecological system that adds value to agribusiness products. Support for research and outreach services dealing with the mitigation of climate change also falls into this category.

The second group of policy tools can be used to help rural activities to tackle the challenges they face in their efforts to adapt to the effects of climate change. The impacts of climate change in Latin America and the Caribbean are very real, and the alarm has been sounded as to what those impacts may turn out to be over the long run. Those effects are expected to be more severe in countries with tropical climates. Support therefore needs to be provided to production units as they strive to adapt to the effects of those changes. Rural industrial policy can channel that support by promoting the delivery of services for production activities that are more resilient to climate change because they are based, for example, on genetic engineering (the creation of new seed varieties that are more resistant, for example, to droughts, heat or salt), water resource management, erosion control and methods for retaining soil nutrients, the integral management of production units, the monitoring and control of pests and diseases, the restoration of degraded habitats and improvements in forestry and mixed forestry-pasturage systems (Rodríguez, López, Meza and Loboguerrero, 2015).

One of the consequences of climate change is exposure to extreme weather events. Tools for managing climate risk in the production sector are a crucial component of environmental policies for adapting to climate change and include services such as climate monitoring, the development and use of forecasting and early warning systems, incentives for the diversification of production and instruments for promoting various types of financial arrangements, such as farm insurance (ECLAC/CAC/SICA, 2013). It is very important for rural tourism enterprises to have risk management mechanisms to help shield them from the effects of adverse weather or climatological events, as will be discussed in greater detail in chapter VI. Support for research and outreach services aimed at assisting rural production activities to adapt to climate change is another key component.

The wide range of production development tools that are available are not mutually exclusive and cannot be used in isolation from one another. For example, as will be discussed in the following chapters, initiatives for promoting value chains make use of a broad array of complementary instruments in such areas as education, innovation and marketing.

## **D. Experiences with public strategies that can be synchronized with rural industrial policy**

As is also the case for industrial policy as a whole, there are no rural industrial policy strategies or tools that work the same way in every situation. Valuable lessons can be learned from previous experiences, but the design and implementation of policy instruments have to be based on a pragmatic approach that takes into consideration the economic, institutional, environmental and social specificities of each country.

By way of example, three cases will be examined here in which countries have used policy tools whose objectives dovetail with the proposals being made in this chapter, although it must be pointed out that these tools were not explicitly developed as part of a rural industrial policy. These cases have been selected because the different strategies that were used succeeded in strengthening the rural production structure. The countries in question are at different stages of development. Chile is an agricultural commodity exporter that has gained valuable experience in the application of policies in rural areas. New Zealand, a high-income developed country, has invested heavily in R&D&I and in the promotion of changing production patterns and in upgrading activities in the agricultural sector, even though the case that will be explored here deals with a strategy whose primary objective was to reduce the role of the State in that sector. The third and final case study will deal with Costa Rica, a small developing economy where policy tools are being used to promote sustainable rural tourism services. The impacts of the policies applied in these three cases have yet to be fully assessed, however.

### **1. Chile**

One of the key components of Chile's most recent economic model has been the promotion of exports representing each local area's core production activities, which include mining, agribusiness, fruit, wine, forestry, fishery and aquaculture products. Some 11% of the population lives in rural areas, where agriculture and natural-resource-based manufactures are

key activities. The value added of farm production amounts to 4% of GDP, which is above the average for OECD countries (1.6% in 2013). In 2015, commodities and natural-resource-based manufactures represented around 92% of Chile's export basket.<sup>13</sup>

A set of policy tools that have been in place ever since the 1970s have been very effective in spurring the production of farm produce and natural-resource-based goods (Moguillansky, Ramírez and Runaro, 2013). Table II.10 provides an overview of some of the rural industrial policy tools that were introduced even before the economy was opened up to international trade.

The overhaul of public-sector support agencies, such as the Chilean Economic Development Agency (CORFO) has been a key factor. Established 77 years ago, this institution's production development and public-private partnership programmes have benefited a number of different sectors, including activities located in rural areas. The Chile Foundation, for its part, is a private non-profit organization devoted to scientific and technological research that was established by the government and the private sector, working in tandem. In its early days, the Foundation launched a series of demonstration projects focusing on technology transfer and agro-manufacturing change (the adoption of industrial technologies and scientific innovations in agriculture, aquaculture and farm production units). In some cases, these demonstration projects led to the establishment of new laboratories. The Foundation also served as a quality certification mechanism for fruits and vegetables for export. The Chile Foundation works as a bridging institution that opens up access to cross-cutting technologies (ICTs, biotechnologies, engineering services, human resources management and environmental technologies) that can be used in upgrading more innovative activities (Andreoni, 2013).

One of the lessons learned from Chile's experience is that tools designed to boost competitiveness, technological development and innovation have proved to be more effective in regions with well-established value chains in which SMEs have developed and become successful exporters or where they are organized into clusters (Moguillansky, Ramírez and Furnaro, 2013).

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<sup>13</sup> Based on information from the World Bank (2016), OECD (2016) and SIGCI Plus (2016).

**Table II.10**  
**Chile: examples of rural industrial policy tools and initiatives**

Period	Tools and initiatives
1930-1973	<ul style="list-style-type: none"> <li>– State investment in the agribusiness sector</li> </ul>
1973-1989	<ul style="list-style-type: none"> <li>– Promotion of Technology Transfer Groups (GTT)</li> <li>– Creation of the Chile Foundation as a bridging institution</li> <li>– Export promotion and creation of PROCHILE</li> </ul>
1990-1999	<ul style="list-style-type: none"> <li>– Support for infrastructure development</li> <li>– Promotional partnership programmes</li> <li>– Support for emerging agrotechnology clusters (salmon, wine, tomatoes)</li> <li>– Creation of new local institutions to address collective problems (creation of joint ventures)</li> <li>– Promotion of horizontal networks by providing financing for a coordinating institution (Chilean Economic Development Agency (CORFO))</li> <li>– Supplier development programme</li> <li>– The Integrated Territorial Programme (fruit production cluster, wine production cluster, “Premium Colchagua Land” initiative, Chilean wines 2010, Chilean fruit 2010, strengthening of the salmon production cluster, Patagonian tourism)</li> <li>– Subsidies for private-sector activities that promote the introduction of technology (research, technology tours, new varieties)</li> <li>– Negotiation and conclusion of bilateral agreements (Southern Common Market (MERCOSUR))</li> </ul>
Since 2000	<ul style="list-style-type: none"> <li>– Programmes aimed at reducing information asymmetries, closing the credit-access gap between small and medium-sized enterprises (SMEs) and large companies and lowering transaction costs</li> <li>– An agricultural insurance programme (climate risk)</li> <li>– Promotion of good practices and appellation or designation of origin systems for new products</li> <li>– Production improvement plans: cluster development agendas</li> <li>– Regional Production Development Agencies (ARDPs) and the Chilean Economic Development Agency (CORFO)</li> <li>– Promotion of linkages for family farming</li> <li>– Promotion of production partnerships</li> <li>– Strengthening of agrifood value chains</li> <li>– Business technology consortiums</li> <li>– A key role for CORFO in the promotion of innovation, financial intermediation and support for seed capital, business incubators, angel investor networks, technology packaging, training and human resources development</li> <li>– Targeting of strategic programmes to support smart specialization (sustainable tourism, health foods, sustainable aquaculture and fisheries, sustainable construction and productivity)</li> <li>– Emphasis on programmes for start-ups</li> <li>– Outreach and support for the adoption of innovations in family farming activities and for family farming start-ups</li> <li>– Support for ancillary activities (e.g. rural tourism)</li> </ul>

**Source:** Prepared by the author, on the basis of G. Mogueillansky, E. Ramírez and A. Runaro, “Las políticas de desarrollo productivo en Chile 1990 y 2012”, *Documento de Trabajo*, No. 19, Santiago, Latin American Center for Rural Development (RIMISP), 2013; National Institute for Agricultural Development (INDAP), *Lineamientos estratégicos 2014-2018. Por un Chile rural inclusivo*, Santiago, Ministry of Agriculture, 2014; A. Andreoni, “Structural and Industrial Policy: The Role of Intermediate Institutions in Manufacturing Agrarian Change”, 2013 [online] [https://www.economic-policy-forum.org/wp-content/uploads/2013/10/Andreoni\\_Structural\\_Industrial\\_Policy\\_Brazil\\_Chile.pdf](https://www.economic-policy-forum.org/wp-content/uploads/2013/10/Andreoni_Structural_Industrial_Policy_Brazil_Chile.pdf).

The Chilean model has come in for criticism in recent years, however, as it appears to have run its course to some extent owing to the overuse of natural resources in conjunction with a limited degree of innovation and shortcomings in terms of the diversification of the production structure and sustainable management. In response to this situation, the Chilean government has moved to implement policies for the development of new production sectors, bolster innovation and step up technological development with a view to adding greater value to commodity-producing activities. Recent public policy measures have focused on the importance of facilitating coordination among the different production sectors by, for example, supporting structural changes in commodity-producing sectors and integrating those activities with new industries, such as ICTs, biotechnology and alternative energy generation.

## **2. New Zealand**

New Zealand is an export-oriented, high-income developed country. It is a net agricultural exporter, and its policies have been markedly horizontal in nature. Although direct support for producers has been cut back in recent years, the public sector has become more active in general services such as agricultural research and biosecurity research.

As the concept of the role of the State began to shift in the late 1980s and direct support for producers was scaled back, the government of New Zealand began to direct its efforts towards other types of strategies, such as those involving public-private partnering in R&D&I in the food industry. Research consortiums are an example of this type of effort to engage industry and academia in joint research projects in the areas of rural development and in the creation of new industries in fields such as biotechnology and ICTs (Hartwich and Negro, 2010; Moguillansky, 2006).

Various public policy initiatives have been launched on the basis of a recognition of the importance of changing production patterns in such areas as the processed food industry, with examples including the government working group on the food and beverage industry (2005/2006) and the Government Agenda for Economic Growth (Coriolis, 2010). An example of a public policy tool that is currently being used to drive changes in production patterns is the Primary Growth Partnership, which is investing in long-term innovation programmes in cooperation with industry to backstop the economic upgrading of agricultural products (MPI, 2017). Another is the New Zealand Food Innovation Network (NZFIN), a network of science and technology resources that provides facilities and expertise to help support the growth and development of new products and processes. One of the key features of

this programme is that it helps to link science and research with the food manufacturing industry (NZFIN, 2014).

New Zealand has a diversified pattern of land use (orchards, vineyards, adventure tourism, deer farming) and products based on an expansion of links with agribusiness. In the case of dairy products, for example, it now exports butter, cream, condensed milk, cheese, yoghurt, egg whites and fresh cream (Polson, 2009). The country's processed food industry not only exports its traditional goods, such as dairy products, meat, fish, aquaculture products and plants, but also ships more recently developed processed products, such as packaged vegetables, honey, tinned mussels and salmon, processed meat, ice cream, tomato sauce, aperitifs, yoghurt, pet food, cookies and biscuits, chocolate, baby formula, vitamins and minerals, oils, soft drinks, wine and potato chips (MBIE, 2015).

An important lesson to be learned here is that producer associations, such as cooperatives, have played a key role in helping producers to cope with deregulation and competition from big companies. In addition New Zealand has well-established chambers of commerce and professional associations in its main industries. It is true that New Zealand's farmers displayed a great deal of flexibility in dealing with economic liberalization policies, deregulation and the downsizing of the State's presence in the production sector, but it is also true that these changes took place against the backdrop of a stable, dynamic economy and institutions that were and are functioning smoothly and well. Yet another factor in this success story is that these measures were applied gradually and in a controlled manner (Cabral and others, 2006; Lattimore, 1997).

### **3. Costa Rica**

Costa Rica has succeeded in changing a number of its production patterns in important ways over the last few decades. Not only has it provided incentives for commodity production activities in rural areas, but it has also scaled them up and supplemented them with other activities, such as tourism services. In fact, Costa Rica is now the main tourism destination in Central America, and foreign-exchange earnings from tourism amounted to 6.4% of GDP 2016 (ICT, 2017). A wide range of natural-resource-related products and services are on offer, and sustainable rural tourism is an example of one of the production activities that has received support through public action. Table II.11 provides other examples of policy tools and measures that Costa Rica has adopted in this connection.

Table II.11

Costa Rica: examples of policy tools and initiatives for strengthening rural tourism

Period	Tools and initiatives
1990-1999	<ul style="list-style-type: none"> <li>- Establishment of the Central American Association for Economy, Health and Environment (ACEPESA), which works to advance sustainable tourism and has influenced the approach taken by national tourism policy to rural community-based tourism in Central America</li> <li>- Establishment of the Cooperative Consortium for the National Ecotourism Network (COOPRENA)</li> <li>- Conclusion of a cooperation agreement between the Agrarian Development Institute and the Costa Rican Institute of Tourism (ICT) for the promotion of agrotourism as a possible solution for rural poverty issues</li> <li>- ICT campaign: "Costa Rica: No Artificial Ingredients"</li> <li>- Launch of the Sustainable Tourism Certification (CST) Programme</li> </ul>
Since 2000	<ul style="list-style-type: none"> <li>- Establishment of the Costa Rican Rural Tourism Association (ACTUAR)</li> <li>- Establishment of the Alliance of Rural Community-based Tourism Organizations</li> <li>- Issuance of a decree stating that rural community-based tourism is in the public interest</li> <li>- Entry into force of Rural Community-based Tourism Promotion Act No. 8724</li> <li>- Incorporation of the Rural Community-based Tourism Promotion Act into the National Tourism Development Plan</li> <li>- Introduction and use of the "Essential Costa Rica" country brand</li> <li>- Introduction of a collective civil liability policy for communities that are developing and offering tourism products</li> <li>- Promotion of rural community-based tourism (organization of rural community-based tourism fairs and publication of rural community-based tourism guidebooks)</li> <li>- Signature of the Rural Inns Decree</li> <li>- Formation of the National Chamber of Commerce for Ecotourism and Sustainable Tourism of Costa Rica (CANAECO)</li> <li>- Formation of the National Chamber of Commerce for Rural Community-based Tourism (CANTURURAL)</li> <li>- Strategic Plan for the Development of Sustainable Tourism 2009-2013</li> <li>- Training in service delivery for the rural tourism sector</li> <li>- Policy of State for the Development of Local Rural Tourism 2015-2030</li> <li>- Support for the work required to obtain environmental certifications, the SME C-Neutral Seal and Rainforest Alliance Verified mark</li> </ul>

Source: Prepared by the author, on the basis of Inter-American Institute for Cooperation on Agriculture (IICA), *Estudio sobre turismo rural en Costa Rica*, San Jose, 2009; S. Salazar, *Aportes del turismo rural comunitario en Costa Rica*, San Jose, Instituto Nacional de Fomento Cooperativo, 2012.

Rural tourism is an outgrowth of the boom in ecotourism. In Costa Rica, the ecotourism industry emerged in tandem with the consolidation of the country’s national parks system. Since then, the Costa Rican government has been working on two types of tourism service projects: conventional projects (urban hotels, beach hotels, cruises) and sustainable development projects (ecotourism, adventure tourism and rural tourism). The country has pioneered the use of various policy tools for supporting sustainable development projects. In the 1980s, it began to promote nature and adventure activities geared towards the emerging ecotourism market and, in 1992, its efforts earned the country the Adventure Travel Society award as the best ecotourism destination in the world (Honey, 2008).

In the late 1990s, formally constituted initiatives were undertaken to promote rural tourism and rural community-based tourism in the country by local organizations, networks of non-governmental organization, international agencies and government agencies such as the Costa Rican Institute of Tourism (ICT), the Ministry of Agriculture and the National Learning Institute (INA). The Rural Community-based Tourism Promotion Act entered into force in 2009. Its objective is to promote rural community-based tourism activity by lending support to family and community-based enterprises with a view to helping the residents of rural communities take ownership of their own communities' development and manage their local tourism destinations on their own. It is also aimed at ensuring that they are able to participate in the planning and harnessing of the natural resources in their areas on a sustainable basis (Legislative Assembly of the Republic of Costa Rica, 2009, p. 1). One of the reasons why the Rural Community-based Tourism Promotion Act was passed is that many tourism activities were described as "sustainable" but did nothing to benefit the local rural population. Rural tourism has the advantage of combining natural and cultural attractions and the production activities of the rural community in question, and they therefore offer an option for upgrading and adding value to agricultural activities (Fontana, 2012).

Another public body working to support sustainable and rural tourism in Costa Rica is the Ministry of the Environment, Energy and Telecommunications, which administers the services that protect and monitor the country's national parks and provides various options for goods and service producers, such as the provision of payments for environmental and other services for population groups located near conservation areas (IICA, 2009). There is also the National Sustainable Tourism Certification Programme run by the Costa Rican Institute of Tourism (ICT) and the National Accreditation Commission (CST, 2016). The "Essential Costa Rica" distinction promoted by the Foreign Trade Corporation of Costa Rica (PROCOMER) also seeks to spur competitiveness in Costa Rica and has raised the standards for products and services offered by the country's businesses, including rural tourism enterprises.

A number of studies have pointed out the benefits to be derived from upgrading traditional agricultural activities and/or complementing them with rural tourism ventures as a means of diversifying income sources for rural populations (Salazar, 2012; IICA, 2009; Honey, 2008). Partnerships with the public sector, producer associations, non-governmental organization and private agencies, along with international cooperation agencies, have been of fundamental importance

in Costa Rica. The fact that the supply of these types of services has become consolidated in large production units, while their smaller counterparts are grappling with greater constraints, poses a challenge that will need to be addressed moving forward.

## **E. Conclusions**

The industrial policies implemented in Latin America and the Caribbean in the past—during the import substitution phase, throughout the stage of economic opening and liberalization and, more recently, while industrial policy has become the object of reawakened interest—have been focused on manufacturing. In the particular case of Central America, Mexico and the Dominican Republic, industrial policy instruments have targeted export-oriented manufacturing. More recently, there has been a greater awareness of the increasing importance of the services sector, and efforts have been directed towards spurring key sectors such as software development and what have come to be known as the “creative industries”. While this has been going on, the rural environment has remained on the sidelines.

In this chapter, rural industrial policy has been defined and the importance of bringing about structural changes in rural areas has been underscored. Five main points have been made. The first is that the rural environment is shaped by a combination of economic or sectoral, demographic and territorial factors. It thus encompasses rural activities such as farming, stock raising, fisheries and forestry, as well as agribusiness and rural services. The second point is that rural industrial policy has been channeled through State action aimed at bolstering the rural production sector by upgrading rural and processing activities and integrating them with complementary, more robust and more knowledge-intensive activities, markets and sectors. The third is that rural industrial policy is of great importance for the countries of Latin America and the Caribbean, where rural activities, such as those of the agricultural sector, continue to represent a significant portion of total economic activity and to account for a majority of the poor and indigent segments of the population. The fourth is that, in order for rural industrial policy to be effective in promoting progressive structural change, it should target at least three interrelated processes: (i) economic upgrading and the incorporation of technological change and innovation; (ii) social upgrading; and (iii) the upgrading of the production structure on a sustainable basis. The fifth is that rural industrial policy is a primarily vertical policy, since it generally targets a given sector or geographical area.

A review of the literature and of international case studies did not turn up any prior references to rural industrial policy. Developing

countries —such as Chile and Costa Rica— and developed nations —such as New Zealand— have embarked on strategies that are similar to the proposals made in this chapter. These countries' experiences show that, as in the case of industrial policy in a broader sense, there are no unique solutions in rural industrial policy (one-size-fits-all) or any strategy that could be put in place in other countries without adjusting it to take into consideration local economic, social, cultural and historical factors. The tools used to bring about structural change in rural areas, such as those proposed here, have to be used in a way that takes account of the degree of development in each country and their specific needs. By the same token, consideration has to be given to the extent of government involvement, the nature of the selection processes that are in place and the way in which these policy tools are used and their results are assessed.

This book includes two chapters on the design of rural industrial policy as applied to value chains in ways that target the same ultimate objectives as those pursued by national and sectoral development plans. These chapters illustrate two different approaches: (i) one that focuses on strengthening existing agricultural and agribusiness chains with a view to boosting productivity and upgrading them to the point where they will add more value; and (ii) one that focuses on value chains in the services sector and, in particular, on rural tourism services.

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## Chapter III

# Methodology for strengthening value chains

*Ramón Padilla Pérez  
Nahuel Oddone*

## Introduction

This chapter sets forth the methodology used for strengthening value chains in several technical collaboration initiatives with the governments of Central America, Mexico and the Dominican Republic. The methodology is based on previous experiences by ECLAC in South America (Stumpo and Rivas, 2013) and in Central America (Padilla, 2014).

This chapter summarizes *Strengthening Value Chains: A Toolkit* (Padilla and Oddone, 2016), published recently by ECLAC in collaboration with the International Fund for Agricultural Development (IFAD), which interested readers may consult to explore these topics further. The *Toolkit* serves as a guide and offers practical examples of the concepts proposed here.<sup>1</sup> The *Toolkit* and this chapter review and update the material published in 2014 (Oddone, Padilla and Antunes, 2014), and include the lessons learned in the course of new experiences up to 2016.

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<sup>1</sup> *Strengthening Value Chains: A Toolkit* may be consulted on the ECLAC website [online] <http://www.cepal.org/en>.

The methodology was developed in response to growing interest on the part of Latin American and Caribbean governments to undertake more decisive actions in the industrial policy field. In some countries, this interest has more specifically taken the form of national industrial policy plans such as those of El Salvador and Guatemala, while other countries—Costa Rica and Mexico— have adopted programmes for building competitiveness or strengthening value chains.

Industrial policy plans are necessary to support production sectors, set objectives and priorities, coordinate actions with other policies, and provide selection criteria or decide which sectors or chains to benefit during the life of the plan. Once industrial policy plans have been designed, the challenge is to put them into practice, which entails identifying areas for intervention and specific potential beneficiaries. A value chain approach serves to analyse bottlenecks and consider strategies at the stakeholder level in each link of the chain—a microeconomic focus—in order to boost productivity and value added. The microeconomic and systemic approach enables the preparation of specific action strategies in different spheres, as well as the integration of the various industrial policy instruments available.

This chapter has eight sections. The first offers a reflection on the value chain approach and its contribution to structural change. The second sets forth the methodology's key concepts and definitions and the third gives a general overview of the nine steps in the methodology. The fourth section focuses on the diagnostic, and the fifth and sixth sections address roundtables and good practices, respectively. The seventh section looks at strategies, implementation support and launch. Lastly, the eighth section concludes.

## **A. Value chains and structural change**

ECLAC understands that economic and social development require profound changes in the production structure of the region's countries, in order to transform the composition of output and employment and the international positioning of the region. This progressive structural change, understood as a shift towards more dynamic and technology-intensive activities and sectors while ensuring environmental stewardship (ECLAC, 2016), calls for an innovative and integrated array of public policies geared towards equality. Market forces on their own tend to entrench existing structures. Industrial policy is vital to this approach and to the renewed equation between the State, the market and society (ECLAC, 2012).

Strengthening value chains fosters production diversification and expands participation in the segment of the production structure that

is most knowledge-intensive or has the highest demand growth. This is how it contributes to structural change. Chain strengthening brings structural change to the extent that it incorporates new and better products, productivity gains and more knowledge-intensive activities. At the same time, it tends to diminish the structural heterogeneity typical of Latin American economies by strengthening the stakeholders who comprise the chain and incorporating new producers and service providers. This process reduces the production gaps that are typical of Latin American countries; for example, between small and large firms, or between business that produce for local markets and those that compete internationally.

Strengthening a value chain can help to combat inequality, because it helps to increase producers' incomes and to generate a fairer appropriation of the value added along the chain. That is, work on value chains influences not only the possibilities of adding value, but also the distribution of the benefits of that value among the stakeholders in the chain. Public policies play a central part in this process. Table III.1 shows the value chains that received support between 2014 and 2016 in the framework of the ECLAC-IFAD project "Inclusive growth, rural productive policy and participatory value chains in Latin America and the Caribbean".

**Table III.1**  
**Value chains supported under the ECLAC-IFAD project "Inclusive growth, rural productive policy and participatory value chains in Latin America and the Caribbean", 2014-2016**

Country	Chain	Geographical scope
El Salvador	Tourism in the Department of La Libertad	Department of La Libertad
	Dried fruit based nutritional snacks	National (countrywide)
	Tomato and green sweet pepper	National (countrywide)
Guatemala	Tourism in Antigua Guatemala and in the rural municipalities of the Department of Sacatepéquez	Department of Sacatepéquez
Mexico	Pork sausages and other cured pork products	National (with a particular focus on the states of Jalisco, Guanajuato, México, Michoacán, Nuevo León, Puebla, Sonora and Yucatán)
Dominican Republic	Dairy products	National (with a particular focus on the provinces of Dajabón, Santiago Rodríguez, Puerto Plata, Hato Mayor, Monte Plata and Higüey)
	Tourism in Pedernales Province	Province of Pedernales
Costa Rica	Vacuum-fried fruit chips	National (excluding the capital and metropolitan areas)

**Source:** Prepared by the authors.

## B. Key definitions and concepts

### 1. Value chains

A value chain consists of a broad variety of activities needed for a product or service to transit across the various stages from conception of the product or service through to its delivery to consumers and final disposal once the product has been used (Kaplinsky and Morris, 2002). Each of the stages—conception and design, production of the good or service, transport of the good, its consumption and handling, and final recycling—is known as a link. The number of links in a value chain varies substantially depending on the type of industry. The chain's activities are sometimes conducted by a single enterprise and sometimes by various firms (Kaplinsky, 2000).

Regardless of its size, every company or producer participates in at least one local value chain. When small-scale subsistence farmers acquire inputs (seeds, tools, fertilizers and others), they interact with other links of the chain. Enterprises that export, whether directly or indirectly, also participate in regional or global value chains.

Global value chains have emerged as a result of a new production pattern based on a geographical delocalization connected to dynamic final markets. The global value chain concept refers to the various links between the diverse firms or plants sited in different geographical locations. Global value chains are international systems set up to optimize production, commercialization and innovation by locating products and processes in different countries to benefit from cost, technological, commercialization, logistical and other differences (Lall, Albaladejo and Zhang, 2004).<sup>2</sup>

A distinction should be drawn between the geographical scope of the chain and its participation in international trade flows. Because the concept of global value chains is well known, value chains are often thought of as being exclusively global. However, in Latin America value chains can often be national or regional, in the case of both primary products and manufactures and services. They are thus production and service supply processes that begin and end within the territory of a single country or interact with one or two neighbouring countries. The methodology set forth in this chapter refers to the analysis of value chains with different geographical scopes.

Diagram III.1 depicts the general structure of a goods value chain. Chain analysis contains at least the following four elements:

- (i) The links and stakeholders that make up the chain. The different stages or steps of the manufacturing and delivery

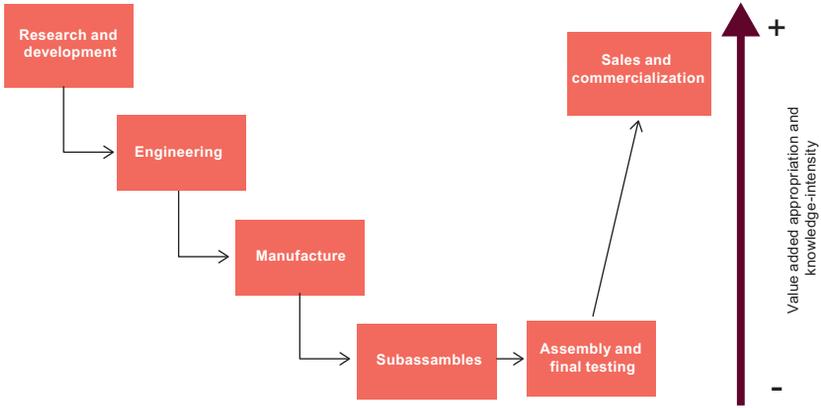
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<sup>2</sup> See further details on global value chains in Gereffi and Fernández-Stark (2011).

of a product or service are known as links. Each link is made up of a set of businesses and producers, who may compete or cooperate in providing that good or service. In diagram III.1, the first link is research and development (R&D) devoted to the creation of new products. This activity is not always present as it depends on the chain's technological intensity. Electronic-goods and pharmaceutical chains conduct intense R&D activities, but apparel and plastics manufacturing chains less so. The second link comprises engineering activities in which a good's functional properties and shape are designed, as are the processes by which the good is to be manufactured. This link tends to be located in the same geographical locality as R&D or in close proximity to production centres. The third link—manufacturing—tends to be capital-intensive (machinery and equipment) for the production of the intermediate goods or components. The fourth and fifth links—assembly, subassemblies and final testing—generally make intensive use of low-skilled labour and pay relatively low wages as they tend to involve routine tasks in which the intermediate goods and components are assembled and tested to produce the final good. The sixth link corresponds to sales, commercialization of the final goods and post-sales services.

- (ii) The relationships or ties between and within links. Although this approach serves to disaggregate the activities and stakeholders making up the chain, the links between them are key to the operation of the chain as a whole. Analysis of the homogeneity or heterogeneity within each link and of the relationships between links are also crucial for targeted public policymaking.
- (iii) Appropriation of value added. Diagram III.1 shows the diverse degrees of value added appropriation and knowledge intensity in each link: the higher up the link, the greater the degree of appropriation. Not all the links or stakeholders within a chain have the same opportunity to capture the value created by the whole chain. In a chain of technology-intensive manufactured goods, the research and development link, along with sales and commercialization, generally capture the largest share of value. Often, the greater the technological complexity intensity of specialized knowledge, the greater the power to capture value added. Accordingly, in the value chain studies performed by ECLAC, what matters is not only the mechanism by which value is added, but also the benefits accruing from the way that value added is distributed.

**Diagram III.1**  
**General structure of a goods value chain**



**Source:** R. Padilla and N. Oddone, *Strengthening Value Chains: A Toolkit* (LC/MEX/L.1218), Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC), 2017.

- (iv) Value chain governance. A study of value chain governance is necessary for analysing the mechanisms, processes and rules by which companies and producers relate to each other economically, as well as with the government and other actors. It thus entails investigating which factors determine the conduct of the chain's agents, on the basis of the types of ties and relationships among them, as well as the confines of the explicit and tacit rules under which they conduct their business.

When analysing a value chain's governance, it is useful to pose a number of questions. Examples include matters regarding the structure within which the stakeholders function and which members have the greatest power and influence. How does the system of incentives work? What regulations govern the members of the chain? How much influence is generated by social and cultural traditions related to the forms and types of production, and what impact do they have on the generation and transfer of new technologies? However, governance is never static. It evolves over time, and that evolution depends not only on changes in the strategies of the companies involved, but also on institutional and technological factors as well as organizational innovations, among other factors (Gereffi, Humphrey and Sturgeon, 2005).

## 2. Strengthening and upgrading

Strengthening is understood as the transformation of a chain by overcoming the bottlenecks encountered in such a way as to increase its contribution to the economic and social development in the territory in which it operates. This transformation may take the form of better linking of chain

stakeholders, the incorporation of new production and support actors, or the economic and social upgrading of links and the chain as a whole.

Economic upgrading, in turn, is understood as the transition towards more technologically complex activities, improvements to the products or services offered by the chain, or the more efficient manufacture of goods or procurement of services (Pietrobelli and Rabellotti, 2006). Economic upgrading may lead to social upgrading in the chain, which translates into a process of improvement in the rights and benefits for workers and higher-quality jobs, as well as an enhancement of the chain's immediate environment (Barrientos and others, 2013). Social upgrading is linked to social cohesion in a given territory, understood as the capacity to increase the well-being of all members of a society based on the creation of a shared sense of belonging on the basis of rights and active participation in promoting mutual trust, providing opportunities and sustaining upward mobility, as well as confronting inequality and exclusion. Inclusion mechanisms extend to employment, the educational system, and the creation of new rights and guarantees for reinforcing equality, well-being and social protection (ECLAC, 2007).

There are four different forms of economic upgrading (Humphrey and Schmitz, 2002; Gereffi, Humphrey and Sturgeon, 2005):

- (i) Product upgrading, which corresponds to the development and commercialization of a new product or a product with improved characteristics.
- (ii) Process upgrading, which results from the introduction of new technologies that offer more efficient techniques for producing or distributing the chain's products or services.
- (iii) Functional upgrading, which occurs when actors in the chain move towards links with greater value added or technological complexity. One example is the gradually increasing share in design activities of companies responsible for the manufacturing link.
- (iv) Value chain upgrading, which consists of movement towards new production activities or value chains by making use of previously acquired knowledge and skills. For instance, knowledge and skills obtained in the electronic sector can be employed to participate in the aeronautic sector.

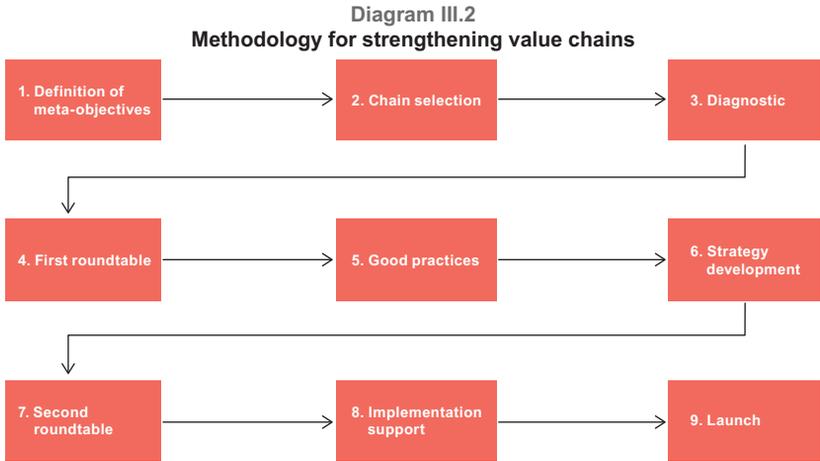
Social upgrading is manifested in: (a) access to more beneficial working conditions, social protection and rights, and (b) positive progress in the chain's social and environmental setting. The first aspect is linked to wage levels, the type of employment (whether formal or informal, full- or part-time), access to social protection, the length of the workday and, in general, respect for human rights. It is also related to the workers' rights

to association and collective organization (Barrientos, Gereffi and Rosi, 2013). The second translates into improvements in the chain’s immediate environment in terms of infrastructure, access to basic services, quality education, and environmental protection, among other effects. As a result, social upgrading offers the opportunity to narrow well-being gaps between individuals and groups, as well as to improve the mechanisms for integrating individuals and groups into the social dynamic and their sense of belonging to society; in short, it leads to greater social cohesion.

It is important to emphasize that although economic and social upgrading are directly related, the second does not always follow the first. Improvements to products and processes, for example, enhance the chain’s efficiency and profits. But transferring these gains to all the links and all the participants in each link depends on diverse factors, such as chain governance, employment structure and level of competition.

### C. Methodology for strengthening value chains

The methodology for strengthening value chains has nine steps (see diagram III.2).<sup>3</sup> This chapter offers a broad description of each step.<sup>4</sup>



**Source:** R. Padilla and N. Oddone, *Strengthening Value Chains: A Toolkit* (LC/MEX/I.1218), Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC), 2017.

<sup>3</sup> For further details on the different steps of this methodology, see Padilla and Oddone (2016).  
<sup>4</sup> The methodology initially published by ECLAC in 2014 (see Oddone, Padilla and Antunes, 2014) included six steps, since the roundtables were included in a horizontal manner, without a predetermined place in the process. However, as a result of practical experience, these roundtables have now been placed specifically after the diagnostic and the strategy development. At the same time, ECLAC has moved towards providing technical assistance for implementation, to the extent permitted by its resources and mandate.

The first step is to define the meta-objectives. These are understood as the ultimate objectives in terms of social and economic development. The meta-objectives should be aligned with the national development plan and related public policies such as those on industry, labour, environment, and science, technology and innovation. Examples of meta-objectives include expanding employment and increasing real wages, driving export growth, encouraging increased participation by micro, small and medium-sized enterprises (MSMEs) and helping to expand domestic output.

The second step is chain selection. In this phase a decision is made as to which chains will be prioritized for the support of both the public and private sectors. The selection criteria must be congruent with the meta-objectives: the potential of the chain to help alleviate poverty, and to contribute to national or regional growth, job creation, export growth, the incorporation of leading-edge technologies and the integration of MSMEs, among others. Other criteria linked to strategic priority policies, such as the development of disadvantaged regions and the reduction of regional asymmetries, are also likely to be included.

The third step is to prepare the diagnostic. The aim of this exercise is to arrive at a detailed identification of bottlenecks and opportunities within each link of the chain, as well as their actual and potential linkages. It begins with mapping the chain, and identifying and delineating the main links and their functions. Then a study is made of six major areas: the chain's national and international context, economic performance (employment, trade, costs and margins, among others), market analysis (competitors, customers, standards and certifications, among others), chain governance, support organizations and environment. Lastly, bottlenecks at the level of each link and the chain as a whole (systemic) are identified.

The first roundtable is organized at the conclusion of the diagnostic, with a view to its discussion and validation. It represents an opportunity to reaffirm the interest in assuring the participation of the chain's main actors and support organizations, which for the most part will already have been interviewed during the diagnostic. The roundtable should last no longer than three hours, in order to facilitate the immediate and ongoing participation of key individuals in the chain. After a brief presentation of the diagnostic, the floor is offered to the participants in order to enrich the analysis and ensure that the bottlenecks and opportunities identified are relevant, and that none have been overlooked.

The fifth step is to analyse international good practices. These provide a reference point for determining the distance separating the value chain under study from similar chains in other countries, as well as the lessons that may be applied in preparing the strategy.

The sixth step is to develop strategies for resolving bottlenecks and taking advantage of opportunities identified in the diagnostic. Specific strategies should be designed at the micro level, ideally projecting timelines, resources and responsible parties.

The second roundtable is then held in order to discuss the strategies. Like the first roundtable, it is designed to enrich the process and to motivate commitment by the individual stakeholders to the actions for which they will be responsible as part of chain development. It is key to carry out a strategy prioritization exercise in which roundtable participants jointly decide on the immediate actions to be implemented.

The eighth step is implementation support. The strategy prioritization agreed upon in the second roundtable will have provided a short list of actions to be implemented in the near term. To the extent of the resources available and the mandate received as a technical assistance organization, progress can be made towards implementation through specific activities such as training representatives of selected links of the chain, developing market analysis or preparing feasibility studies. The task of implementing all the strategies is a long-term one that tends to demand significant financial resources. It is crucial to capitalize on the spirit of cooperation and engagement in the work that tend to accompany this second roundtable, and provide the drive to initiate the activities.

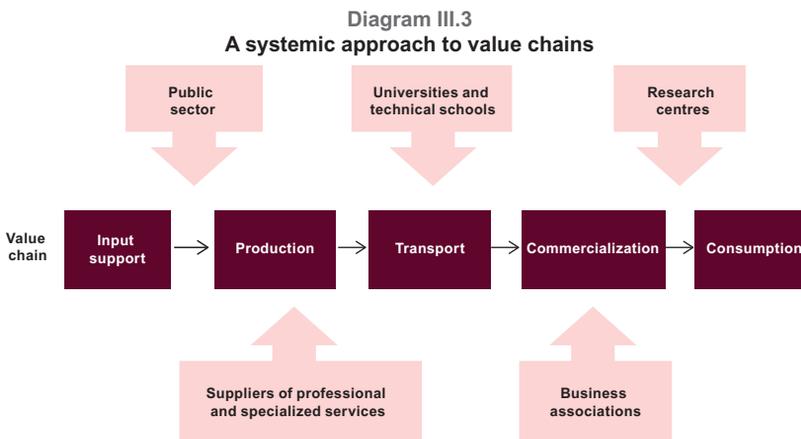
The last step is the launch of the chain strengthening strategy. This is a participatory event to which the media and representatives of the chain's links are invited and at which established commitments are made public. Dissemination of this event fosters public-private consensus between actors and institutions, and serves as a demonstration of effectiveness to other chains that might like to undertake a similar process.

The nine steps of the process generally unfold over a period of eight to nine months, barring any significant delays from information shortfalls or weak public or private sector commitment.

The value chain approach is not new. Its incorporation into the discussion of industrial development dates to at least the early 1980s. However, the ECLAC methodology is distinguished by its systemic and participatory character.

Analysis of the main links and their relationships is complemented by the study of key public and private actors that support, regulate and interact with the chain; herein resides its systemic character. In this sense, the methodology adopts elements of the innovation system focus (Freeman, 1987; Lundvall, 1992; Edquist, 1997), which considers the importance of institutions and organizations in the operation of firms, especially with regard to innovation. The actors can be classified into five categories (see diagram III.3):

- (i) The public sector, which regulates and supports the chain's activities. Diverse bodies that regulate and certify the chain's activities may be involved (for example, those dealing with health, the environment and trade), as well as those that provide support, such as ministries of economic affairs and public agencies for supporting science, technology and innovation and SMEs).
- (ii) Universities and technical schools. These organizations' departments, faculties or schools that are directly related to the chain assume special importance as intermediaries either for the education and training of specialized professionals or for outreach programmes (technical assistance, specially tailored courses, rental of laboratories, and so forth).
- (iii) Research centres. As in the case of universities and technical colleges, it is necessary to identify the department directly related to the chain. These centres also conduct training and outreach efforts.
- (iv) Suppliers of professional and specialized services. Such services are playing an increasing role in the chains of primary and manufactured goods and are being supplied mainly by private bodies. They cover a broad spectrum of services including logistics, equipment and machinery rentals, certifications, testing and commercialization as indicated in diagram III.3.
- (v) Business associations. These support the development of value chains through a range of activities such as political representation, liaison facilitation and the procurement of technical assistance services.



**Source:** R. Padilla and N. Oddone, *Strengthening Value Chains: A Toolkit* (LC/MEX/L.1218), Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC), 2017.

A second distinctive feature of the ECLAC methodology is its participatory nature, which is most evident in two dimensions. On one hand, the chain's stakeholders (with a systemic focus), are involved in the preparation of the diagnostic (focus groups, interviews), as well as the validation of the diagnostic and of the strategies by means of the roundtable. This achieves a stronger commitment to the analysis, transparency in decision-making, and agreement-building for strengthening the chain. On the other hand, the entire process is developed jointly with public officials in an effort to empower the stakeholders and achieve appropriation of the methodology.

The value chain methodology offers the opportunity to incorporate analysis and generate innovative strategies for two fundamental aspects of the international cooperation for development agenda: women's empowerment for reducing inequality and environmental stewardship. For that reason, over the course of studies conducted using the ECLAC methodology, the technical teams have emphasized aspects of gender and environmental issues as major variables in developing a modern industrial policy. *Strengthening Value Chains: A Toolkit* gives more details on these two cross-cutting themes.

The main outcomes of the process may be summed up in three main areas:

- (i) Design of participatory strategies for chain strengthening. Strategy design is based on a diagnostic of the value chain's situation (with a focus on bottlenecks), and on the identification of international good practices. With those in mind, a document is prepared containing three main sections: diagnostic, good practices and strategies. These components are validated by the public bodies acting as counterparts, as well as by members of the chains through the roundtable and direct observations regarding the documents. National governments are responsible for implementing the strategies, either using their own funds or with support from international financial agencies.
- (ii) Appropriation and methodological replicability. The ECLAC methodology has been adopted by public bodies in Central America, Mexico and the Dominican Republic. El Salvador's Ministry of Economic Affairs officially incorporated the methodology into its 2014-2019 industrial transformation plan. It was adopted, too, by the roundtable on the development of productive chains of Mexico's business council for economic growth, in light of the experience with the chain of pork

sausages and other cured pork products. The ECLAC support strategy includes knowledge transfer and capability-building for public officials.

- (iii) Improve public-public, private-private and public-private dialogue. The methodology is focused on enriching public-private dialogue as a key element in the development of an industrial policy. By working together, the public and private sectors can define and implement a production development agenda in which private sector actors participate as advisers in the design, execution, monitoring and evaluation of public policies and programmes, legislation, regulations and technical specifications. The methodology also stimulates dialogue between the public organizations that regulate and support the chain. The roundtable help to provide a detailed understanding of the activities each organization is engaged in, as well as the challenges they face. The process allows for the creation of specific public commissions to address bottlenecks in the chain. Lastly, it also promotes collaboration between the diverse links of the chain and within each link.

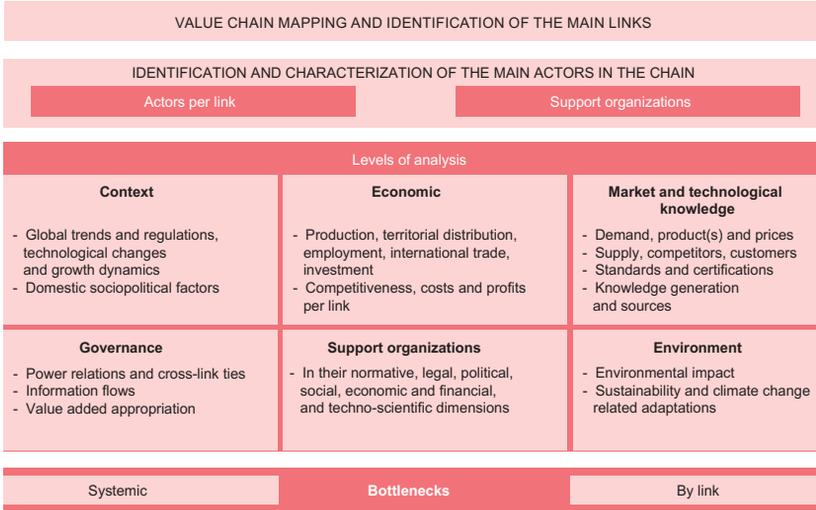
The first two steps of the methodology—identification of meta-objectives and the chain selection—are analysed in detailed in chapter IV. The other steps are addressed in the sections below.

## **D. Diagnostic**

The diagnostic study is directed at identifying potential bottlenecks in the value chain which are preventing it from growing stronger. Bottlenecks are the barriers or problems faced by links in the chain or the chain as a whole (systemic bottlenecks), that impede their proper functioning or linking, as well as their economic and social upgrading. The process of resolving such bottlenecks is understood as value chain strengthening.

Diagram III.4 summarizes the components of the diagnostic. It begins by mapping the chain and identifying its links and main actors. This is followed by an analysis of the chain's international and national context, its economic characteristics, market and governance conditions, relevant support institutions and environmental considerations. It must always be recalled, at each step, that the purpose is to identify bottlenecks. The *Toolkit* offers more details on the process of mapping the chain and identifying support institutions.

**Diagram III.4**  
**Diagnostic of the chain**



**Source:** R. Padilla and N. Oddone, *Strengthening Value Chains: A Toolkit* (LC/MEX/I.1218), Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC), 2017.

Following diagram III.4, a list of questions has been drawn up, corresponding to the various segments. These are applicable to the core actors of each link and to the network of support organizations. The topics and questions included in the list make up a methodological guide, which must be adapted for each chain in keeping with its context and characteristics, as well as its relationship to the meta-objectives.

**Box III.1**  
**Baseline questions for the diagnostic**

**Mapping the chain**

Mapping the chain helps to identify the actors and relationships within the links and to determine what information needs to be compiled and where the fieldwork will be conducted.

List of questions

- What is the value chain’s core (its key transformation process)?
- What main inputs (raw materials, components, intermediate goods) does the core need?
- What are the core’s machinery and equipment requirements?
- What commercialization and distribution channels exist for the chain’s main product or service?
- Who are the consumers of the chain’s core product or service?
- What are the main characteristics of each link’s products or services, especially the production factors used and the life cycle?

## Box III.1 (continued)

**Context analysis**

General chain considerations regarding the sectoral, national, regional and international context:

- What are the national trends that characterize the sector of which the chain is part (production, employment, foreign trade, main enterprises, degree of concentration)?
- What are the international trends of the sector to which the value chain belongs (production, employment, trade, main enterprises, degree of concentration)?
- What is the technological dynamic of the chain's main good or service (new product technologies or processes that could influence the chain's behaviour)?

**Economic analysis**

In terms of production, investment and territorial distribution:

- How has the chain's structure evolved in the past five years? Have new actors emerged or existing ones disappeared?
- What is the origin of capital for each of the links (are they domestic or foreign-owned companies)?
- What is the most frequent type of company (large, medium-sized, small, micro) in each of the links in the chain?
- What is the dynamic of new firm establishments/closures in each of the links in the chain?
- What is the chain's level of production (value of sales, value added)?
- How has the chain's production evolved in the past five years?
- Have significant investments (asset purchases, infrastructure investment, etc.) been made in the value chain's links in the past five years?
- What is the territorial distribution of the actors and links of the value chain in the country or the region?
- What are the characteristics of the commercial links in the chain? For example, does the producer also handle commercialization?
- What are the characteristics of the logistical linkages? That is, what costs do they entail and who covers them? For example, is the producer also handling transport?
- What form of transport is used for bringing the chain's products and services to market?
- What are the characteristics of the production process? Describe the steps.
- What are the main technologies used (machinery and equipment, specialized knowledge, etc.)?

In relation to employment:

- How much employment (number of full-time and part-time employees) is generated by each link in the chain and how are those jobs distributed per enterprise within each link?
- What types of skilled and unskilled jobs are created in the chain, and how do they break down by gender and educational level?
- How has employment evolved in each link of the chain in the past five years?
- What is the average wage paid in each link?
- How have the wages offered evolved in the past five years?
- How many women are participating in the chain and what does their participation consist of?

## Box III.1 (continued)

- 
- What comparative advantages are provided by the work of women in the chain?
  - What gender differences exist in terms of wages and value added appropriation?

In relation to foreign trade:

- What amount of the chain's final product has been exported in the past three years? If more than one link exports a final or intermediate good, take into account the exports of each.
- What share of the export market does the chain's final product command in the main destination markets (export competitiveness)?
- How has foreign demand for the chain's final product evolved? Has demand for it grown or fallen in the past five years?
- How have imports and the mix of their countries of origin evolved in the past five years for those links in the chain that need them?
- Are there imports of products that are similar to or can substitute goods produced by the chain? If so, what countries supply them?
- Are there barriers (costs, availability, infrastructure, etc.) to commercialization and distribution?

In relation to competitiveness, costs and profit margins:

- What are the core competitiveness drivers of the links in the chain? In other words, on the basis of what strategy or comparative advantage (technological or market knowledge, low labour costs, geographical localization, participation in networks, access to natural resources, etc.) do they compete?
- What endogenous factors (human resources, technological and productive capabilities, capital) and exogenous factors (regulations, entry barriers, lack of financing supply) limit the competitiveness of each link of the chain?
- What are the average production costs in each link of the chain?
- What are the average profit margins in each link of the chain?
- What barriers arise when the links of the chain try to obtain financing (lack of guarantees, high interest rates, absence of proper financial instruments, lack of credit availability in the formal financial sector)?
- What are the costs of entering the chain (for example, start-up investment and operating costs)?

### **Market and technological knowledge**

In relation to market analysis:

- Who are the chain's main consumers and are they domestic or foreign?
  - What are the characteristics of main customers in terms of buying power, geographical location, habits and customs, and sociodemographic features?
  - What are the current and projected consumption trends for the chain's products in their main target markets?
  - Who are the chain's main competitors, both domestic and foreign?
  - What are the competitors' characteristics in terms of the origin of their capital, technological and productive capabilities, and market share, among others?
  - What strategies have competitors developed for gaining access to new markets?
  - Has the chain benefited from international trade agreements (tariffs, quotas, etc.)?
  - What tariff conditions apply to the chain's main products?
-

## Box III.1 (continued)

In relation to market requirements and standards:

- What quality standards must the chain's products comply with?
- What domestic and/or international norms and parameters govern production and commercialization of the chain's main products?
- Are actors in the chain aware of the need to abide by rules, norms and standards?

In relation to technological knowledge:

- Are formal and informal research, development and innovation (R&D) activities conducted within the links of the chain? If so, how many of them receive public support?
- What are the main sources of knowledge (universities, research centres, consultancies, recruiters of specialized human resources, etc.) in each link of the chain?
- What mechanisms exist for transferring knowledge and technologies to the chain's links?
- Is there a supply of technical training and/or higher education focused on the chain?

### **Governance analysis**

- What is the chain's structure (is it dominated by buyers, suppliers, intermediaries, etc.)?
- Who are the dominant links or actors in the chain?
- What type of power relations do the dominant links exert (service procurement, purchasing, knowledge, access to networks, standard price setting, financing)?
- What is the nature of relations (formal and informal) between the various links (vertical and horizontal)? How often do these interactions occur? Are they of good or poor quality?
- What share does each link have in the chain's total value added? Have formal or informal association schemes arisen in the chain (cooperatives, trade associations, chambers of commerce)?
- If the chain is internationalized, is it integrated into global networks?
- How are the global networks in which the value chain participates organized?
- Is there vertical or horizontal integration along the chain? Do industrial clusters and specialization groups and networks operate in the chain?
- What common communication and information-exchange practices are there in the chain?
- What degree of trust exists among the actors both within each link and along the chain?

### **Analysis of support institutions**

- What are the main public organizations participating in or supporting the value chain?
- What type of incentives and support mechanisms exist for the value chain, including those of a fiscal nature?
- More specifically, are there incentives for research, cooperation programmes, product design or the incorporation of new technologies?
- Does public support exist for gaining access to more financing under better conditions?

## Box III.1 (concluded)

- 
- Have agreements been reached with universities and/or technical schools for education and training? Do ties exist with universities and/ or research centres for research, development and innovation purposes?
  - Are there business chambers or associations comprising and representing the actors from the central link of the chain? If so, what role do they play?
  - Does the chain have access to specialized support services (certifications, technical assistance or marketing)?

**Environment-related analysis**

The most common questions when analysing environmental questions in the development of value chains concern the following matters:

- Do the chain's production and processing activities generate adverse environmental effects?
- What sources of energy are being used and how energy-efficient is each link?
- What water resource management is used in the different links of the chain?
- What type and quantity of chemical products are used in the different chain processes?
- What wastes are discharged into the environment and how are they managed in the different links?
- Do the links' various production processes generate greenhouse gases or other pollutant emissions?
- What other potential sources of pollution are there, such as acidification and eutrophication?
- Are the firms taking climate change mitigation or adaptation measures?
- Is climate change affecting the chain's activities?
- Are measures being taken to mitigate climate change impact in the chain's activities?

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**Source:** R. Padilla and N. Oddone, *Strengthening Value Chains: A Toolkit* (LC/MEX/I.1218), Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC), 2017.

The guide assumes broad access to information regarding the chain under study, although it can be adapted if information is too limited. Nevertheless, it is advisable to try to cover all the diagnostic elements, as they are necessary for maintaining the study's systemic focus and ensuring that all possible areas of bottlenecks and opportunities in the chain have been explored.

It is especially important to have a local expert consultant to help with the diagnostic and the organization of the roundtable. An understanding of each chain's strengths and bottlenecks demands specialized knowledge of the sort that can only be acquired through direct contact with the actors. A local consultant is also valuable in identifying the key actors who must be interviewed and invited to the roundtables.

## E. Roundtables

One of the most distinctive features of the methodology for value chain strengthening is that it is built around spaces for dialogue among the chains' stakeholders and with support organizations. This section offers

a brief description of these spaces (for more details, see Rayo, 2014). The roundtables constitute a process of communication and cooperation on a specific topic between the stakeholders who must collaborate for their mutual development and that of relational system to which they belong (identification of solutions and their application).

A roundtable offers the opportunity to discuss a well-defined objective, in order to identify and put into practice solutions that go beyond individual decisions. These talks serve as collaborative platforms for the exchange of ideas and the expedite application of courses of action. They may also come to be regarded as a forum for public policy consultations or suggestions.

The methodology for value chain strengthening proposes the organization of roundtables at two specific points in the process: the validation and enrichment of the diagnostic and the strategies. The roundtables tend to be convened by the public and private sectors, and are attended by representatives of the links in the value chain and support organizations. The discussion facilitates advances in analysing the preliminary results obtained in the diagnostic and in the formulation of the proposed strategies. It also fosters transparency and commitment to the process by the stakeholders.

Opportunities for discussion spaces between key stakeholders are increasingly important and necessary for developing integrated and sustainable initiatives. The creation of discussion forums like these contributes to the partnership-building and the emergence of joint public and private projects, both by bringing together the actors and by collective solution-building. Despite these benefits, dialogue is not a common practice within value chains.

Both consultative (short-term), and cooperative (medium-term, long-term or permanent) roundtables exist. The former constitute a valuable bridge for consulting, validating and generating contributions to policymaking. The latter, being more permanent, provide an opportunity to advance toward the implementation stage. In the framework of the ECLAC methodology, the first type of roundtable was employed throughout the support process (diagnostic and strategic dialogue platforms), although it has evolved toward a more cooperative mechanism with a long-term working agenda (see table III.2).

There are three key factors in the selection of the stakeholders to participate in a roundtable: the intended objective, the level at which the process is to be conducted (international, regional, national or local) and the nature of the discussion (consultative or cooperative). The participating stakeholders should be directly related to the respective chain. They are identified and selected based on their representation in the chain, on the basis of the interviews conducted for the diagnostic. Their territorial representation, scale of business and weight in private sector associations

should also be taken into account. In the case of public sector organizations with ties to the chain, the effort must be made to involve all those which to a greater or lesser extent comprise the industrial fabric within which the chain’s stakeholders work and interact.

**Table III.2**  
**Dialogue spaces: types and characteristics**

Consultative dialogues	Cooperative dialogues
<b>Characteristics</b>	
The stakeholders contribute their knowledge, points of view and experiences. The initiators of the dialogue are usually responsible for subsequent implementation of recommendations and conclusions.	The stakeholders share responsibility and actively collaborate to implement solutions or actions. The greater the emphasis on implementation, the greater the willingness to cooperate and assume responsibility for achievements.
<b>Subcategories</b>	
<ul style="list-style-type: none"> <li>- Individual/group consultation</li> <li>- Institutionalized consultation.</li> <li>- Multi-stakeholder platform for discussion</li> </ul>	<ul style="list-style-type: none"> <li>- Multi-stakeholder initiative.</li> <li>- Multi-stakeholder platform for implementation.</li> <li>- Association of key stakeholders.</li> </ul>

**Source:** R. Padilla and N. Oddone, *Strengthening Value Chains: A Toolkit* (LC/MEX/I.1218), Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC), 2017.

The following factors are essential for the success of the value chain dialogues:

- Commitment of the public sector and coordination with it.
- Clear, concise agendas.
- Detailed knowledge of each actor’s characteristics.
- Knowledge of dialogue and conflict management principles.
- Quick outcomes and dissemination of results.
- Strengthening human relations and association processes among the actors that comprise different links in the chain.

The roundtables tend to generate great expectations and can occasionally lead to conflicts. Usually, the participants (public officials, producers, intermediaries, suppliers of inputs, commercialization agents and distributors) have not been in the habit of attending such meetings together. For that reason, it is useful to have a participatory methodology so that, if the participants are willing, it will be possible to transition from a consultative (short-term) roundtable to a cooperative (long-term) one. It is best to clearly describe the objectives of the talks and to strictly limit speaking times so that the meetings do not overrun or turn into platforms for personal interests or for raising unrealistic requests. Limiting the roundtables to just two—one to validate the diagnostic and another to agree on the strategies—has proven to be a good practice. When more meetings are held, interest tends to ebb or confusion arises as to the

amount of time and steps necessary for completing the process. It is also advisable to avoid the diagnostic and strategy design becoming politicized or the stakeholders feeling they are caught up in a political process for which they did not sign up. Credibility is essential to engage private sector participation and follow through with strategy implementation.

## F. Good practices

The diagnostic provides fundamental information for ascertaining the current situation in a specific value chain, especially the bottlenecks and opportunities involved. The diagnostic is a first step towards defining the strategies for resolving or minimizing the bottlenecks, as well as for taking advantage of opportunities, with an eye to achieving the meta-objectives set for the development of the value chain. Even so, the identification of bottlenecks and opportunities, though necessary for defining actions and policies, is insufficient. Accordingly, it is useful to examine other comparable realities in order to identify experiences and extract lessons about how similar barriers have been overcome in different contexts.

Research into good practices is based on the selective observation of a number of experiences in different contexts, in order to extract more generalizable principles (Overman and Boyd, 1994).<sup>5</sup> It is a structured process far removed from informal exercises in the search for and description of successful practices. From this perspective, it is necessary to observe what questions have proven useful for solving similar problems in other chains, what factors determined their success—generally factors of “context”, such as legal or regulatory aspects and inter-institutional agreements—and what the real possibilities are of being able to recreate these contextual elements in order to replicate the practice.

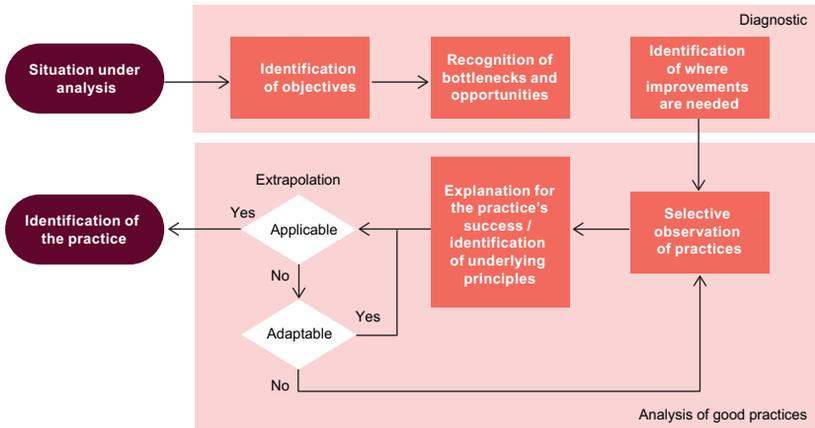
The process of searching for good practices and especially for explanations of the success of observed practices can be conducted informally or through structured mechanisms. In the context of the value chain strengthening methodology, the use of a formal process of critical analysis of observed practices facilitates adaptation to the situation in need of transformation. It begins by familiarization with the problem or bottleneck that the value chain needs to resolve through the application of the good practice (see diagram III.5). As a first step, a list of bottlenecks is made and compared with the practices observed in other situations, beginning with a general description, the results obtained and the

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<sup>5</sup> It is important to clarify that in this methodology the adjective “good” is used in relation to practices. Other studies, however, commonly refer to “best practices”. The analysis of a set of practices does not preclude the possibility that there might exist better practices outside the context analysed, so there is no way to be certain that the practice to be replicated is really the “best”. Owing to this non-universality, this toolkit uses the term “good practices”. The term “smart practices” is also commonly used.

contextual elements. On this last point, the data obtained can be used, for example, to determine up to what point the practice is usable regardless of the context (application) or whether there is some condition that would have to be reproduced in order for the practice to have the desired success (adaptation). If the application and the adaptation of the good practice prove impossible, the search must begin again elsewhere.

**Diagram III.5**  
**Process of good practice analysis**



**Source:** N. Oddone, R. Padilla and B. Antunes, "Methodology of the ECLAC-GIZ project for the design of value chain strengthening strategies", *Strengthening value chains as an industrial policy instrument. Methodology and experience of ECLAC in Central America*, ECLAC Books, No. 123 (LC/G.2606-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2014.

It is acceptable to use a qualitative approach to identifying good practices, as long as priority is given to finding practices that have the potential to resolve the deficiencies found in the situation at hand, and that are effective and sustainable. This coincides with the definition that a good practice has the capacity to effect real changes in the desired direction when there is an innovative, replicable and sustainable approach (Rhi-Sausi, Conato and Lamela, 2011). It is also possible to employ a quantitative approach to identify possible good practices using statistical techniques for analysing and identifying the outcomes of different practices in terms of universality and mutual comparison. These good practice search procedures are more commonly referred to as benchmarking.

The transfer or incorporation of the identified practice to another context is referred to as extrapolation and can be interpreted in various ways. If the practices being observed are formally analysed as part of the extrapolation, this will then facilitate the practice's adaptation to the situation at hand. It is also necessary to make sure that the counterparts involved are open to the changes that will arise as a result of this process. When analysing

the context, special attention must be paid to the level of development of the country in which the practice was observed, given that this is a key factor in determining whether the transfer to the new situation will be possible or successful (Vesely, 2011). In order to extrapolate to a less developed chain a measure that was applied in a much more advanced chain in a more favourable context, the context must be carefully analysed in order to identify the underlying success factors and any adaptations that will be needed. It is essential to evaluate the implementation and outcomes of actions under study for replication, as part of the follow-up to good practice analysis. This will help to determine whether additional adaptation measures will be needed in order to achieve the desired objectives, including the meta-objectives, as well as to improve the good practice analysis and extrapolation process.

While the search for good practices can produce valuable results, certain empirical risks can affect their interpretation. Firstly, and as has occurred in most of the cases studied, the information on practices may not be readily available. More specifically, information regarding practices aimed at improving the performance of private sector economic agents may be considered privileged or confidential. Secondly, even where information is not confidential, it may not be registered anywhere or the actors involved may be unwilling to make it public, making it difficult to use that information in the process of analysing measures that have been successful. But even in this scenario, there are still opportunities to manage the knowledge obtained from good practice research.

## **G. Strategies, implementation support and launch**

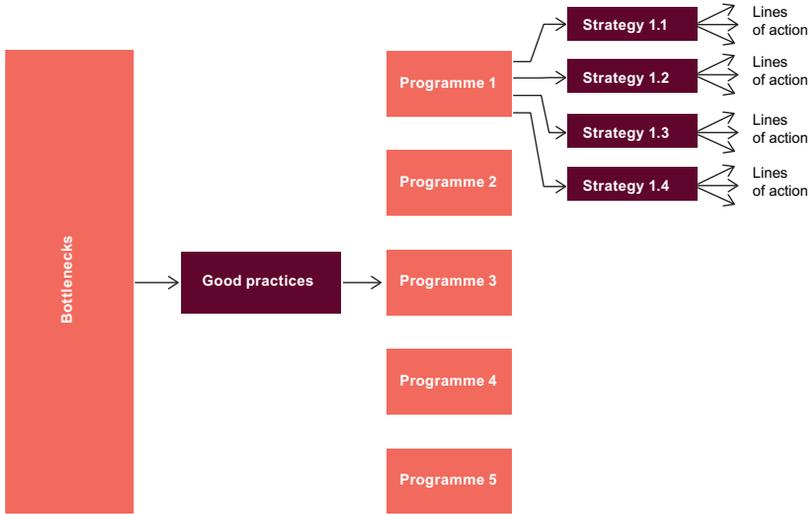
This section describes the final three steps in the methodology: strategy development, implementation support and launch.

### **1. Strategy development**

Strategies are the principal means for resolving each bottleneck observed in a chain. They are usually based on researched good practices, and on other sources of knowledge, analysis and reflection, such as interviews with specialists or prominent experts.

Strategies are organized by programmes, which are the main topics around which the action for strengthening the chain has been planned and systematized. They are built around lines of action aimed at strengthening the chain and creating the conditions for this to be achieved, and they are directed at all the chain's stakeholders, not just the public sector (see diagram III.6). Strategies must specify each stakeholder's actions to strengthen the chain, and they are supported by the consensus-building and agreements arrived at in the roundtables.

**Diagram III.6**  
**Process of strategy development**

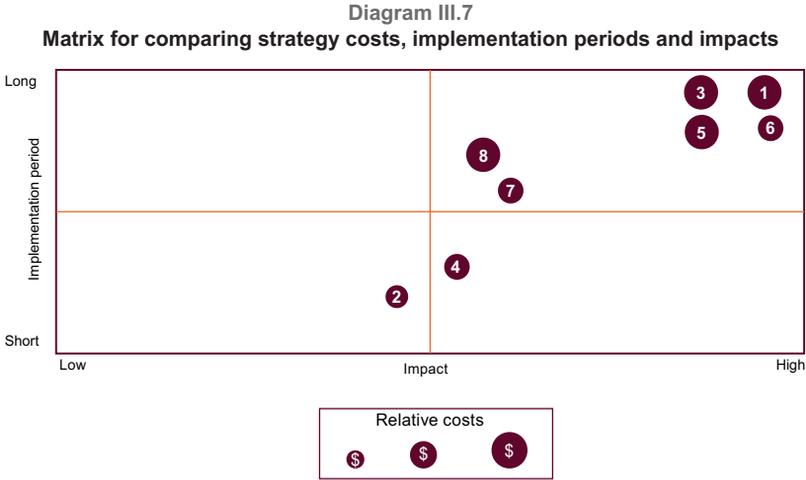


**Source:** N. Oddone, R. Padilla and B. Antunes, “Methodology of the ECLAC-GIZ project for the design of value chain strengthening strategies”, *Strengthening value chains as an industrial policy instrument. Methodology and experience of ECLAC in Central America*, ECLAC Books, No. 123 (LC/G.2606-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2014.

There is no maximum or minimum number of strategies for each programme or lines of action for each strategy. The needs and capabilities in a chain are the basis for defining the breadth and depth of actions required by each link and by the system overall.

As the programme’s name indicates the area of intervention, it should be formulated in general terms, for example: “strengthening the innovation capabilities of the chain’s producers”. The strategies identify in greater detail the actions laid out in the programme, for example: “increase the resources available for hiring qualified personnel” or “strengthen business ties with specialized research centres”. The lines of action set forth specific activities for fulfilling the strategies, for example, “establish an exchange programme between university researchers and enterprises on selected topics that are crucial for developing the chain”.

A strategy comparison matrix is useful to help policymakers and private sector stakeholders to establish priorities among the various strategies designed, taking into account cost, implementation timescale and relative impact (see diagram III.7). The matrix is a tool for facilitating decision-making on the basis of political will, financial resources and time available for execution. The Y-axis represents the implementation period, from short to long; the X-axis represents the strategy impact, from low to high. The size of each circle indicates each strategy’s relative cost.



**Source:** N. Oddone, R. Padilla and B. Antunes, "Methodology of the ECLAC-GIZ project for the design of value chain strengthening strategies", *Strengthening value chains as an industrial policy instrument. Methodology and experience of ECLAC in Central America*, ECLAC Books, No. 123 (LC/G.2606-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2014.

This is a steering exercise and it is built on the knowledge and experience developed by those responsible for the chain strengthening process. A more precise exercise for defining costs, times and impacts would entail considerable additional efforts and is therefore proposed for a later phase of the process.

An important component of strategy development is the effort made to evaluate and monitor its instrumentation. The evaluation process must include a measurement system with quantitative or qualitative indicators to estimate the progress achieved. To that end, a list of indicators must be compiled for each programme, linked to the meta-objectives agreed upon and the strategies designed for each chain. These indicators will help to monitor the strategy implementation, follow up on the agreements reached, and achieve the meta-objectives established. Before beginning programme and strategy implementation, it is necessary to establish a baseline and target for each indicator.

## 2. Implementation support

Strategies and lines of action are specific and targeted, two basic conditions for quickly initiating the execution of chain strengthening activities. The main challenge identified by ECLAC in the countries of the region was the lack of public financial resources with which to put the strategies into practice. ECLAC has provided technical assistance specifically for promoting public-private processes of value chain strengthening

and building on the commitment of the stakeholders, which is usually strongest by the conclusion of the second roundtable.

Implementation support has been provided through three mechanisms:

- (i) Assistance for managing domestic public funding, in turn by means of three mechanisms. The first is the identification of strategies that do not require significantly greater funding, such as the drafting of new laws or regulations or changes to existing ones, and the modification of administrative procedures. These actions often have a significant effect on the operation of the chain and they are inexpensive to do. Second, consultancy can be provided to the partner public body for raising specific resources to support a chain; for example, the Ministry of Economic Affairs can request additional funds from the Office of the President or the Ministry of Finance, on the basis of diagnostic and strategy documentation, and the outcomes of the roundtables. Third is to promote a shift in existing programmes to specifically include the respective value chain strengthening; for example, by opening a special line of credit for small rural producers of the chosen chain as part of an existing rural financing programme.
- (ii) Specific support for managing international cooperation funding. The diagnostic, strategies and roundtable outcomes can be used as a basis to negotiate financing from international cooperation agencies and international banks. For example, in Guatemala the Ministry of Economic Affairs (MINECO) applied funds drawn from a World Bank loan to support the strategies designed, with technical assistance from ECLAC, for the export vegetable value chain. Similarly, and as part of one of its cooperation programmes in Central America, the German Agency for International Cooperation (GIZ) opened a special credit line in Guatemala to support chosen value chains.
- (iii) Specific assistance for the implementation of lines of action related to training or the formulation of specific plans arising from the strategies. The set of strategies proposed for strengthening the chains often includes training needs on specific topics for stakeholder capacity-building, as well as feasibility studies and the formulation of particular execution plans. For example, as part of the process of strengthening the tourism value chain in La Libertad (El Salvador), the Ministry of Tourism asked ECLAC to provide a training course for local suppliers of tourism services on on-line marketing tools.

Strategy implementation is also facilitated by institutionalizing the roundtables as mechanisms for joint work. As noted earlier, the roundtables initially play an advisory role and are convened for very specific tasks: discussing the diagnostic and strategies. However, if the stakeholders become organized and the roundtables develop into cooperative forums, then efforts to build the value chain are significantly strengthened. The establishment of cooperative instances supports collective decision-making, empowers the chain's stakeholders, promotes accountability and galvanizes action and public sector commitment.

### **3. Launch**

The launch is the final step of the methodology. It is a participatory event to which the chain's private and public actors are convened, and it is held with media attendance. It involves a presentation of the main results in terms of the bottlenecks identified, the strategies defined and implementation support—and announcement of the commitments undertaken. It has two main purposes:

- (i) To strengthen the commitment of the chain's stakeholders and broadcast the agreements reached, and
- (ii) To disseminate the results achieved and spark interest among other chains that might wish to embark on a similar process.

In the experience of ECLAC, the event is convened by the public sector in association with the private sector. Some key points to ensure that the launch fulfils its main objectives are:

- (i) Ensure the broadest possible participation by the chain's stakeholders, and by public and private support organizations;
- (ii) Make sure it is attended by high-level public and private representatives such as cabinet ministers and vice-ministers, heads of business chambers and cooperative leaders, among others; and
- (iii) Announce public and private sector commitments, and the financial resources committed for strategy implementation.

## **H. Concluding reflections**

Designing public sector interventions in value chains is a very useful strategy for facilitating industrial policy implementation, because it helps to target strategic investments on resolving the bottlenecks that affect each link, organize and systematize public interventions by an order of priority agreed upon with private sector stakeholders, and streamline coordination of support for the chain by public entities. Over the long run, as strategies

are implemented, progress is made towards progressive structural change, thanks to economic and social upgrading of value chains.

The methodology revolves around identifying bottlenecks that can hinder the upgrading of the diverse links of the value chain, focusing both on each link and on the chain as a whole. The methodology also leads to identifying public-private strategies for overcoming existing bottlenecks, among other things, through product and process innovation, quality enhancement procedures, business skills building, sharing of market information and export promotion. Bottleneck analysis and strategy design are conducted in close collaboration with those who make up each link of the chain, whether producers or other private sector actors (for example, suppliers of goods and services, intermediaries and distributors), the public organizations involved and the academic sector.

Four strengths distinguish the methodology. First, it conducts a thorough microeconomic analysis, both in examining the value chain in the context of the diagnostic and in proposing strategies. This microeconomic focus helps to identify the bottlenecks in specific links, identify any missing links and find any weaknesses between the existing links. Because of their degree of aggregation, diagnostics of overall sectors are unlikely to supply this information, which is crucial for designing targeted strategies. Moreover, this approach facilitates the design of programmes for the inclusion of small producers in the production process, and takes into account factors such as gender and environment.

Second, the methodology is participatory throughout the entire process. One of the central elements is the organization of roundtables to analyse and validate the diagnostic and proposed strategies. A wide range of chain stakeholders attend those roundtables (including producers, intermediaries, suppliers of inputs and services, wholesale and retail merchants and others), as well as representatives of the relevant public bodies (ministries of the economy, environment, education, science and technology, agriculture and healthcare, among others), non-governmental organizations, universities and firms that certify compliance with environmental protection standards. The roundtables offer a transparent mechanism for analysis and decision-making that favours the adoption of agreements between the public and private sectors.

It warrants mention that, following the diagnostic and strategy proposal by ECLAC, a number of public-private dialogue mechanisms have become established in each value chain. For example, the Association of Dried Fruit Producers of El Salvador (ADEFRUDELSAL) and the reactivation of the Vegetable Dialogue Roundtable in the same distribution country. Public-private dialogue is generally based on a balanced distribution

of responsibilities, costs, risks and benefits among the stakeholders involved. The public and the private sector both have responsibilities that complement, but cannot replace, each other. Consequently, actions by the private sector must be considered a complement to the efforts of the public sector, and not as a substitute for its responsibilities (Oddone and Rodríguez, 2015).

The third strength of the methodology is that it supports the development of local capabilities. Public officials and, in some cases, representatives of private organizations such as business associations actively participate in all phases of the process. These parties contribute information for preparing the diagnostics, support those responsible for the carrying out the field study, support the organization of the roundtables and provide inputs for strategy formulation. In addition, technical assistance is often accompanied by workshops for training civil servants to prepare them to apply the methodology in future activities. In addition, the value chain strengthen methodology developed by ECLAC has been improved and strengthened by discussion in academic circles in Latin America and the Caribbean where it has been presented.

Fourth, the methodology is based on a systemic industrial policy focus. Support for the chains is not centred exclusively on the main link—producers of final goods and services—but rather extends to the suppliers of inputs and equipment, services (quality control, dissemination of new technologies and transport, among others) and commercialization. Value chain strengthening demands the reinforcement of each link, the consolidation of relationships between all of them, and capacity-building among the institutions that provide them with support (universities, research centres, business associations and certification bodies, among others).

Although the cases presented in this book pertain to rural areas, the toolkit is not geared exclusively towards the value chains of any specific sector. On the contrary, it has been applied to chains of primary products, manufactures and services, as well. The general structure of the nine steps and each of their contents have been conceived for acting upon chains that are already in operation, but it could be adjusted for chains that are beginning to form or are to be developed. For example, instead of diagnostics, it would be necessary to conduct market and feasibility studies (for greater details on the case of vacuum-fried chips in Costa Rica, see Cordero and Padilla Pérez, 2016).

Lastly, readers interested in applying this methodology are invited to consult the full publications on each value chain, which summarize the diagnostic, good practices and strategy development in each case.

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## Chapter IV

# Value chain selection and industrial policy

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### Introduction

Targeted government policies to strengthen value chains often require a selection process. Because human and financial resources are limited, governments need to choose where to concentrate public policy efforts among numerous value chains making up a country's or a region's productive structure in the short term.

However, policymakers in Latin America and the Caribbean are often reluctant to make these choices. On the one hand, the practice of picking winners and supporting industrial champions has long been criticized owing to the possibility of introducing market distortions, the perceived inability of governments to effectively identify strategic industries and sectors, and the possibility of falling victim to private sector rent-seeking pressures (Pack and Saggi, 2006; Pack, 2000; Krueger, 1990; Schultze, 1983). Accordingly, it is essential to devise a transparent and objective selection process.

Selection does not mean that the public sector will raise barriers or deny support to other value chains. The chains selected will receive temporary support based on a clearly defined strategic plan and follow-up indicators. In successful cases in East Asia, support for strategic sectors

was regularly reviewed, which led to the selection of new emerging industries on the basis of the newly developed national production and technological capacities, as well as the withdrawal of government benefits from those that had matured (Hobday, 1995; Amsden, 1989; Enos and Park, 1988).

The legitimacy, robustness and objectivity of the selection depend in large part on the process being informed by strategic and economic criteria, i.e. consistently with development plans and sector-specific plans formulated by governments, and on the basis of each value chain's potential to contribute to economic and social development. This chapter presents the methodology for value chain selection developed by ECLAC.

This chapter has five sections. The first (section A) reviews concepts and examines different arguments concerning whether it is advisable or necessary to select value chains. Section B looks at recent cases in which governments of the region, with support from international agencies and consulting firms, have selected particular sectors as part of their development strategies. Section C offers a methodological proposal for chain selection, and section D discusses the construction of indicators on the basis of the meta-objectives proposed and considers the importance of using both prospective variables and qualitative criteria in the selection process. Lastly, section E draws conclusions and offers final reflections on the strengths, limitations and challenges involved in selecting value chains.

## **A. Why are value chains selected?**

There are diverse arguments in the economic literature on the industrial policy framework testifying to the importance of selecting sectors. This section discusses five approaches which offer complementary visions of the subject.

### **1. Do horizontal industrial policies really exist?**

Whether or not to target particular producers, firms, industries or regions through industrial policy measures —referred to as “picking winners”— has been one of the most controversial industrial policy issues of recent years (Salazar-Xirinachs, Nübler and Kozul-Wright, 2014). Authors such as Chang (2010) and Stiglitz, Lin and Monga (2013) argue that the distinction between horizontal measures —which are sector-neutral— and vertical measures —which support specific industries, firms or regions— is actually a false distinction, insofar as most general policy measures favour one group more than others.

Policies which are traditionally considered to be horizontal in nature —such as export promotion, training, support for research and development (R&D), and public infrastructure-building— usually end up favouring one sector more than others. On the one hand, the selection occurs because of the nature of the policies themselves. For example, measures designed to support export firms regardless of sector will benefit those oriented towards the export market more than those who produce for the domestic market. On the other hand, given the uneven capacities of different firms, the largest or those with most resources are often better placed to benefit from horizontal policies. For example, access to matching grants for R&D, whereby a firm must match government-supplied funds, is usually more feasible for large firms than smaller ones, and competitive R&D funds are mostly awarded to firms that already have certain research capabilities.

Ocampo (2014) points out that advocates of horizontal measures overlook the fact that, given scarce fiscal resources, it is necessary to specify where such resources should be used, which necessarily entails a selection of some sort. These kinds of choices should be made within the framework of a production development strategy and, in the interests of transparency, it is desirable for these choices to be explicit rather than implicit. In short, in practice horizontal measures are very difficult to design so that, as Hausmann and Rodrik (2006) have argued, governments are doomed to choose.

## **2. Market failures**

A second argument for value chain selection is the existence of market failures, which arise when markets are not competitive or are incomplete, for example in the presence of information asymmetries or externalities (Crespi, Fernández-Arias and Stein, 2014; Lin, 2012; Hausmann and Rodrik, 2006). Market failures also occur when investment decisions are interdependent and require coordination.

Crespi, Fernández-Arias and Stein (2014) justify selection on the basis of what they call the pioneer's dilemma. The identification of new activities can be a process of self-discovery that requires effort and investment on the part of a pioneer, but the possible lack of appropriation of this discovery reduces the economic incentive to make the necessary investments. These authors note that a selection may be affected by government failures, that is, where government action does not allocate resources in a socially efficient manner, but instead creates inefficiencies and allocates scarce resources poorly. For instance, this may occur if the government's extension of subsidies to particular firms or sectors ends

up protecting inefficient firms from competition and creating barriers to new entrants. Subsidies and other forms of direct support can also give rise to moral hazard. Crespi, Fernández-Arias and Stein (2014) therefore argue that policy design must be based on the parameters of efficiency, cost and simplicity.

Meanwhile, Lin (2012) proposes a practical framework for identifying key sectors, in line with the country's comparative advantages, and eliminating obstacles to growth in these sectors by tackling coordination and market failures. The selection is based on the existence of market failures, especially the positive externalities generated by pioneer firms, the lack of infrastructure for specific emerging sectors and transaction costs.

### **3. The challenge of comparative advantages and creating winners**

A third argument is the importance of challenging the existing comparative advantages in a country or region, and supporting the creation of new sectors. Contrary to the postulates of new structural economics (Lin, 2012), the pioneers of Latin American development thinking (for example, Prebisch, 1949; Sunkel and Paz, 1970), and more recently Chang (2010), challenge the idea that the comparative advantages inherent to the structure, or a country's factor endowments, determine its economic development. Instead, policies are needed to develop new sectors and shift the current comparative advantage through direct public sector action.

By the same token, Ocampo (2014) notes that sometimes it may not be clear which "innovative activity" should be promoted. In such cases, fostering innovation may be indistinguishable from promoting the development of a given sector. In this type of situation, saying that promoting a given sector is misguided because it entails "picking winners" is to ignore the intrinsic characteristics of productive development strategies. The first point that is being overlooked is that a public policy learning process is involved in determining what should be promoted and, even more importantly, how to go about doing so. Seen from this angle, the types of choices to be made are not very different from those that any private company makes when it decides to expand into new product lines and has to make a strategic gamble based on the capacities that it has built up over time. The second point that is often overlooked is that selection policies are designed to create conditions that will be conducive to the initiative's success, so, rather than "picking winners", they are actually aimed at "creating winners".

#### **4. Windows of opportunity**

The fourth argument refers to the importance of taking advantage of the windows of opportunity that open up during periods of paradigm shift to invest in innovative, fast-growing sectors, such as nanotechnology, biotechnology and artificial intelligence. Pérez (2002) notes that technology shifts produce advantageous stretches for both new and established firms. The author explains that the appearance of a new techno-economic paradigm affects innovation and investment behaviours, creates new potential for wealth creation and gives rise to new practices and behaviours. The action of these pioneering agents gradually defines the new frontier of good practice and their success becomes a powerful signal of the direction in which the most profitable practices lie.

From this perspective, Mazzucato and Pérez (2015) point out that the government plays a fundamental role in ensuring that these windows of opportunity are exploited, which means supporting specific firms or sectors. Direct public investment is extremely important for fostering the creation of public goods and supporting risk-taking in research and innovation in both the public and private sectors.

#### **5. Structural change**

The fifth argument concerns the need for active and selective public policies to change the production structure and bring about progressive structural change. ECLAC has frequently underscored the importance of structural change for long-term economic and social development. For this to happen, developing countries need to shift their production and export structures towards more dynamic and more productive sectors with more embedded technology (Cimoli, 2005; Kosacoff and López, 2008). This approach emphasizes the need to look beyond market failures and recognize that the government has an important role to play in creating and building up production sectors and capacities for achieving structural change (ECLAC, 2012).

Structural change requires support for existing sectors and the creation of new ones. Amid limited human and financial resources, the government must concentrate its efforts on a group of sectors, and must therefore engage in a selection process.

### **B. Selecting sectors in practice: tools and strategies**

This section gives a summarized presentation of three cases in which governments in the Latin American region, sometimes with the assistance of international agencies and consulting firms, have selected sectors to support as part of their development strategies.

# 1. Identification of high-potential clusters in Central America: Central American Institute of Business Administration (INCAE) and Harvard Institute for International Development

At the end of the 1990s, the Central American Institute of Business Administration (INCAE), together with the Harvard Institute for International Development (HIID), identified a group of sectors or activities they described as high-potential clusters, based on the methodology of Michael Porter (1990). Table IV.1 shows the four clusters selected and the factors which led to that selection, which were based on studies of the economic activities in Central America with the greatest chances of becoming successfully positioned in the international markets (INCAE/HIID, 1999).

**Table IV.1**  
**Central America: high-potential clusters**

Cluster	Favourable factors
Tourism	<ul style="list-style-type: none"> <li>- The subregion has important characteristics which set its tourism products apart from other regions: biodiversity, archaeology, colonial cities, adventure and water sports, and living cultures.</li> </ul>
Agribusiness	<ul style="list-style-type: none"> <li>- This cluster has traditionally been the pillar of the subregion's economy and its potential is based on the exceptional climate conditions of Central America. However, its true potential remains to be tapped.</li> <li>- Global market trends and past experience put opportunities within the reach of the region.</li> </ul>
Textiles	<ul style="list-style-type: none"> <li>- The subregion has good market access owing to its low labour costs and geographical location.</li> <li>- The proximity of the United States market helps to reduce the response time of the supply chain, which makes the subregion a natural supply hub for a market that demands short, flexible delivery times.</li> <li>- There are also experiences of full-package development that can be replicated in the subregion.</li> </ul>
Software and electronic services	<ul style="list-style-type: none"> <li>- Successful attraction of foreign direct investment (FDI) in the sector.</li> <li>- Explicit, aggressive training policies for the development of the software industry.</li> <li>- Existence of several electronic assembly and software development companies.</li> </ul>

**Source:** Central American Institute of Business Administration (INCAE)/ Harvard Institute for International Development (HIID), *Centroamérica en el siglo XXI: una agenda para la competitividad y el desarrollo sostenible. Bases para la discusión sobre el futuro de la región*, Alajuela, 1999.

# 2. Selection of priority sectors in Mexico by productivity and growth potential

Mexico's National Productivity Committee (CNP), a consultative body of the executive branch of the federal government, comprising members of the public and private sectors, academia and workers organizations, was set up in 2013 to assist in the formulation of policies on productivity and employment. As well as cross-cutting measures, CNP created sector-specific instruments for which it identified priority sectors based on productivity and growth potential.

The sectoral approach adopted by the subcommittees of CNP is aimed at raising productivity. It revolves around three strategies: (i) increasing productivity in high-employment sectors; (ii) fostering the expansion of high-productivity sectors through stronger employment and investment, and (iii) taking advantage of growth opportunities created in high-productivity sectors by the federal government reforms<sup>1</sup> (see table IV.2).

**Table IV.2**  
**Sectoral approach**

Strategy 1 High-employment and low-productivity sectors	Strategy 2 High-productivity sectors with high growth potential	Strategy 3 Growth opportunities created by reforms
<ol style="list-style-type: none"> <li>1. Retail commerce</li> <li>2. Tourism</li> <li>3. Gastronomy</li> </ol>	<ol style="list-style-type: none"> <li>1. Autoparts</li> <li>2. Agro-industry</li> <li>3. Aerospace supplies</li> <li>4. Electrics and electronics</li> </ol>	<ol style="list-style-type: none"> <li>1. Energy</li> </ol>

**Source:** National Productivity Committee of Mexico, 2015 [online] <http://www.gob.mx/productividad/articulos/comite-nacional-de-productividad-cnp>.

In order to identify highly productive, high-growth-potential sectors, CNP used the “Atlas of economic complexity” developed by Hausmann and others (2011), a technique for measuring the sophistication of products and countries on the basis of available economic data. These authors developed a map of the product space in the world using trade data on 774 product codes, from vegetables to sophisticated electronic equipment. This technique is used to estimate the productive knowledge possessed by each country, by visualizing its product basket. These instruments were designed to study not only economic wealth, but also economic structure and sophistication. Economic and productive development is seen as the outcome of the accumulation of capabilities and skills that enable a country to produce increasingly complex goods.

### 3. Targeting efforts in Chile

In 2006, the Ministry of Finance of Chile created the National Council for Competitiveness Innovation (CNIC), in order to delineate the future objectives of the country’s innovation and competitiveness strategy. Once established, CNIC set about addressing the need to prioritize and target productive development efforts, investment and innovation, since a preference for horizontal industrial policies had prevailed until then.

CNIC hired the international consultancy firm Boston Consulting Group (BCG) to prepare a study on the basis of which to select export

<sup>1</sup> Early in his mandate (2012-2018), the President of Mexico, Enrique Peña Nieto launched an ambitious structural reform programme encompassing telecommunications, education and energy, among other areas. For more information, see [online] <http://reformas.gob.mx/>.

clusters (CNIC, 2007 and 2008). First, the Council prepared a map of the sectors in the Chilean economy with the greatest development potential on the basis of an analysis of their openness to international trade, innovation- and human-capital-based competitiveness, and use of the comparative advantages offered by natural resources, but with a strong injection of knowledge (CNIC, 2007).

The next step was to organize a workshop to analyse scenarios, and compile bibliographical information on the sectors with the greatest development potential, as well as economic data from the central bank on each production activity and data on the trends in national exports over the preceding few years. This information was complemented with interviews of CNIC members and other domestic market experts from different production sectors.

The information collected served to draw up an initial list of almost 70 potential sectors, which were later narrowed down to 31 on the basis of four basic criteria: (i) the possibilities of consolidating the different opportunities (for example, a new type of export fruit variety); (ii) the current and expected size of the sector; (iii) its compatibility with the competitive advantages existing or able to be developed in the Chilean economy, and (iv) the possibility of treating the sector as a cross-cutting platform for providing support to other sectors (for example, human resources or energy).

A more detailed analysis was carried out of the 31 shortlisted sectors, on the basis of four variables:

- (i) each sector's share in gross domestic product (GDP);
- (ii) its growth potential in terms of contribution to GDP over the next 10 years;
- (iii) its competitiveness in terms of geographical location in relation to the main consumer markets; the existence of natural resources; human capital (existing and capacity to attract); ability to attract investment (domestic and foreign); access to technology, infrastructure and logistics; the association and connection between the different agencies in a sector and related sectors; environmental sustainability; the sustainability of the advantages; and the regulatory framework; and
- (iv) the degree of government intervention needed to capture the sector's potential.

The 11 clusters selected were aquiculture, offshore services, tourism, pork and poultry farming, fruit farming, copper mining, processed foods, financial services, logistics and transport, communications and construction (CNIC, 2007). The selection was complemented with the preparation of a value creation map of the sector, an analysis of the

sector's current situation in Chile and in selected benchmark countries, the identification of bottlenecks and opportunities, the definition of a long-term vision and the preparation of a specific road map.

### **C. Chain selection methodology<sup>2</sup>**

Chapter III describes the nine steps for strengthening value chains using the methodology proposed by ECLAC. This section looks in greater detail at the first two steps: identifying the meta-objectives and selecting the chains.

In order to select a value chain to strengthen, it is first necessary to establish the meta-objectives of the process. These objectives are defined as the ultimate social and economic development objectives being sought. The prefix "meta" distinguishes them from the specific objectives that may arise in the value chain strengthening process.

The various meta-objectives often include increasing employment and wages, boosting productivity, increasing exports, strengthening SME participation and expanding national production. As well as quantitative economic indicators, qualitative criteria can also be included, such as: geographical considerations (for example, provide support to value chains in less favoured regions), social considerations (such as support for vulnerable groups) and environmental concerns, among others.

The meta-objectives are usually defined in a working meeting with high-level public officials, who determine the expected outcome of the effort to strengthen the chosen value chain. Another possibility is a participatory process, in which the meta-objectives are defined together with representatives of the private sector and civil society. These objectives serve as a guide to the actions that should be taken in the other stages of the strengthening process. In particular, the chosen chains need to have great potential to help achieve the meta-objectives. The questions which help identify meta-objectives include:

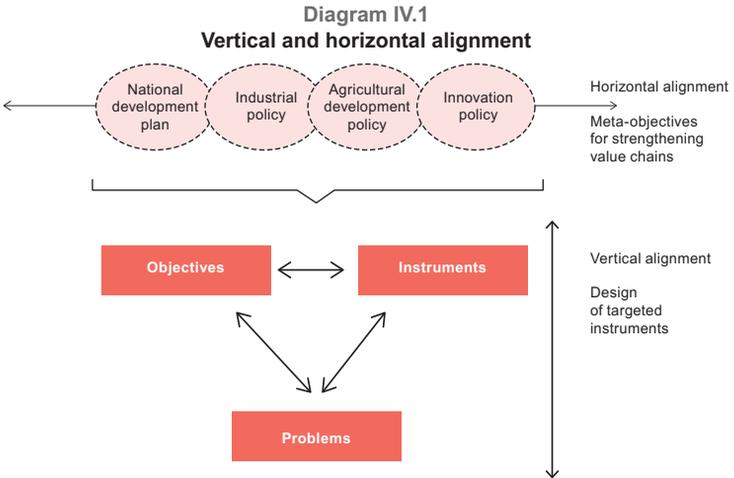
- What are the main challenges in terms of productive development?
- What are the main productive development goals in the national development plan?
- What are the main objectives set out in the sector plan which is the responsibility of the leading public agency in the process of strengthening the chain?
- How can value chain strengthening contribute to productive development?

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<sup>2</sup> This section is based on Padilla and Oddone (2016).

It is very important to ensure that the meta-objectives are horizontally and vertically aligned.<sup>3</sup>

- Horizontal alignment. The meta-objectives are aligned with national development plans and sectoral plans. Thus, in a national development objective to support less favoured regions, the strengthening of value chains should be geared towards the productive development of those areas. By the same token, if a central objective of the Ministry of Agriculture is to expand the country’s supply of primary products, a meta-objective would be to raise national production and productivity.
- Vertical alignment. The meta-objectives should also align with specific instruments, that is, the design of strategies for strengthening value chains must match the meta-objectives established. Microeconomic analysis and participatory processes are very useful for targeting the instruments, to ensure that they are effectively oriented towards fulfilment of the objectives (see diagram IV.1).

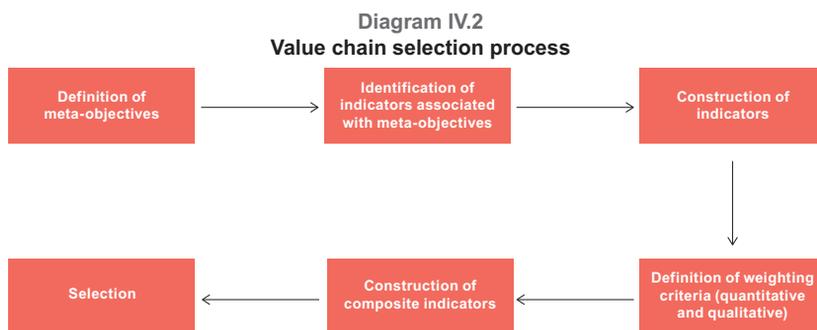


**Source:** Prepared by the authors, on the basis of C. Chaminade and R. Padilla Pérez, “The challenge of alignment and barriers for the design and implementation of science, technology and innovation policies for innovation systems in developing countries”, *Research Handbook on Innovation Governance for Emerging Economies: towards better models*, S. Kuhlman and G. Ordoñez-Matamoros (eds.), Cheltenham, Edward Elgar Publishing, January 2016.

The selection process consists of six steps, as shown in diagram IV.2. Chain selection criteria must be consistent with the chosen meta-objectives,

<sup>3</sup> For more details on vertical and horizontal alignment of objectives and public policies, see Chaminade and Padilla (2017).

that is, the selected value chain must contribute to the achievement of the meta-objectives. In the course of providing technical assistance, ECLAC has found governments to be very keen to ensure that the chain selection process is both objective and transparent. The choice of one or various value chains implies that they will receive special public support over the short to medium term, and that the government may be subject to pressure from specific groups. The steps described below have proven to be useful tools for ensuring that the process is objective.



**Source:** R. Padilla Pérez and N. Oddone, *Strengthening Value Chains: A Toolkit* (LC/MEX/L.1218), Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC), 2016.

Once the meta-objectives have been defined, the next step is to identify one or various indicators that serve to estimate the chain's potential contribution to the fulfilment of each meta-objective. Ideally, the indicators chosen should complement each other in providing information about the achievement of the meta-objectives. For example, if one of the goals is to increase the participation of SMEs, indicators may refer to factors relevant in determining firm size, such as sales volume and job creation.

The third step is to build quantitative indicators using the following main information sources:

- national accounts data, especially on production and employment;
- input-output tables, primarily for estimating productive linkages and the capacity for value chains to boost employment, trade and domestic value added;
- data on international trade in goods and services and on foreign direct investment;
- microdata from censuses, surveys and domestic taxes; and
- administrative records.

Value chain selection may also use qualitative indicators in cases, for example, in which a chain is concentrated in a specific region far from the metropolitan area, or in a coastal area or one with a large population of vulnerable groups. The following section provides further details about building these indicators.

The fourth step is defining the criteria for weighting the indicators. Either the same weighting may be given to each meta-objective, or preference may be afforded to those deemed priorities. It is also possible to define exclusion criteria. For example, if a chain fails to meet a minimum or maximum value, it is excluded regardless of how it scores on other indicators. If it is decided that the chain must be located in relatively less developed regions (in compliance with a meta-objective of supporting the development of disadvantaged areas), any chain that fails to comply with this requirement would be excluded. It must also be decided at this stage whether to use the sum of the indicators once they have been normalized, or to use a different aggregation procedure. It is very important to clearly define the criteria prior to the selection in order to ensure objectivity and transparency in the process.

The fifth step consists of constructing composite indicators for each chain, while in the sixth and last step the actual selection of the chain is made. The process described here serves to identify the chains capable of making the greatest contribution to the meta-objectives.

#### **D. Developing the indicators on the basis of the proposed meta-objectives**

The use of publicly available statistical information gives the selection process objectivity. Accordingly, the foremost idea is to build quantitative indicators that summarize the information available, in order to obtain a classification of the value chains being analysed.

The information sources will depend on the availability of data in each country, and on the meta-objectives selected. Generally speaking, the main sources of information are the System of National Accounts, the balance of payments and surveys of households and firms, as well as specialized information systems, administrative records and information compiled by producers' associations.

The System of National Accounts provides information on the composition and evolution of economic activities, the creation of value

added, its functional distribution and the linkages between the different productive activities, on the basis of the data contained in supply and use tables, and input-output tables.

The balance of payments provides information on trade flows of goods and services, remittances and financing to and from the country's different productive activities.

Although the information from the national accounts and the balance of payments is very useful, in most countries these are not disaggregated to a level that would serve to identify individual value chains. This information therefore needs to be complemented with data from firm-level and household surveys. These include economic censuses, agricultural and industrial surveys, and the various household surveys used to ascertain the employment situation and income and expenditure patterns. The indicators that can be obtained include the number of establishments, hours worked, wages, income and expenditure patterns and levels of productivity.

Lastly, depending on the availability and relevance of the information, data from specialized systems can be used (for example, thematic databases with highly disaggregated information), administrative records (such as taxes and public permits), producers' associations (chambers and cooperatives) and prior studies (prepared by academics, the private sector or government agencies).

## **E. Applying the methodology: chain selection in Mexico**

Having identified the sources of information available, the next step is to build indicators of the prospective chains' contribution to achievement of the meta-objectives. Because each meta-objective will generally have more than one relevant dimension (for example, backward and forward linkages in the case of increasing a value chain's degree of integration), at least two complementary indicators should be associated with each meta-objective.

Box IV.1 sets forth the indicators used in the case of a value chain of pork sausages and other cured pork products in Mexico (Alvarado and others, 2017). These included information from national accounts, a survey of the manufacturing industry, input-output tables and data from a productivity study carried out by the Ministry of Finance and Public Credit (see section B) on the basis of the methodology developed by Hausmann and others (2011).

### Box IV.1

#### Mexico: meta-objectives and indicators for the pork sausages and other cured pork products value chain

##### Meta-objective 1: strengthen national supply

1.1. National sales as a proportion of national manufacturing sales. The value used is the average share during the period 2009-2012, on the basis of data from the Annual Manufacturing Industry Survey (EAIM) by class of activity (six-digit level of the North American Industrial Classification System (NAICS)) (INEGI, 2013). A greater magnitude of this indicator denotes greater relative importance of domestic market sales by class of activity.

1.2. The ratio of the (forward) multiplier for final demand of domestic production and the multiplier for imports. The ratio is computed as follows:  $\sum_{i=1}^n b_{i,j}^d / \sum_{i=1}^n b_{i,j}^m$ , where superscripts  $d$  and  $m$  denote, respectively, the quotients of direct and indirect domestic and imported requirements. Matrices are calculated based on the data from the updated input-output matrix for the year 2012 (4-digit NAICS code). Forward multipliers indicate the sensitivity of production and imports in the particular class of activity to aggregate demand fluctuations. Hence, higher values for the ratio between multipliers indicate that, in response to a rise in aggregate demand, domestic production will expand more than imports.

##### Meta-objective 2: foster the integration of SMEs into the chain

2.1. Number of employees per establishment. The value used is the average ratio observed in the 2009-2012 period, based on data from the Annual Manufacturing Industry Survey (EAIM) by class of activity (6-digit level of the NAICS code). A low value for the indicator denotes a larger number of SMEs in the respective branch of activity.

2.2. Ratio of sales (indicator 1.1) to number of establishments. The value used is the average proportion for the 2009-2012 period, according to data from Annual Manufacturing Industry Survey (EAIM) by class of activity (-digit level of the NAICS code). A high value for the indicator denotes higher levels of concentration in the activity.

##### Meta-objective 3: increase domestic value added (industrialization, technology)

3.1. Value added as a proportion of total manufacturing. The value used is the average share for the 2009-2012 period, according to data from Annual Manufacturing Industry Survey (EAIM) by class of activity (6-digit level of the NAICS code). A high value for the indicator is evidence of greater value added in the class of activity.

3.2. Value added multiplier. The value added multipliers for each branch of activity  $j$  are calculated as follows:  $\sum_{i=1}^n \frac{v_i}{v_j} b_{i,j}$ , where  $v_i = \frac{val_i}{X_i}$  represents the ratio of gross value added to gross output value of activity  $i$ , while  $b_{i,j}$  is the ratio of direct and indirect requirements of activity class  $i$  from activity class  $j$ , i.e. the element  $(i,j)$  of the Leontief inverse matrix. This is calculated using data from the input-output matrix updated to 2012 by branch of activity (4-digit NAICS code). The multipliers indicate the level of value added growth produced by an increase in demand for products from different branches of activity.

Box IV.1 (concluded)

**Meta-objective 4: strengthen the integration of the chain**

4.1. Linkages. In this case, each branch of activity (4-digit NAICS code) is classified by the typology proposed by Chenery and Watanabe (1958), on the basis of the relative values of direct forward and backward linkages:

	$DBL_j < \overline{DBL}_j$	$DBL_j \geq \overline{DBL}_j$
$DFL_i < \overline{DFL}_i$	Primary/final output	Secondary/final output
$DFL_i \geq \overline{DFL}_i$	Primary/intermediate output	Secondary/intermediate output

Here,  $DBL_j = \sum_{i=1}^n a_{i,j}$  and  $DFL_i = \sum_{j=1}^n a_{i,j}$  denote the value of direct backward and forward linkages, respectively, which are calculated on the basis of the technical coefficients matrix  $a_{i,j}$  of the input-output matrix updated to 2012. The values  $\overline{DBL}_j$  and  $\overline{DFL}_i$  are the values of average linkages for the whole of the economy. The typology serves to identify the phases of the production process corresponding to different branches of activity. Low levels of backward linkages mean that the branch of activity is concentrated in exploiting resources (primary production). Conversely, high levels of backward linkages denote higher levels of processing (secondary production). Low levels of forward linkages indicate that the class of activity is concentrated on making products for final consumption, whereas higher levels of forward linkages means that the particular class of activity is specialized in making intermediate inputs. Taking into account the objective of strengthening the integration of the chain, priority should be given to activities specialized in secondary production of intermediate inputs, because increasing their activity levels will have a larger impact on the rest of the activities.

4.2. Complexity-feasibility index. This index was originally calculated by the Ministry of Finance at the product level, using the nomenclature of the Harmonized System (HS) of the World Customs Organization (WCO). Pierce and Schott (2012) equivalence tables were used to identify the correspondence with the NAICS industrial classification code. For each branch of activity (6-digit NAICS code), the average complexity-feasibility index was calculated for all the products included in the classification. This is a prospective indicator, which serves to identify the types of activity with the greatest potential to boost economic activity in the related sectors.

**Source:** Prepared by the authors, on the basis of J. Alvarado and others, "La cadena de valor de embutidos y otras conservas de carne de cerdo en México", *Project Documents* (LC/MEX/W.17/Rev.1), Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC), 2017; National Institute of Statistics and Geography (INEGI), "Sistema de Clasificación Industrial de América del Norte, México: SCIAN 2013", Mexico City, 2013; J. R. Pierce and P. K. Schott, "A concordance between ten-digit U.S. Harmonized System Codes and SIC/NAICS product classes and industries", *Journal of Economic and Social Measurement*, vol. 37, No. 1-2, 2012.; H. B. Chenery and T. Watanabe (1958), "International comparison of the structure of production", *Econometrica*, vol. 26, No. 4.

Next, the activities can be classified by the magnitude of the selected indicators. For example, in the case of indicator 2.2 in box IV.1, which measures the average sales of each establishment, activities can be

classified by ranking first the activities with the lowest average sales per establishment and continuing in ascending order by magnitude of the indicator. The rationale for this ranking is that low average sales reflect a higher proportion of SMEs in the activity selected. In cases where the selected indicators determine category, such as indicator 4.1 in box IV.1, it will suffice to identify the category to which the different activities belong, since the classification will be carried out during the next phase, when the indicators will be weighted.

Since each activity contributes in a different way to the fulfilment of the meta-objectives and considering the complementary nature of the selected indicators, activities that are ranked near the top by one indicator may be expected to be ranked much lower by others. For instance, returning to the example of the cured pork product chain in Mexico, the bottling industry was ranked first by indicators 1.1 and 1.2 associated with the meta-objective of strengthening national supply. However, because that industry is highly concentrated, it ranked low by indicators 2.1 and 2.2 of the meta-objective on integrating SMEs.

In order to select value chains with the greatest prospects of achieving the meta-objectives, it is necessary to define exclusion criteria in order to distinguish between activities in an objective manner. In the case of quantitative indicators, the criterion could be set at a certain point of the indicator value distribution, for example, the median. In the case of the qualitative indicators, however, explicit reasons must be specified for excluding certain categories.

In the case of the cured pork value chain in Mexico, one of the indicators selected for the meta-objective of stronger integration of the value chain was developed on the basis of the relative values of backward and forward linkages (indicator 4.1 in box IV.1), by which activities were classified by the degree of processing achieved and the type of products produced. In this case, it was decided to exclude activities classified as primary production for final consumption, because of the weak linkages of those activities.

Applying the exclusion criteria yields an updated classification of the activities as a function of the various indicators. Although certain activities may be located at the top of the ranking by one particular indicator, they may be excluded on the basis of others. In this case, it is advisable to adopt a criterion to maintain the balance between the various meta-objectives. For instance, if each meta-objective has two associated indicators, one possibility would be to admit only those activities that have at least one positive indicator remaining after the application of the exclusion criteria.

The last remaining step to preselect the activities that will be candidates for public policy action is to weight the different indicators in

order to produce a compound indicator. Although, in principle, various methodologies are available for this, in practice the most transparent is to assign the same weight to each indicator.<sup>4</sup> Since the magnitudes and units of measure of the various indicators are not necessarily comparable, it is best to use the ranking obtained to ensure that each of the indicators is treated the same for weighting purposes. Since the aim is to identify a particular value chain, 3 points may be assigned to the activity ranked first for each indicator, 2 points for second place, 1 point for third and 0 for the rest. Then the overall classification is obtained from the sum of the points obtained by each activity under all the indicators.

The outcome of this method yields a ranking of the activities based on quantitative indicators, which serves to preselect the front-runner candidates. However, the final selection of the value chain should take into account qualitative indicators, such as feasibility of action, attention for priority groups or regions, and alignment with sector or national development plans.

In the case of Mexico, the application of this procedure yielded the following activities as candidates:

- animal feed processing;
- preparation of sausages and other cured products from livestock, poultry and other edible animals, and
- preparation of maize tortillas and nixtamal meal.

Among these activities, the manufacture of sausages was chosen because it was an activity close to the mandate of the Ministry of the Economy which, in the last instance, would be the entity responsible for implementing the recommendations arising from the analysis.

## **F. Concluding reflections: strengths and challenges of chain selection**

The selection of sectors or regions is necessary and unavoidable in the design of industrial policy. The limited availability of human and financial resources and the resulting need to target resources, as well as the importance of promoting nascent sectors and taking advantage of windows of opportunity, are a few of the arguments for this selection. An objective selection methodology endows the process with legitimacy and transparency.

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<sup>4</sup> See a detailed analysis of weighting alternatives in the work of Schuschny and Soto (2009).

This chapter has set forth the methodology proposed by ECLAC for selecting value chains, starting with the identification of meta-objectives, which provide a framework for analysing the chains with the greatest potential to help achieve these objectives. Often a combination of quantitative and qualitative indicators is used to obtain systematized information for the selection.

The main limitation in relation to selection on the basis of quantitative criteria is the lack of available data. Value chains represent highly disaggregated activities of the economy as a whole, so there is often no information available at the chain level; hence the requirement to make inferences and construct complementary indicators to provide information from different angles.

Another limitation is that, because it is made using existing indicators, the selection is based predominantly on the situation of the chain prior to the strengthening process. Prospective exercises with greater depth and indexes of economic complementarity offer useful information on the potential contribution of the chain providing that current bottlenecks are resolved. Prospective exercises demand time and resources, however.

The methodology presented in this chapter can be adapted to particular circumstances. However, certain requirements must always be addressed in order to ensure that the process is objective, such as clearly establishing from the outset the mechanisms and criteria to be taken into account for selection, including the formulas for weighting and preparing the composite indicators. The selection must also start with the identification of clear objectives and be carried out in a transparent manner.

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## Chapter V

# **Strengthening value chains in primary and agro-industrial products**

*Ramón Padilla Pérez*

### **Introduction**

As discussed in chapter I, productive activities in rural areas in Latin America and the Caribbean face a number of challenges relating to institutional structure, commercialization, productivity and innovation. With regard to the production of primary and agro-industrial goods, large and small producers have very different productive and technological capabilities, and very uneven access to markets and capture of value added. Value chains for these goods tend to be made up of a large number of small producers who encounter a range of barriers to increasing their productivity and competitiveness in local, national and international markets.

Value chains are strengthened when their links are better coordinated, new actors are brought in and economic and social upgrading is achieved. Economic upgrading comes from the transformation of the links of the chain—and the chain overall—towards better products and services, more complex production processes or higher value added activities, and more intensive use of knowledge. Social upgrading is achieved when the members of the chain and their communities gain

better living standards through decent work opportunities, social protection, labour rights and a secure work environment (Padilla and Oddone, 2016).

This first empirical chapter offers a cross-cutting analysis of diagnostic and strategy design for four primary product and agribusiness value chains: tomato and green pepper (El Salvador), dairy products (Dominican Republic), pork sausages and other cured pork products (Mexico) and dried fruit snacks (El Salvador). The support for these value chains was provided in the framework of a joint project between ECLAC and the International Fund for Agricultural Development (IFAD) entitled “Inclusive growth, rural industrial policy and participatory value chains in Latin America and the Caribbean” and the material presented in this chapter is based on Oddone and others (2016); Alvarado and others (2016); Gomes and Oddone (2017); and Romero, Díaz and Aguirre (2016). The aim is to identify common challenges and the role that public policy can play in overcoming them.

The strategies designed to strengthen each value chain include instruments that form part of rural industrial policy, that is, they seek upgrading towards manufacturing and service activities and integration with them. But they also encompass different complementary instruments that pertain to the sphere of policies on agriculture development or rural development. Both groups of tools are necessary and should be developed in an integrated manner.

This chapter has five sections following the introduction. In keeping with the methodology for strengthening value chains set out in chapter III, the first section presents the meta-objectives pursued for each of the four chains. The second section describes the main links in each chain, its governance, and the institutions and organizations that regulate and support it. It also gives a brief analysis of the margins and value added capture. The third section examines the bottlenecks affecting the four value chains and the fourth describes strategies for resolving them. The fifth section concludes.

## **A. Defining meta-objectives**

As discussed in chapter III, the first step in the methodology is to define the meta-objectives, which are understood as the ultimate economic and social development aims being pursued through the value chain strengthening initiative. The meta-objectives established for the four chains illustrate the different purposes sought by the countries in embarking on processes of value chain strengthening.

In the case of the pork sausages chain in Mexico, the following meta-objectives were set:

- Meet national demand for the product, that is, increase national production so that domestic demand can be met chiefly with national output, rather than imports.
- Foster the integration of small and medium-sized firms (SMEs) and small producers into the chain.
- Increase the national value added through greater local procurement of goods and services.
- Strengthen the integration of the chain through closer relations between its constituent links.

In the case of the tomato and green pepper chain in El Salvador, the main meta-objective was to increase national production so that demand for these products would be met increasingly by local producers rather than imports. Efforts were therefore focused on raising the productivity of small rural producers, especially those seeking to develop sustainable business models.

The main meta-objectives of the project to strengthen the dairy value chain in the Dominican Republic were to meet national demand for dairy products, foster the incorporation of micro-, small and medium-sized enterprises, and improve the quality of national milk production.

The dried fruit snacks chain is in the process of consolidation. There is a small group of actors who make the primary products, mainly fruit, into agro-industrial goods for the national market and even for export. The meta-objectives aimed to develop capacities to enter complementary activities with higher value added on the basis of processing, and to increase productivity and strengthen the involvement of micro- and small enterprises.

The four processes have some objectives in common. The first is to increase national production to meet demand for the respective product, with the implicit aim of reducing or substituting imports. This substitution is expected to occur as a result of better productivity by national producers and not the introduction of protectionist measures. The second objective is to bring in more small firms and producers, which are recognized to have lesser production and technological capacities than large producers (in particular in the pork sausage and dairy chains), but their strengthening also has an impact in terms of social inclusion. The third objective is to develop the capacities to enter new production activities that can generate and capture higher value added.

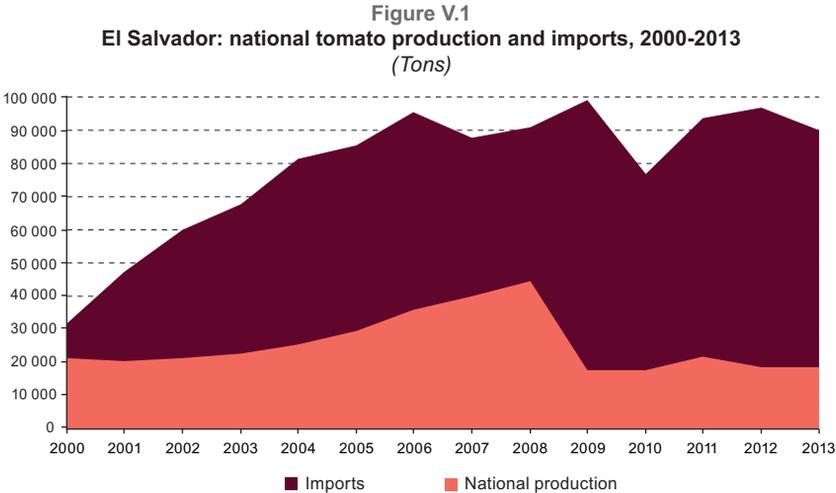
## B. Value chains

This section summarizes the main production and economic characteristics of value chains. The full documents present a diagnostic in six areas: national and international context of the chain, economic analysis, market analysis and technological knowledge, governance, support organizations and bottlenecks. The information presented below was compiled between mid-2014 and mid-2016, the period during which the chain strengthening processes were carried out.<sup>1</sup>

### 1. The links in value chains

#### (a) The tomato and green pepper chain in El Salvador

In El Salvador, tomatoes and green peppers are part of the same chain, since they are mostly grown by the same group of producers and have forward and backward linkages in common. They are in high demand, given that they form significant components of the Salvadoran diet, and national production is not enough to meet demand. In 2013, tomato production came to 18,500 tons, but 80% of national consumption came from imports (see figure V.1).

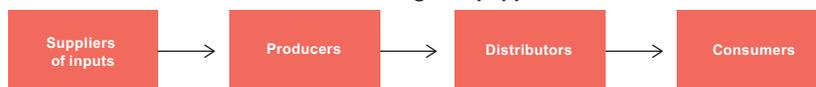


**Source:** N. Oddone and others (2016), “Fortalecimiento de la cadena de valor de tomate y chile verde dulce en El Salvador”, *Project Documents*, No. 13 (LC/MEX/W.13), Mexico City, ECLAC subregional headquarters in Mexico, 2016, page 14.

In brief, the chain has four links (see diagram V.1), which are described below.

<sup>1</sup> The steps of the methodology described in chapter III take around eight months. Over this two-year period, work was carried out on four value chains in a staggered manner.

Diagram V.1  
El Salvador: tomato and green pepper value chain



**Source:** N. Oddone and others (2016), "Fortalecimiento de la cadena de valor de tomate y chile verde dulce en El Salvador", *Project Documents*, No. 13 (LC/MEX/W.13), Mexico City, ECLAC subregional headquarters in Mexico, 2016, page 14.

- (i) The main inputs for growing tomatoes and green peppers are seeds, fertilizers, fungicides and herbicides. Producers who grow under shelter also need building materials and maintenance for greenhouses or tunnel structures. El Salvador is a net importer of these inputs.
- (ii) The production link is atomized and clearly geared towards commercial production. As many as 90% of vegetable growers are estimated to sell their crops commercially (Ministry of Agriculture and Livestock, 2014).<sup>2</sup> The number of registered vegetable growers in 2014 was 28,928, including commercial growers (25,975) and subsistence farmers (2,954). The great majority of Salvadoran vegetable producers (96.6%) grow in the open, which limits their capacity to obtain yields of consistent quality and quantity. Vegetable growing is concentrated in 7 of the country's 14 departments and producers vary greatly in terms of surface area sown, capacities and productivity.
- (iii) There are three main channels for commercialization: formal wholesalers (supermarkets and restaurants), informal wholesalers (the central market, also known La Tiendona) and retailers. In recent years distribution has become more concentrated because of the rise of hypermarket chains, supermarkets and malls. Green peppers are exported in small quantities and tomatoes not at all.
- (iv) There are three main types of consumers: households, restaurants and institutions. The first two account for the largest share, and institutions only a residual amount.

The tomato and sweet green pepper chain in El Salvador does not have a consolidated processing link transforming locally grown vegetables into sauces, preserves or other products with greater value added. Although there are firms that process tomatoes, most use fresh or dried tomatoes imported from Guatemala.

<sup>2</sup> The National Multipurpose Agricultural Survey (ENAPM) does not have disaggregated data for tomatoes and green peppers, so these figures refer to vegetable-growers in general.

**(b) The pork sausage and other cured pork products chain in Mexico**

This chain includes the production of various agro-industrial products, such as ham, sausages and chorizos. In 2013 the meat industry employed 252,611 people in Mexico, a third of them in livestock and poultry slaughter, a sixth in cutting and packing fresh meat, and the rest in the preparation of preserves and cold cuts. Although over 90% of processed meat products consumed in Mexico are domestically produced, in 2013 over 750,000 tons of the main input (pork) were imported. The chain is made up of six links (see diagram V.2).

**Diagram V.2**  
**Mexico: pork sausage and other cured pork products value chain**



**Source:** J. Alvarado and others, “La cadena de valor de embutidos y otras conservas de carne de cerdo en México”, *Project Documents* (LC/MEX/W.17/Rev.1), Mexico City, ECLAC subregional headquarters in Mexico, 2016.

- (i) The starting point is the primary pork production system, which includes care of breeding animals, raising young and fattening piglets. In terms of productive and technological capacities, there are great differences between pork farmers, who may be classified in three groups: (a) those with technical facilities and large numbers of stock, state-of-the art technology, certifications and high productivity; (b) those with traditional or semi-technical facilities, intermediate productivity and traditional technologies; and (c) small, backyard, rural or self-supply farmers, with basic technology and low productivity. Between 2000 and 2013, the number of heads of pork slaughtered rose 25.1%: from 13,444,829 to 16,818,454. This translated into a similar increase in pork production (24.6%), from 1,029,955 to 1,283,672 tons.
- (ii) The chain of primary processing of pigs raised in Mexico begins with the slaughter, which is done in abattoirs. There are three types of abattoirs: municipal, private and Federal Inspection Type (TIF). Municipal abattoirs, as the name suggests, are administered or tendered out by municipalities. Private abattoirs are public services outsourced to the private sector, while TIFs meet the strictest standards in terms of health, quality and animal treatment. These tend to be larger and have greater technological capacities. In 2013, 80% of abattoirs had fewer than 10 employees.
- (iii) The next link is carried out by meat cutters, who quarter the pork carcasses into primary and secondary cuts. This link of the chain is labour-intensive, as the quartering is done manually.

- (iv) The fourth link is the secondary processing done in packing plants. Processed meat products are those in which the properties of the fresh meat have been modified by one or more procedures, such as grinding, addition of spices, alteration of colour or heat treatment. There are large, highly profitable and highly mechanized packing plants, but over 80% are microenterprises with fewer than 10 workers and major bottlenecks limiting their productivity and competitiveness (see figure V.2).
- (v) The next link is distribution and commercialization, activities devoted to bringing products or services to the consumer. On the one hand, there is a mechanized structure associated with supermarkets and the export market, which uses cold chain procedures to maintain product safety and quality, and on the other, there is a traditional structure that is less stringent with refrigeration, which causes economic losses and impacts consumer health. As for commercialization, around a third of pork products are sold in grocery stores, a fourth in supermarkets, a fifth in butchers' shops and delicatessens, and over 10% at street markets.
- (vi) The final link consists of the consumers. Like the commercialization link, consumers are segmented by sales point: supermarkets, local stores, markets, restaurants and hotels, among others.

**Figure V.2**  
**Mexico: proportion of business units devoted to the preparation of sausages and other preserved forms of livestock, poultry and other edible animals, by size, 2004, 2009 and 2013**  
*(Percentages)*

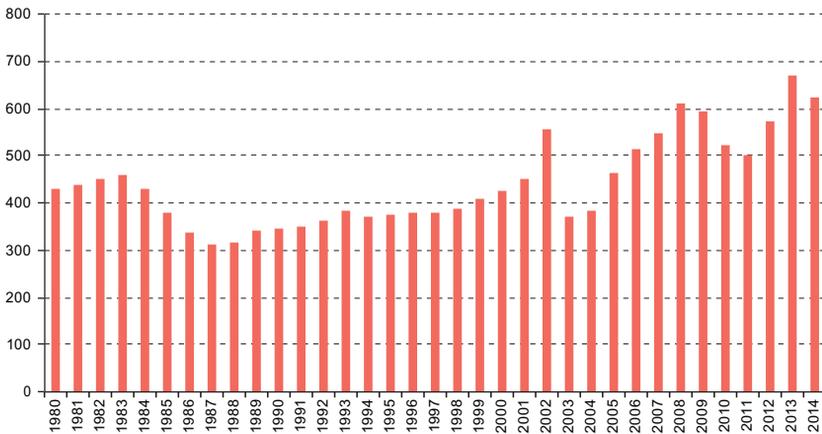


**Source:** J. Alvarado and others, "La cadena de valor de embutidos y otras conservas de carne de cerdo en México", *Project Documents* (LC/MEX/W.17/Rev.1), Mexico City, ECLAC subregional headquarters in Mexico, 2016.

**(c) The dairy chain in the Dominican Republic**

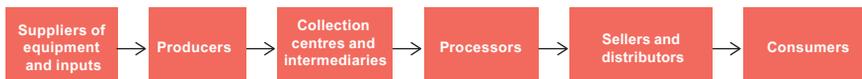
The dairy chain is widely present throughout the country. In 2014 national milk production amounted to 1.6 million litres per day. Of this production, 54.1% was used for cottage industry cheese making, 16% went to large industrial processing plants, 20% went for self-supply on farms, 5.5% was sold fresh in canisters and 4.4% was used by manufacturers of yogurt and candy. Figure V.3 shows FAOSTAT information on production of dairy products in the period 1980-2014. The Dominican Republic needs imports to cover the shortfall in production and meet the demand of the processing industry and the local market. Only a small proportion of domestically produced milk (around 20%) is considered suitable for processing by large-scale industry, which therefore imports powdered or liquid milk for onward processing. The chain has six links (see diagram V.3).

**Figure V.3**  
**Dominican Republic: estimated dairy production, 1980-2014**  
(Millions of litres)



Source: C. Gomes and N. Oddone, "Fortalecimiento de la cadena de valor de los lácteos en la República Dominicana", *Project Documents*, Mexico City, ECLAC subregional headquarters in Mexico, 2017.

**Diagram V.3**  
**Dominican Republic: dairy value chain**



Source: C. Gomes and N. Oddone, "Fortalecimiento de la cadena de valor de los lácteos en la República Dominicana", *Project Documents*, Mexico City, ECLAC subregional headquarters in Mexico, 2017.

- (i) The dairy chain is linked to an extensive network of suppliers of inputs with different types of actors, most of them sellers of imported inputs. The analysis prioritized the study of suppliers of inputs for milk production, milk pasteurization by ultra heat treatment (UHT) and cheese making. It included suppliers of equipment, animal feed and medication, tetrapack packaging and products for cheese making, among others.
- (ii) The production link consists of the farmers. Most dairy production in the Dominican Republic (90%) is based on family farming, consisting of small producers with fewer than 50 head of cattle. There are great differences between cattle farmers in terms of access to technology, infrastructure and financing. Generally speaking, small farmers have very basic technology on their farms and most milk their cows under trees or tin roofs, and on earth floors.
- (iii) There are around 90 milk collection and refrigeration centres around the country, most of them companies. The concept of collection centre encompasses very different realities in terms of infrastructure, equipment, and capacity to store, manage and deliver milk. The collection centre plays a fundamental role, because it is involved in the storage, analysis and maintenance of milk in suitable conditions for the industry. The producers deliver the milk to the collection centre by different means of transport: horse, motorcycle or truck, depending on the distance and the economic capacity of the farmer. Intermediation occurs mainly in the eastern region, where there are few collection centres.
- (iv) Like the other links in the chain, processing is also highly heterogeneous. Around 54% of national milk production is consumed by a large number of micro- and small cottage industry cheese makers, many of them family enterprises or employing up to three workers (57%), with wide differences in techniques and yields. The pre-census of the Vice-Ministry of Internal Trade of the Ministry of Industry, Commerce and Small Enterprises estimated over 400 cheese makers. Of these, 64% were in rural areas and 20% in semi-rural areas, generally in backyards or in facilities without proper conditions for food manipulation, sheds with tin roofs and sometimes earth floors. Large and medium-sized processors consume less than 25% of the milk produced in the national market, which is bought mainly by the country's four largest firms —Pasteurizadora

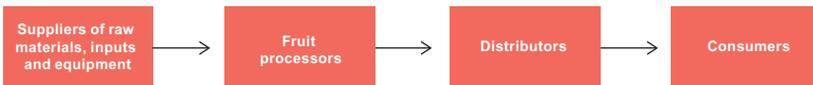
Rica, Nestlé, Induveca and Sigma Alimentos (formerly Sosúa)—and other smaller firms, such as Lácteos Dominicanos (Ladom), Leche Fresca and Pasteurizadora María.

- (v) The distribution and commercialization link has a multi-level scheme depending on the quality of the milk and type of processing. Small cottage industry and family cheeseries which used grade B, C or D milk trade in *colmados* or convenience stores, which are part of the Dominican trading tradition and have lower quality standards than supermarkets. *Colmados* are a basic type of grocery store with long opening hours and are found throughout the country. Sales of cottage industry products, especially cheese, may be direct or intermediated.
- (vi) According to data from FAO (2011), annual milk consumption per capita in the Dominican Republic —between 103.3 and 104.5 litres— is lower than the world average —234.3 litres— even though the supply of national and imported milk and cheese is vast. The imported products sold in supermarkets compete strongly on price and quality with Dominican products. In general, the Dominican consumer bases purchasing decisions on prices and traditional flavours, so that the prevalence of the price factor can lead to some quality standards being overlooked.

**(d) The dried fruit snack chain in El Salvador**

This chain is in the process of development, with a small number of producers (the field study identified eight dryers of fruit), because there is not a broad culture of consumption of this product in the national market. Information on global market trends suggests that the growing adoption of healthier eating habits should boost world demand for such products. In El Salvador the chain is made up of the following four links (see diagram V.4).

Diagram V.4  
El Salvador: dried fruit snack value chain



Source: I. Romero, V. Díaz and A. Aguirre, “Fortalecimiento de la cadena de valor de los snacks nutritivos con base en fruta deshidratada en El Salvador”, *Project Documents* (LC/MEX/W.16), Mexico City, ECLAC subregional headquarters in Mexico, 2016.

- (i) The first link consists of the suppliers of fruit, the main raw materials used to make the snacks. El Salvador has a broad supply of fruits, such as coconut, mango, plantains and bananas, but most producers are small-scale. In the case of fruit varieties such as mango, papaya and pineapple, the chain relies heavily on imports, mainly from Costa Rica and Guatemala. The supply of additives (antioxidants and preservatives), and machinery and equipment for cutting, drying and packaging of the fruit is dominated by imports. The packaging for the sale of the final product is also largely imported.
- (ii) At the second link —the fruit processors— three types of producers were identified: (a) cottage industry with low volumes of production, limited access to technologies and significant challenges in terms of quality and productivity; (b) semi-industrial processors who use batch (not production line) equipment, and whose products have food hygiene registrations; and (c) industrial processors who are certified, sometimes internationally, and make extensive use of production process and quality control processes.
- (iii) The third link consists of sellers and distributors of snacks. In the national market, cottage industry producers sell their products directly to the final consumer, although in small volumes. In order to sell larger volumes, they rely on intermediaries. Larger-scale processors sell their products mainly through supermarket chains or in retail stores through distributors. Semi-industrial and industrial processors have a transaction-based relationship with intermediaries, who charge a preset commission with limited scope for negotiation.
- (iv) In El Salvador, the market for dried fruit based snacks encompasses two consumption segments: (a) the food industry, which buys products in bulk and sells them on, either under other brands or as an ingredient in other products; and (b) brand name products, through supermarkets and food service establishments. There are also a number of export channels.

## 2. Value chain governance

In chains of primary products, governance can take different forms, as observed in the four value chains studied here. In some chains, one actor or group of actors, for example intermediaries, exercise strong control over producers, while in others relations are more horizontal or market-based.

In the dairy chain, intermediaries and distributors have broad control over the production segments. For example, in the eastern region of the Dominican Republic, transporters impose the price and forms of payment on producers and control most of the flow of milk to the cheeseries in the region.

In the pork sausage chain, the regulatory segmentation of the market, the impact of imports on supply and the importance of the fresh meat market mean that, although each link has one or two identifiably dominant actors —because of the volumes produced, sale and purchase prices or their influence on the regulations— their influence on the chain overall is limited. For that reason, governance is market-based and the main ties between the links are commercial ones, characterized by low-complexity, informal transactions. This situation gives rise to a structure in which the degree of concentration and, thus, the hierarchy are limited. Similarly, the governance of the tomato and green pepper chain is mainly market-based, that is, no single actor or group of actors has significant control owing to the fragmentation of production, its lack of sophistication and its distribution scheme.

In the snack chain, governance is also market-based, with informal relations between and within links and no single actor exercising significant control over the chain. Owing to the volume of production, processors do not have excessive power in setting prices and conditions for the raw materials. Sellers or intermediaries do not exercise significant control either, because sales of dried fruit are atomized.

### **3. Estimation of costs and margins**

Table V.1 presents an estimation of costs and margins along the four chains analysed. The first point to note is the significant value capture that occurs towards the final links (consumer sales and distribution), by contrast with what producers receive. For example, in the case of the sausage chain, pig farmers receive 25 Mexican pesos per 100 pesos of sausages sold in a supermarket. The second point, which is illustrated in the tomato and green pepper chain, is that the distribution of the value added varies depending on the conditions of production and sale. Producers operating in sheltered conditions have an average margin of US\$ 0.17 per kilogram, but this is much lower for those who grow in the open and have smaller yields. By the same token, producers receive a better price when they sell their produce through formal channels than when they sell it informally.

Table V.1  
**Estimation of costs and margins along the chains**

Chain	Production cost	Wholesale purchase prices (dollars per kilogram)	Retail purchase price	Consumer price
Tomato and green peppers (open air production and sale through informal wholesale channels)	0.47	0.48	0.68	0.8
Tomato and green peppers (production under shelter and sale through formal wholesale channels)	0.35	0.52	1.15	1.3
	Production cost (pig farmers)	Production cost (packing plants)	Price paid by distributors	Super market sale price
Pork sausages (value capture per 100 pesos sold to the final consumer)	25	48 (includes the cost of the animal plus the cost of slaughter and quarring paid to the abattoir and the meat cutters)	65	100
	Production cost	Sales price to cottage industry cheeseries	Sales price to collection centres	Sales price to final customer
Average cost of milk production	12-22	16-22	21-23	50-65 (supermarkets) 60-70 (colmados)
	Production	Transport	Import and distribution	Retail sale
Desegregation of final price of dried fruit in export markets (value capture per link)	25	10	25	40

**Source:** Prepared by the author, on the basis of N. Oddone and others, "Fortalecimiento de la cadena de valor de tomate y chile verde dulce en El Salvador", *Project Documents*, No. 13 (LC/MEXW.13), Mexico City, ECLAC subregional headquarters in Mexico, 2016; J. Alvarado and others, "La cadena de valor de embutidos y otras conservas de carne de cerdo en México", *Project Documents* (LC/MEXW.17/Rev.1), Mexico City, ECLAC subregional headquarters in Mexico, 2016; C. Gomes and N. Oddone, "Fortalecimiento de la cadena de valor de los lácteos en la República Dominicana", *Project Documents*, Mexico City, ECLAC subregional headquarters in Mexico, 2017; I. Romero, V. Diaz and A. Aguirre, "Fortalecimiento de la cadena de valor de los snacks nutritivos con base en fruta deshidratada en El Salvador", *Project Documents* (LC/MEXW.16), Mexico City, ECLAC subregional headquarters in Mexico, 2016.

#### **4. Institutions and organizations that support and regulate chains**

The chain methodology follows a systemic approach. As well as analysing the links and the relations between them, it studies the institutions and organizations that regulate and support chains: universities, research centres, business chambers and public agencies, among others. In general, a number of support agencies were identified in each case, but there was little coordination between them and insufficient human and financial resources to oversee and support activities. The chain diagnostics include a detailed account of their role, of which a brief summary is given below.

In the dairy chain, the stakeholders receive support from different private entities and producers' associations, such as the Dominican Association of Milk Producers (APROLECHE), livestock farmers' federations, cooperatives and associations for specific activities within the chain (Dominican Association of Processors of Dairy Products and Derivatives and the Dominican Association of Dairy Industries, among others). In the public sphere, there are two promotion and regulation agencies in particular: the Directorate for Livestock of the Ministry of Agriculture and the National Council for the Regulation and Promotion of the Milk Industry (CONALECHE). Other public support agencies are the Dominican Institute for Quality (INDOCAL) and the Dominican Institute for Agricultural and Forestry Research (IDIAF).

Among the institutions that form part of the public support network for producers of tomato and green pepper in El Salvador are several departments of the Ministry of Agriculture and Livestock (MAG), the National School of Agriculture (ENA), the National Centre of Agriculture and Forestry Technology of El Salvador (CENTA) and the Agricultural Development Bank (BFA). There is little association between producers in the private sphere.

The activities of the pork sausage chain in Mexico are subject to standards on animal health, which are the responsibility of the Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA), through the National Service for Agroalimentary Public Health, Safety and Quality (SENASICA), and on human health, which are regulated by the Ministry of Health through the Federal Commission for Protection against Health Risks (COFEPRIS). These public agencies, together with the Secretariat of Economic Affairs, the Shared Risk Trust (FIRCO) and the Agency of Services for Marketing and Agricultural Markets Development (ASERCA), among others, offer different types of support for the chain. In the private sector, the chain has several support agencies, among them the Organization of Pig Farmers (OPORPA), the Confederation of Mexican Pig Farmers (CPM), the National Chamber of

Manufacturing Industries (CANACINTRA), the National Agricultural and Livestock Council (CNA) and the Mexican Meat Council (COMECARNE).

Lastly, the dried fruit snacks chain has support in the Ministry of Economic Affairs (MINEC) and the Ministry of Agriculture and Livestock (MAG). In terms of technical assistance and new knowledge, support is provided by the National Centre of Agriculture and Forestry Technology of El Salvador (CENTA) and universities, such as the University of El Salvador and the Catholic University of El Salvador. There is also a broad range of laboratory tests offering physiochemical and microbiological analyses; however, there is a limited number of firms offering certification services. In terms of financial services, the actors in each chain can turn to the Agricultural Development Bank (BFA) and loans associations.

### **C. Bottlenecks**

This section presents the main bottlenecks that prevent the value chains analysed from upgrading and making a greater contribution to the meta-objectives. Although the focus is on the challenges, the diagnostics also helped to identify strengths, which are summarized in the document on each chain.

- The first bottleneck arising in each of the four chains is the significant heterogeneity in terms of productive and technological capabilities. The primary production and processing chains suffer from large gaps in terms of productivity and profitability between the actors making up the chain, especially between large and small producers. Small size affects the capacity to achieve economies of scale, access financing, buy equipment and machinery, negotiate prices for raw materials and gain access to sources of technological and market knowledge. These differences were observed between pig farmers, growers of tomatoes and green peppers, and large and small cattle farmers, but also between makers of sausages, producers of dried fruit and cheese makers. As shown in table V.1, the difference in production costs between tomato growers with access to undercover growing conditions and those growing in the open is from 35 to 47 cents per kilogram.
- Organization is weak and highly fragmented between and within links in the chain. Producers of tomato and dried fruit in El Salvador show little association, whereas the pig farmers in Mexico were organized around two competing associations. The lack of trust and high degree of informality in these relations are the main reasons for this situation. This bottleneck is particularly notable in interactions between producers and sellers, where tensions often arise and agreements are breached.

- The four chains face strong competition from imports. The volume of production, price and quality are factors that work against domestic producers. El Salvador relies heavily on imports of tomato and fruit, mainly from other Central American countries and often at a lower price and of higher quality than can be obtained in the local market. This competition occurs both through formal channels and in the form of contraband. In the case of the pork sausages, there is a broad supply of imported pork, mainly from the United States, generally at lower prices than the national product, with standardized delivery terms and governed by contracts several months ahead. In the dairy chain, only a quarter of the milk produced in the country is of good enough quality to be industrially processed, so large and medium-sized firms use imports to satisfy their need for quality inputs.
- Dependence on imports also occurs in the case of agricultural inputs (for example, fertilizers, medicines and genetic material), specialized inputs (such as packing materials and chemicals for food processing) and machinery and equipment for primary processing activities. This constitutes a bottleneck, because prices are higher and availability is lower, and the specialized services usually associated with the sale of inputs, machinery and equipment are not always easy to obtain.
- Primary and processed products were found to fall short on quality and safety, especially in the case of small producers. This is closely linked to the following three bottlenecks.
- Weaknesses were found in the application of Good Agricultural Practices (GAP), Good Livestock Practices (GLP) and Good Manufacturing Practices (GMP). For example, it was found that fruit growers in El Salvador have difficulty in tracking sanitary issues to the point of origin and avoiding contamination between plots. By the same token, producers of tomatoes and milk were interested in applying GAP to achieve better biosafety and traceability.
- Producers lack access to specialized human resources, technological knowledge and business management skills. For example, small and medium producers in the sausage chain face the challenge of training their staff in GMP. Chains were found in general to need stronger business capacities, on the part of both growers and processors, on various topics, such as production planning, marketing, logistics, negotiation skills, accounting and finances.
- Low investment in research, development and innovation (R&D&I). On the one hand, producers do not usually have the

human and financial resources to engage in these activities. On the other, where there are technology or research centres in the country who could provide specialized services to the chain, there are weak links or none at all.

These bottlenecks lead to higher production costs and lower productivity. As documented in the reports on the dairy and tomato chains, productivity is low, even when compared with other countries within the subregion.

- Primary producers lack capacity to engage in processing activities (manufacturing). In the tomato and green pepper chain, there are no processors transforming local primary production into sauces, preserves or other agro-industrial products. By the same token, processors of primary products, especially smaller ones, face challenges in terms of quality, price and innovation, as shown in the case of those engaged in fruit drying.
- Access to national and international markets is a challenge faced by all the chains. For small producers, it is difficult to participate in formal markets that demand sanitary accreditation, labelling, nutritional tables, barcodes and certifications. Quality and good practices are crucial to obtaining certifications that open up access to commercialization channels. Foodstuffs, whether primary or processed, need a growing number of certifications in relation to fair trade, organized production and freedom from chemical substances such as monosodium glutamate.
- Lack of knowledge about the market, transport equipment and means of financing forces producers to resort to intermediation services to commercialize their products. As shown in table V.1, a great deal of value is often captured in commercialization and final sales of products, cutting into the profit margins of producers. There are also cases in which intermediaries affect product quality, where they lack the proper transport equipment, for example refrigerated trucks to transport milk.
- Lack of access to financing is a bottleneck that is directly linked to all the previous ones. Primary activities in general are considered high-risk by the financial sector, while small agribusinesses find it hard to obtain credit in the formal market, owing to difficulty in meeting banks' collateral or paperwork requirements, or because the interest rates are too high. As documented in the case of the tomato and green pepper chain, investment in technology for growing vegetables and the learning curve producers face involve timescales that do not match up well with lenders' payment schedules. In countries that have development banks,

the actors in the chain, especially the smallest ones, encounter difficulties in meeting the requirements owing to their lack of financial statements, solid business plans or formalization of activities (payment of taxes and social security contributions).

- Consumers receive incomplete information about the quality and advantages of their products. For example, in the sausage chain, it was found that consumers have few elements —apart from price— for evaluating the quality of the products they buy, which may represent a disincentive to manufacture higher-quality sausages that consumers cannot easily distinguish from others. A similar situation arose with regard to varieties of tomato and green pepper. Another consumption-related factor has to do with limited expansion of local demand for products in the case of mature markets such as for sausages, and in new niches, such as the dried fruit. In both situations, the limited increase in demand is a bottleneck to growth of the chain.
- There is in general little statistical information about the chain. For one thing, the chain represents a small part of economic activity, so detailed information cannot be obtained from the national accounts. Industrial and agricultural censuses are more accurate sources of quantitative information at the chain level, but are not always available or carried out regularly. For example, the most recent agricultural census in the Dominican Republic is from 1998. Another point is that, where statistical information exists, it is often dispersed across several systems which are not always comparable. This is another bottleneck in terms of the formulation and evaluation of public policies.
- As discussed in the previous section, chain activities are regulated and supported by various public agencies. The bottleneck here is associated with the lack of coordination of public support for the chain, lack of funds and the discontinuity of programmes. Lack of coordination between agencies precludes synergies and rational use of resources. There are no multi-year plans that would serve as a basis for giving follow-up and continuity to the actions undertaken. The resources committed have been insufficient to meet the needs of chains.
- The last bottleneck is the lack of consideration of the impact the chain may have on the environment, and of the effects of climate change on the chain. For example, agricultural activities evidence a lack of knowledge on the management of plastic containers that include environmentally harmful agrochemicals, which are thrown into fields and into water sources. There is also little awareness of the potential economic benefits of implementing

clean technologies and environmental stewardship measures. No strategies were identified for adapting productive activities to new climate conditions or to yield-harming weather phenomena.

Table V.2 groups these bottlenecks into three categories: production; distribution, commercialization and consumption; and institutional.

**Table V.2**  
**Bottlenecks in the value chains of primary products and agro-industrial analysed**

Production	Distribution, commercialization and consumption	Institutional
Heterogeneity in productive and technological capacities	Insufficient capacities to access formal national and international markets	High degree of fragmentation and weak organization within and between links, and high level of informality in relations and lack of trust between actors
Strong competition from imported products sold at lower prices	Lack of market knowledge	Weak coordination, discontinuity, and lack of resources of public support programmes
Reliance on imported inputs, machinery and equipment	Lack of information among consumers on the quality and advantages of products	Lack of statistical information on the chain
Insufficient quality and safety standards of primary and processed products		Insufficient access to financing
Weak application of GAP, GLP and GMP		
Lack of access to specialized human resources		
Low level of investment in R&D&I		
Limited capacities to engage in processing activities		
Lack of an environmental strategy and a strategy for mitigating the effects of climate change		

**Source:** Prepared by the author, on the basis of N. Oddone and others, "Fortalecimiento de la cadena de valor de tomate y chile verde dulce en El Salvador", *Project Documents*, No. 13 (LC/MEX/W.13), Mexico City, ECLAC subregional headquarters in Mexico, 2016; J. Alvarado and others, "La cadena de valor de embutidos y otras conservas de carne de cerdo en México", *Project Documents* (LC/MEX/W.17/Rev.1), Mexico City, ECLAC subregional headquarters in Mexico, 2016; C. Gomes and N. Oddone, "Fortalecimiento de la cadena de valor de los lácteos en la República Dominicana", *Project Documents*, Mexico City, ECLAC subregional headquarters in Mexico, 2017; I. Romero, V. Díaz and A. Aguirre, "Fortalecimiento de la cadena de valor de los snacks nutritivos con base en fruta deshidratada en El Salvador", *Project Documents* (LC/MEX/W.16), Mexico City, ECLAC subregional headquarters in Mexico, 2016.

## D. Strategies for strengthening rural value chains

Strengthening rural value chains requires a broad set of policies. Comparative analysis of the chains identified three categories of policies: institutional strengthening, agricultural development policy and rural industrial policy. Although they are presented separately below, the three groups are complementary and must be coordinated. In fact, there is much in common between tools geared towards primary activities and those for the manufacturing and services sectors. The differences occur in support activities and how they are approached, and the actors towards whom they are directed.

## 1. Institutional strengthening

Institutional strengthening creates a solid framework for primary and manufacturing activities in rural value chains, as well as better coordination between them. The work carried out on the four value chains identified the following five common strategies:

- (i) Coordinate public action to regulate and support the chain. The recommendation is to appoint one public agency to coordinate the various public sector actions relating to the chain. This agency will be responsible for overseeing the integration and alignment of actions.
- (ii) Strengthen the capacities of the public sector to formulate and evaluate policies, and to oversee and supervise the activities in the chain. It is essential to increase the financial resources committed, but also to build capacities among public officials. Oversight of provisions on animal welfare, product safety (primary and agro-industrial) and surveillance of compliance with GAP and GMP, among other objectives, is key to ensuring product quality and fair competition between actors.
- (iii) Update the regulatory framework to facilitate the operation of the chain and reduce the uncertainty over gaps or poorly defined areas. Actions should include defining the precise sphere within which each public department will operate, in order to avoid duplications, overlaps and omissions in policy implementation; publishing official technical standards on product specifications or characteristics; and making changes to the land ownership regulations in order to afford certainty to producers.
- (iv) Design multi-year targeted public strategies that outlast government administrations. With the value chain methodology, targeted strategies can be designed at the level of the stakeholders that make up each link.
- (v) Strengthen the preparation and dissemination of statistics to support better analysis, formulation and evaluation of public policies. Analysis at the chain level also requires information from surveys and censuses, as well as that available from the national accounts, in order to obtain data at the level of the stakeholders that make up the links.

## 2. Agricultural development policy for value chain strengthening

The instruments listed below are not an exhaustive list of all those available for agricultural development policies, but a summary of the strategies aimed at strengthening the four value chains studied.

- Foster a culture of agricultural product quality and safety through training courses and dissemination of good practices for the various links of the chain. Strengthen the provision of services for improving quality, such as quality control laboratories, metrology and standardization.
- Develop biosafety and traceability programmes for agricultural chains. Support the implementation of GAP and GLP through training, technical assistance and access to financing, and facilitate partnerships between producers for fulfilment of GAP and GLP regulations.
- Improve farmers' productive and managerial capacities through ongoing training programmes, for which it is crucial to develop outreach programmes with universities and technical schools that have curricula and research areas relevant to the activities of the chain.
- Promote R&D&I to improve the quality of agricultural products and their yields; step up research activities in areas related to the chains (for example, genetic enhancement and specialized practices); strengthen collaboration between producers and technical schools, laboratories, universities and research centres; and establish collaboration with international research centres.
- Facilitate access to financing by adapting commercial and development bank instruments in terms of guarantees, credit and risk assessment, loan extension processes and cost calculations, among others.
- Design and implement an agricultural insurance scheme for stakeholders in the chain, with instruments adapted to the needs and capacities of small rural producers, including the construction of a system of environmental risk identification.
- Promote measures to mitigate the effects of the chain's activities on the environment. The livestock farming segment, for example, could introduce silvopasture systems, programmes to prevent overgrazing, living fences, and plans for composting waste and using the industry's residues (as well as bagasse from the beer industry and molasses from the sugar industry) as cattle feed. It is also recommended to adopt alternative sources of energy on farms and at collection centres and sales points, in order to reduce costs and environmental impacts.
- Improve irrigation systems and increase water productivity through use of technology, awareness-raising concerning its use, protection from pollution and soil restoration. These actions may include promoting conservation or precision agriculture, and more efficient and ecological use of inputs such as fertilizers.

- Foster association within and between links of the chain, in order to help achieve economies of scale, shared procurement of machinery and equipment, and larger-scale commercialization, among other benefits. Instruments include dialogue forums, legal assistance for setting up associations and incentives that are conditional upon joint project implementation. It is also recommended to strengthen the capacities of private associations by means of technical assistance, training and financing.
- Facilitate commercialization and distribution of agricultural products, by means of various actions: forge or strengthen links between producers and commercialization channels (supply centres, supermarkets, restaurants and so on); foster the design of market intelligence strategies to provide information about national and international market trends; and support investment in transport equipment in order to distribute products in optimal conditions, for example.
- Promote the consumption of the chain's final products by designing campaigns to inform about the nutritional advantages, guidelines for distinguishing product quality and incentives to consume national products.
- Use the power of public procurement to boost the chain. An example is the use of school meals programmes, which demand a large volume of agricultural products, to increase the demand for national products, especially from small producers. This tool must be accompanied by technical assistance to guarantee product quality and price competitiveness.
- Oversee fair competition in markets where agricultural products are sold, which requires, for example, eliminating unfair competition from contraband and avoiding excessive controls over price setting and purchase conditions.

### **3. Rural industrial policy for value chain strengthening**

Like the previous section, this one presents instruments proposed for strengthening the four chains analysed, although this is not an exhaustive list of all the rural industrial policy instruments available.

- Design and implement trade and competitiveness policies to support rural producers of agro-industrial goods. As noted in chapter II, these policies are not usually directed towards any group in particular. They consist of negotiations to facilitate access to international markets, infrastructure to support supply-chain logistics and macroeconomic policies to provide certainty to producers, among others.

- Ensure that fair competition exists in markets where agro-industrial products are sold. As for primary products, efforts are needed to combat unfair competition from contraband, avoiding excessive controls over price setting and purchase conditions, and ensure that barriers are not raised to the entry of new competitors, among other things.
- Create specialized courses on technical and business management aspects for actors in the chain. For example, for the snacks chain, it was recommended to design a diploma course on a range of topics in which producers expressed interest: drying techniques, quality assurance, certification processes, labelling standards and finance. Support for this must be sought from technical colleges and universities.
- Promote the implementation of biosafety and traceability schemes and GMP in general. Because these are agro-industrial products, programmes must be linked with GAP and GLP.
- Facilitate access by small agro-industrial producers to financing, including by adapting the design of financial products and recognizing the needs and capacities of these producers. In this regard, it is recommended to design alternative credit rating methods, broaden the scope of guarantee services, and link support for investment in machinery and equipment to technical assistance schemes. Another suggestion is to develop insurance against sanitary and market risks.
- Foster a culture of quality among agro-industrial producers and at all the links of the chain, for which regular training workshops need to be held for stakeholders to raise awareness of the importance of preserving quality and safety throughout the process; support the formation and strengthening of firms that provide specialized quality enhancement services; and increase the support of metrology laboratories and standardization services. These actions extend to other links of the chain, for example to distributors and sellers, who are also responsible for ensuring that the product reaches the consumer in the best possible condition.
- Build the commercialization capacities of the various actors who make up the chain. On the one hand, producers need assistance to develop a market intelligence strategy to identify demand segments for their products, their desirable characteristics and their competitors. This must also include assistance for brand development or strengthening, packaging and labelling, and certification. On the other hand, small agro-industrial producers

may need assistance in negotiations with main sales channels—usually supermarkets, local stores and restaurants—in order to obtain the best possible conditions.

- Foster the transformation of primary products and upgrading to products with greater value added. Promote technical assistance and financial support for small agricultural producers who wish to boost their income by processing their produce. This also includes supporting business incubation and start-ups to develop rural-based agro-industrial products.
- Promote R&D&I activities to improve product quality, reduce costs and create new agro-industrial products. Support can be provided to producers and entrepreneurs, but also to universities, technical colleges and research centres associated with the productive sector. Support for the transfer and adaptation of technologies is crucial.
- Foster stronger associations between representatives of each link (horizontal), and stronger relations between links (vertical). Like in agricultural development policies, methods include facilitating forums for dialogue, legal assistance for setting up associations and financial incentives that are conditional on joint implementation.
- Provide assistance to producers to create collective brands, for which they will need logos and slogans, communications campaigns and common quality criteria among the brand members.
- Promote greater consumption of agribusiness products. A number of approaches can be used, such as increasing the consumption of products for which demand is mature (such as sausages and cheese) by emphasizing their advantages; promoting products with new characteristics (for example, dried fruit snacks); and promoting the consumption of nationally produced products, whenever possible.
- Encourage the introduction of measures to mitigate the chain's impact on the environment, while increasing producers' profits. One strategy is to foster renewable energy projects and energy efficiency in processing primary products. Another is to encourage the purchase of primary products that follow environmental standards for the management of pesticides and fertilizers. Yet another is to use environmentally sound packaging and campaign for its proper disposal after use.

Table V.3 summarizes the strategies for strengthening the rural value chains analysed.

Table V.3  
**Strategies for strengthening the rural value chains analysed**

Institutional framework	Agricultural development policies	Rural industrial policy
<ul style="list-style-type: none"> <li>- Coordinate public regulation and support actions</li> <li>- Strengthen the capacities of the public sector to design, implement and evaluate policies</li> <li>- Update the regulatory framework</li> <li>- Design multi-year targeted strategies</li> <li>- Strengthen the preparation and dissemination of statistics</li> </ul>	<ul style="list-style-type: none"> <li>- Oversee competition in agricultural markets</li> <li>- Foster a culture of quality and safety among agricultural producers</li> <li>- Develop biosafety and traceability schemes for agricultural production</li> <li>- Improve the productive and management capacities of agricultural producers</li> <li>- Promote R&amp;D&amp;I</li> <li>- Facilitate access to financing</li> <li>- Design an agricultural insurance scheme</li> <li>- Promote measures to mitigate the environmental impact of agricultural activities</li> <li>- Improve irrigation systems</li> <li>- Foster association</li> <li>- Facilitate the commercialization and distribution of agricultural products</li> <li>- Promote consumption and improve consumers' access to information about agricultural products</li> <li>- Use the power of public procurement</li> </ul>	<ul style="list-style-type: none"> <li>- Implement commercial and competition policies to benefit agro-industrial production</li> <li>- Oversee competition in agro-industrial markets</li> <li>- Provide specialized courses in business management and technical aspects of the chain</li> <li>- Develop biosafety and traceability schemes for agro-industrial production</li> <li>- Foster a culture of quality and safety among agro-industrial producers</li> <li>- Support capacity-building for producers to engage in processing primary products</li> <li>- Strengthen commercialization capacities and support negotiations for entry to national and international markets</li> <li>- Facilitate access to financing</li> <li>- Promote R&amp;D&amp;I</li> <li>- Foster association between agro-industrial producers</li> <li>- Promote greater consumption of agro-industrial products</li> <li>- Provide assistance for developing collective brands</li> <li>- Promote measures to mitigate the environmental impact of the chain</li> </ul>

**Source:** Prepared by the author, on the basis of N. Oddone and others, "Fortalecimiento de la cadena de tomate y chile verde dulce en El Salvador", *Project Documents*, No. 13 (LC/MEX/W.13), Mexico City, ECLAC subregional headquarters in Mexico, 2016; J. Alvarado and others, "La cadena de valor de embutidos y otras conservas de carne de cerdo en México", *Project Documents* (LC/MEX/W.17/Rev.1), Mexico City, ECLAC subregional headquarters in Mexico, 2016; C. Gornes and N. Oddone, "Fortalecimiento de la cadena de valor de los lácteos en la República Dominicana", *Project Documents*, Mexico City, ECLAC subregional headquarters in Mexico, 2017; I. Romero, V. Diaz and A. Aguirre, "Fortalecimiento de la cadena de valor de los snacks nutritivos con base en fruta deshidratada en El Salvador", *Project Documents* (LC/MEX/W.16), Mexico City, ECLAC subregional headquarters in Mexico, 2016.

## E. Conclusions

The cross-cutting analysis of primary product chains showed that, although they operate in different national contexts, are formed around different products and have different degrees of development, they face similar constraints in relation to productive and technological capabilities, access to financing, technological and market knowledge and access to final consumers. This is especially true for small producers, whereas large firms, some of them transnationals, and large-scale producers have significantly greater capabilities. The productive context is therefore very heterogeneous.

This chapter has illustrated the instruments available to rural industrial policy to achieve one objective in particular: to strengthen value chains. There are a great variety of instruments for productive development in diverse areas, such as training, innovation, commercialization and good practices. As may be observed in greater detail in the full studies on each case (Oddone and others, 2016; Alvarado and others, 2016; Gomes and Oddone, 2017; Romero and others, 2016), the value chain approach serves to develop targeted strategies for each link of the chain and for the chain overall. Each strategy identifies the actors who will benefit and those responsible for providing support, as well as the specific issues relating to each intervention.

Rural industrial policy is different from agricultural development policies, since it focuses on manufacturing activities carried out in rural areas, usually agribusiness and handcraft industries, or on the provision of services such as rural tourism, which will be addressed in chapter VI. However, the two policies must be coordinated, especially when the value chains at which efforts are directed have links across the primary, secondary and tertiary sectors. As illustrated in this chapter, the instruments used for the two policies have much in common, although they differ in approach, the stakeholders they benefit and the activities they support. Rural industrial policy is not concentrated on agribusiness activities alone, but encompasses services that are provided and other manufactures that are made in the rural environment. The following chapter discusses another field of action: the promotion of rural tourism.

The value chain approach serves to make goods production and services provision more competitive and more efficient. If support strategies focus on manufacturing but disregard primary activities, they run the risk of having to deal with poor-quality raw materials and encountering price and safety issues, which would make agro-industrial producers uncompetitive or lead them to seek a better supply of raw materials in the import market. The value chain approach also addresses the challenges that arise in terms of distribution and commercialization.

A key characteristic of the value chain methodology is that it is participatory (see chapter III). The bottlenecks in the chain, which are summarized in the third section of that chapter, are validated by the chain stakeholders by means of direct interviews and roundtable discussions. The strategies themselves are also validated and actions prioritized by means of roundtables. This reflects something that is highly desirable in rural industrial policy: it should be the outcome of agreements between the public and private sectors, with each assuming an active role in productive development in the rural environment.

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## Chapter VI

# **Strengthening tourism value chains in rural settings**

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Nahuel Oddone*

### **Introduction**

Tourism is a social, economic and cultural phenomenon in which people travel to destinations away from their normal place of residence, for either personal or business purposes. The structure and governance of tourism value chains tend to be quite complex. Demand is made up of different market segments and subsegments. Tourists travel for many different reasons and seek increasingly specific services. For example, in the ecotourism subsegment there is a highly specific demand for tour operators, travel agencies, excursions, hotels and restaurants. The increasing use of certifications and quality seals has raised the standard of service and the expectations of tourists.

The tourism industry is made up of a range of products and services that interact to fulfil a tourist experience that combines both tangible (hotels, restaurants, air carriers, security) and intangible parts (such as a beautiful sunset or pleasant climate) (Debbage and Daniels, 1998). These elements combine to create the “value” of the experience, which is satisfied only by a chain in which a range of actors contribute to supply both these tangible and intangible values.

The supply of tourism services can be diversified and strengthened by coordinating a value chain that receives investment from the private sector and support from the public sector. The value chain approach makes it possible to engage new actors and services for tourism and improve coordination between and within links to build a better tourist experience. Given the nature of tourism, the actors involved directly and indirectly in the value chain form part of a service supply system in which cooperation is crucial for achieving a fairer distribution of benefits.

This chapter offers a cross-cutting analysis of the support needed to design public-private strategies that foster economic and social upgrading in three tourism value chains in El Salvador, Guatemala and the Dominican Republic that were studied between mid-2014 and mid-2016.<sup>1</sup>

The three value chains are located in rural areas, but cater to different segments: ecotourism, rural community tourism and the integration of rural areas into consolidated tourism destinations. Fostering these activities is one of the areas of work of rural industrial policy. The development of tourism activities in rural areas is a key factor in achieving progressive structural change by creating employment, generating complementary sources of income, training human resources, upgrading infrastructure, and strengthening other related productive chains through the provision of inputs and the integration of excluded or vulnerable groups. It also generates other positive social impacts, such as intercultural dialogue between tourists and locals (Frías, Garry and Oddone, 2016). The rural approach to tourism incorporates non-traditional actors, such as small farmers, livestock rearers, fishermen and craftspersons, who can all integrate their activities into the value chain. The environmental dimension also occupies a central place in this approach.

The three territories analysed face common bottlenecks in strengthening their respective tourism value chains: insufficient infrastructure, underdeveloped tourism products and destinations, lack of technical capacity and tourism culture, limited commercialization and sales strategies, and problems of inter-institutional coordination, among others. The strategies designed for the three chains coincide in the importance of having a good-quality supply of tourism services that provide higher incomes and better living standards for the respective local populations, while ensuring that producers and suppliers of local

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<sup>1</sup> See the full project documents for the three value chains: “Fortalecimiento de la cadena de turismo de Antigua Guatemala y de los municipios rurales del Departamento de Sacatepéquez”, Oddone and Alarcón (2016); “Fortalecimiento de la cadena de turismo en el Departamento de La Libertad, El Salvador”, Garry and Martínez (2016); *Cadenas de Valor Turísticas en el Departamento de la Libertad, San Salvador*, Frías, Garry and Oddone (2016), and “Fortalecimiento de la cadena de valor del turismo en Pedernales, República Dominicana. Versión Preliminar”, Alvarado, Gil and Oddone (2016) [online] <http://www.cepal.org/es>.

tourism services capture a fair share of the value generated by the chain. Proper protection of environmental resources is particularly important in this regard, since it is an essential part of a destination’s attraction for tourists.

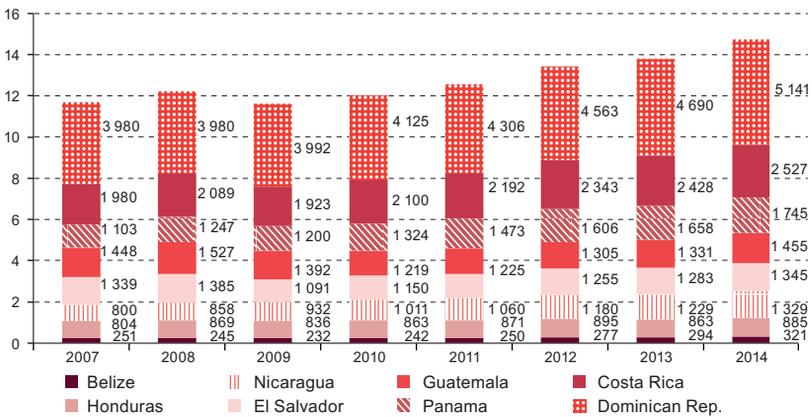
Following the introduction, this chapter is divided into six sections. Section A offers a brief overview of the regional context of the tourism sector and its evolution over the past decade. Section B highlights the different meta-objectives established in each case to foster the productive development of the respective value chains. Section C summarizes the main findings in the value chain structures analysed. Section D provides a summary of the bottlenecks to social and economic upgrading that were identified in the respective chains. Section E offers an overview of the strategies that may be useful for resolving the operational conflicts in the chains and section F concludes the chapter with some general reflections.

### A. Regional context for tourism

The American continent received over 180.6 million international tourists in 2014, according to data from the United Nations World Tourism Organization (UNWTO). Altogether, the number of international tourist arrivals rose by an average of 7% per year over the past decade. According to statistics from the Secretariat for Central American Tourism Integration (SITCA), Central America received 9.61 million tourists in 2014 (see figure VI.1).

Figure VI.1

Central America and the Dominican Republic: international tourism arrivals, 2007-2014  
(Millions of persons)



Source: Prepared by the authors, on the basis of S. Garry and R. Martínez, “Fortalecimiento de la cadena de turismo en el Departamento de La Libertad, El Salvador”, *Project Documents* (LC/MEX/W.18), Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC), 2016.

According to data from SITCA, the main origins of tourists in Central America in 2013 were: other Central American countries (40% of the total), North America (36%), South America (12%) and Europe (9%). Of the tourist origin countries outside Central America, the United States was the largest. Most foreign tourists visiting the region arrive by air, followed by land-based transport, especially in the case of tourists from other Central American countries. According to UNWTO (2016), the Dominican Republic is the largest destination country in the Caribbean.

Significant differences in the numbers of tourist arrivals were seen among the three countries studied:

- (i) According to data from the Guatemalan Tourism Institute (INGUAT), Guatemala received 2 million visitors in 2013. Guatemala has become a relatively accessible destination, particularly from the major sources, namely Canada, the United States and Europe.
- (ii) According to data from the Salvadoran Tourism Corporation (CORSAATUR), in 2014 1.9 million visitors arrived in El Salvador. International tourists represented 71.3% of the total, while the other 28.7% were domestic. A key component of the visitor flows consists of Salvadorans living abroad, known as the “hermano lejano”, returning to visit family or learn about their country’s natural environment, history and culture.
- (iii) According to central bank data, in 2015 the Dominican Republic received a total of 5,599,859 visitors, including foreigners and non-resident Dominicans. The Dominican Republic Hotel Association (ASONAHORES) reported that 4,832,956 passengers arrived by air that year. The largest share of these tourists arrived at Punta Cana airport, followed by Las Américas airport in Santo Domingo and the airport in Puerto Plata.

## **B. Meta-objectives**

The first step in strengthening value chains is to establish meta-objectives (Padilla and Oddone, 2016). The three chains studied focused on specific meta-objectives, established on the basis of dialogue with the relevant institutional focal point for each case. Although a particular approach was applied to each chain, all three consider tourism an engine of economic and social development in their respective territories. Tourism is also identified as a strategic sector in all their national development plans.

The Department of Sacatepéquez (Guatemala) has the potential to incorporate the tourism activities carried out in the small rural

municipalities surrounding Antigua into its tourism value chain, given that the industry in Antigua is already consolidated. The meta-objectives centred on the generation of new products and destinations in selected rural municipalities around the departmental core of Antigua: Ciudad Vieja, Jocotenango, Pastores, San Antonio Aguas Calientes, San Juan Alotenango, San Miguel Dueñas, Santa María de Jesús, Sumpango and two villages in Antigua (San Cristóbal el Alto and San Juan del Obispo) (see map VI.1). The process was the outcome of technical collaboration among the Economic Commission for Latin America and the Caribbean (ECLAC), the Ministry of the Economy of Guatemala (MINECO) and the National Competitiveness Programme (PRONACOM), with the support of INGUAT.

Map VI.1  
Guatemala: Department of Sacatepéquez

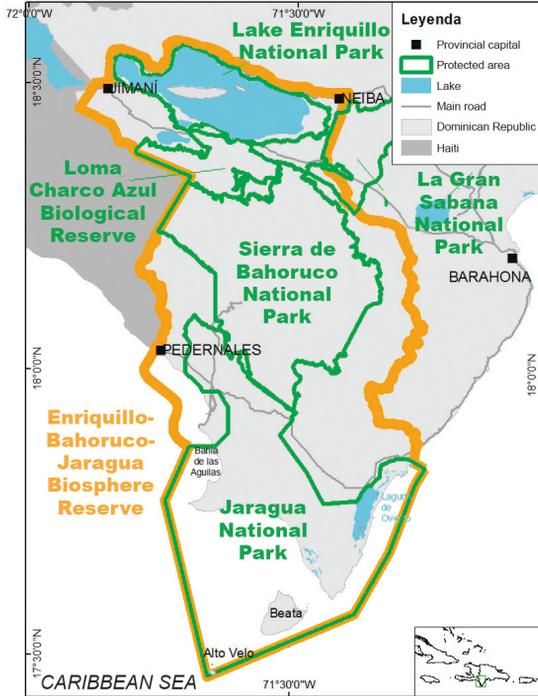


**Source:** N. Oddone and P. Alarcón, "Fortalecimiento de la cadena de turismo de Antigua Guatemala y de los municipios rurales del Departamento de Sacatepéquez", *Project Documents* (LC/MEX/W.15), Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC), 2016.

**Note:** The boundaries and names shown on this map do not imply official endorsement or acceptance by the United Nations.

The analysis of the value chain in Pedernales (Dominican Republic) was based on the need to strengthen the participation of small producers of tourism goods and services, all micro- and small enterprises in the value chain, and to define the type of tourism destination that is to be consolidated in the Province. In general, traditional tour operators in the Dominican Republic work with mass tourism, mainly the sun and sea segment, which demands all-inclusive packages. The chain analysed poses challenges in terms of the tourism vocation of the territory (see map VI.2). The process was carried out together with the Vice-Ministry for the Promotion of SMEs of the Ministry of Industry, Commerce and SMEs (MICM), and was supported by the Department of Planning and Development of the Ministry of Tourism (MITUR).

Map VI.2  
Dominican Republic: the Province of Pedernales and its protected area



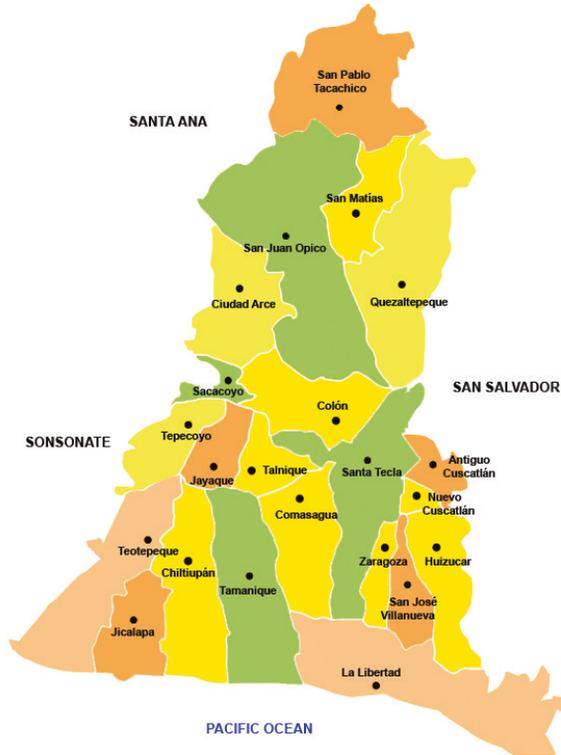
**Source:** J. Alvarado, L. Gil y N. Oddone, “Fortalecimiento de la cadena de valor del turismo en Pedernales, República Dominicana. Versión Preliminar”, *Project Documents*, Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC)/International Fund for Agricultural Development (IFAD), 2016.

**Note:** The boundaries and names shown on this map do not imply official endorsement or acceptance by the United Nations.

In the department of La Libertad (El Salvador), the project focused on strengthening territorial links between four selected municipalities—Chiltiupán, Comasagua, Puerto de La Libertad and Tamanique—connecting the Sun and Sea Route with complementary attractions in the region’s rural areas (see map VI.3). The meta-objective of the study was to include rural and local producers in the tourism value chain by incorporating their different products or services. The objective was to link the consolidated offer of sun, beach and surfing tourism in this corridor, with the possibility of visiting nearby mountains and rural communities. The main partners in this initiative were the Ministry of the Economy (MINEC) and the Ministry of Tourism (MITUR), through the Salvadoran Tourism Corporation (CORSATUR).<sup>2</sup>

<sup>2</sup> See a detailed analysis of support institutions linked to each of the chains in the studies published and available free of charge in the ECLAC online document repository.

Map VI.3  
El Salvador: Department of La Libertad



**Source:** S. Garry and R. Martínez, “Fortalecimiento de la cadena de turismo en el Departamento de La Libertad, El Salvador”, *Project Documents* (LC/MEX/W.18), Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC), 2016.

**Note:** The boundaries and names shown on this map do not imply official endorsement or acceptance by the United Nations.

In all three cases, the idea was to create and strengthen links with communities and local suppliers, in order to build identity and forge a collective tourism brand. By building infrastructure or facilities to support the tourist industry, development at the local level in rural communities can bring benefits both for tourists and for local residents. Promoting a symbiotic relationship between society, culture and the environment is essential for the development and strengthening of both main and complementary tourism destinations and products.

### C. Tourism value chains

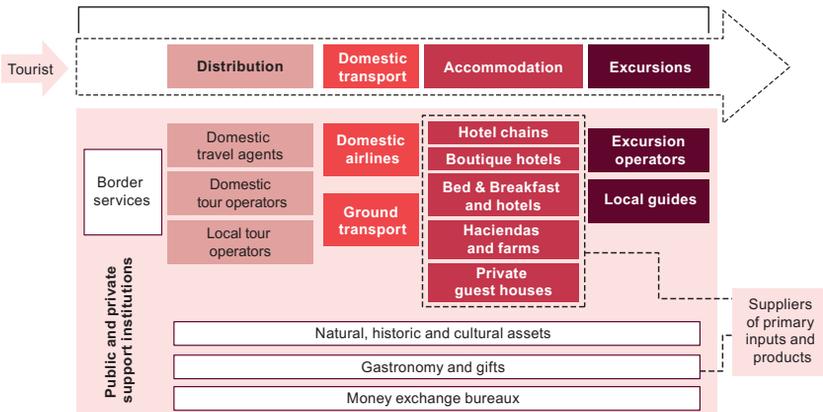
Tourism value chains consist of a set of interrelated economic activities. Tourists experience various activities throughout the value chain by

making use of the goods and services it provides during his or her visit. It is therefore important to ascertain the vertical complexity of the activity, which involves different providers all working for a single consumer (transport services, accommodation, restaurants, tour guides, etc.). In turn, these providers may be associated with one or more products and services (Oddone and Alarcón, 2016). The tourist consumes a range of products and services during an experience and comes into contact with tangible and intangible elements. The sensations caused by the “tourist experience” are the outcome of a series of linkages between supply and demand.

Tourism infrastructure refers to the physical elements —public and private— needed to access the destination and enjoy it safely. It includes, for example, transport infrastructure (roads, airports, parking facilities), health infrastructure (hospitals, health centres) and infrastructure for tourist safety and protection (police, civil protection, embassies, tourist information centres).

In the three cases studied by ECLAC, from the point at which the tourist arrives in the destination country, the tourism value chains split into four broad links: distribution, domestic transport, accommodation and excursions (see diagram VI.1). Each of these segments, in turn, has linkages with other inputs and services. There are also cross-cutting services which support the operation of the chain as a whole. Rural actors play a key role in the operation of the chain through the provision of primary inputs and products.

**Diagram VI.1**  
**A tourism value chain**



**Source:** S. Garry and R. Martínez, “Fortalecimiento de la cadena de turismo en el Departamento de La Libertad, El Salvador”, *Project Documents* (LC/MEX/W.18), Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC), 2016.

The following sections present a summary of the main characteristics of each link in the chains starting from the point at which tourists arrive in the country.

## 1. Tourists

Given that tourism constitutes a living experience, the activities of the value chain begin with the purchase of a ticket (distribution link) by the person who wishes to visit a new destination through a travel agency or tour operator, or independently from an online firm or wholesaler supplying the service. The tourist may also simply make his or her own way to the destination.

In the three tourist destinations analysed, the main consumers were domestic visitors,<sup>3</sup> although international visitors were also identified. The Department of La Libertad is one of the most visited destinations by international tourists, who come to surf (approximately 40% of all international tourists entering the country). Antigua has high numbers of Guatemalan and international day visitors, but outside the high season, hotel occupancy is only around 40%, with stays seldom exceeding two nights. Pedernales receives very few international tourists despite having the beaches of Bahía de las Águilas, Piedra Blanca and Cabo Rojo, Pelempito's Hole (a lush hollow below sea level) and the Jaragua and Sierra de Batoruco National Parks as main attractions, owing to the distance from the Dominican Republic's main urban or tourist centres, and the lack of infrastructure to facilitate their arrival in the Province. Sixty-eight per cent of Pedernales Province is protected natural areas, which serve as strong potential tourist attractions.

## 2. Distribution

The intermediation and distribution of tourist services is handled by international tour operators and travel agents and, to a lesser extent, local and specialized operators based in each country. The main travel agencies are located in the largest cities (San Salvador, Santo Domingo and, in the case of Guatemala, in Guatemala City and Antigua), and in the main tourist centres, such as Punta Cana in the Dominican Republic. Smaller local agencies (most of them with fewer than four employees) use specialized local guides, as well as other means of promotion, to offer their services and packages. Because few tour operators actively market

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<sup>3</sup> Depending on the length of their stay, arrivals are classified as either: (i) tourists, if they stay at least one night, or (ii) visitors, if their visit lasts for less than a day.

the rural areas studied as tourist destinations, most visitors arrive in these areas by their own means.

In the three cases analysed, the local tour operator exercises significant control over the governance of the value chain and, thus, over the possibilities of other products or tourist destinations joining the chain in either a principal or complementary capacity. Thus, tour operators in Guatemala are responsible for adding destinations to the options around the city of Antigua, the operators in El Salvador hold the potential to link municipalities in the mountainous areas and the operators in the Dominican Republic could generate a range of possibilities that could become consolidated as ecotourism destinations. The tourist attractions in Pedernales have been very little marketed by Dominican travel agencies, some of which have arrangements with international intermediaries and generally do not offer packages to visit the province separately, but rather together with other provinces in the south of the country.

### 3. Transport

Accessibility is indispensable for the development of tourist destinations. Collective or individual ground transport is the main means for tourists to reach the three destinations analysed. Both La Libertad and Sacatepéquez, which are relatively close to their respective capital cities, have access difficulties owing to heavy traffic on the access roads. In both cases, there is an international airport relatively nearby, although in Guatemala international fares remain high. Access to Pedernales is quite difficult because of the distance from Santo Domingo and road infrastructure issues.<sup>4</sup> There is an airport close to Pedernales, at Barahona, but it has lost national and international flight connections because of low air-traffic volumes.<sup>5</sup>

In general, the actors in the distribution link fall into three categories: (i) local tour operators, (ii) tourist passenger transport firms

<sup>4</sup> Santo Domingo is about 300 km from the town of Pedernales by road, which takes about 5 hours of travel. The first 185 km (Santo Domingo-Barahona) are in good repair and take 2.5 hours. However, the stretch from Barahona to Pedernales is poorly maintained and signposted, and some parts are dangerous because of animals on the road. This stretch can take another 2.5 hours. In some circumstances, the whole trip can take up to 7 or 8 hours. Within the Province, the conditions of roads, many of them dirt tracks, hinder access to tourist locations.

<sup>5</sup> There are two airports in the south-east of the country: Pedernales and Barahona. Pedernales Airport, located at Cabo Rojo, is only open for use by military planes and helicopters, and Barahona International Airport, which is a category 3 airport, is used by small aircraft, although it has the infrastructure for large aircraft. Barahona caters to private aviation and receives about 892 flights and around 500 passengers per year, since most of its operations are cargo flights.

with established itineraries, and (iii) inter-city or rural public transport companies. Several tour agencies and operators in El Salvador and Guatemala have ground transport, such as shuttles with set itineraries in the region or private bus trips to different destinations, normally operating non-stop between destinations. For example, there is an international service from La Libertad to Antigua (Guatemala) and to León (Nicaragua), which are frequent stops on regional tourist routes, especially for young people and backpackers.

Notwithstanding these transport services, movement and connectivity in the areas under study are still limited by lack of local connections (especially with rural areas), the absence of set timetables for public transport and, in some cases, safety risks for tourists.

#### **4. Accommodation and gastronomy**

Accommodation and gastronomy services are a central link in terms of adding value to the traveller's experience. In the three territories analysed, especially in Pedernales, work is needed to strengthen the supply of these services. A potentially valuable vertical link for the gastronomy sector is the agricultural output of nearby areas, as well as fishing in the cases of La Libertad and Pedernales. The main products with strong potential for incorporation in the activities of the value chain include basic grains, vegetables and fruit. The regions also produce dairy products, poultry and fish (mainly artisanal fishing), among other potentially useful primary products.

In 2013, Sacatepéquez had 154 establishments offering suitable tourist accommodation, with a capacity of 2,130 rooms and 6,225 beds. The hotels are geared towards different market segments: domestic or international visitors travelling for business or pleasure. Antigua accounts for over 90% of the accommodation capacity of Sacatepéquez, in terms of both establishments and beds. Outside Antigua, there are two hotels in Ciudad Vieja and one each in the localities of San Juan Alotenango, Jocotenango, Santa Lucía Milpas Altas and Sumpango. The gastronomy supply in Sacatepéquez is made up of 315 establishments registered as restaurants or cafes, including some attached to hotels. Although most of these are in the urban area of Antigua, there is potential to develop other options with local cooks in the municipalities around Antigua, such as Ciudad Vieja and San Juan del Obispo.

In 2012, the Department of La Libertad had 51 hotels offering 953 rooms of various sizes (making up 12.5% of the total hotel room supply in El Salvador). Most were classified as relatively small beach

hotels, with between 8 and 20 rooms each. The region has restaurants, cafes and bars for different tastes, at widely ranging prices and with several challenges in terms of quality. At El Tunco beach (in the municipality of Tamanique) the options range from beachfront bars and restaurants (most of them associated with a hotel or hostel), to *pupuserías* (traditional Salvadoran diners serving thick corn tortillas known as *pupusas*), cafes, pizzerias and informal vendors who walk up and down the beach, to international restaurants offering Italian, Japanese and Mexican cuisine, among others.

In Pedernales, most establishments are guest houses and hostels that do not meet the criteria for hotel classification by stars. A field study by Alvarado, Gil and Oddone (2016) identified 12 establishments offering a total of 171 rooms between them. The dining options in Pedernales include mainly fish and shellfish bought at fish stalls, from independent fishermen or in the binational market shared with Haiti.

## 5. Excursions

Local tour operators or tour guides are key actors in the development of different tourist destinations, from the establishment of new tourist routes for visits, to the programming of activities capitalizing on their local knowledge. Comparing the three cases, the excursions link shows a certain dispersion in terms of the development of activities. Operators in Sacatepéquez have developed a degree of maturity and diversification, compared with El Salvador and the Dominican Republic, where excursions are organized on demand and sometimes informally. The options in Sacatepéquez are still highly concentrated around Antigua, however. This link still needs more formalization in order to provide a range of excursions and visits to different points of attraction, both natural and cultural, with a regular schedule and a higher degree of professionalism. Local tour organizers and guides (even independent ones) have great potential to manage and design routes in the rural areas and connect less-known attractions to what is offered by traditional tourism options.

Antigua has a diversified range of excursions: (a) those that form part of packages bought by tourists from outside the country, (b) those sold through local travel agencies or tour operators, designed and offered to the public in general, and (c) those organized by local tour operators upon request by tourists. Tourists choosing this last option must organize their excursion independently and individually. Agencies design packages for different attractions, both in Sacatepéquez (volcano climbing, tours of

coffee plantations, cultural routes, visits to villages, and so on) and to other destinations in and beyond El Salvador.

In El Salvador, sun and sea tourism associated with surfing forms part of most packages bought by tourists from outside the country. However, there are also other significant options. In the Department of La Libertad, for example, TouRuralEs offers tourist experiences in mainly rural communities, where cooperatives and indigenous groups plan, manage and care for natural and historical resources which serve as tourist attractions. This type of tourism is a complement to the rural economy and stands out, among other reasons, for distributing tourist revenues more equitably and directly to communities.

Domestic tour operators that organize trips to the Province of Pedernales normally focus on Bahía de las Águilas and sometimes include the services of local tour guides. Although Pedernales has an association of local tour guides who have received training from the Ministry of Tourism (MITUR), the flow of operations is minimal because of the limited tourism activity in the Province. The services offered include bird-watching and trekking in the Sierra de Baoruco National Park. There are no promotion systems and the guides work only when local government offices or hotels request their services.

## **D. Bottlenecks**

Tourism value chains have a series of particularities, such as the key role of tourists as consumers and the form of “consumption” of the tourist experience, the large number of specialized services required and, in the three cases analysed, marked heterogeneity within and among value chain links. The following section lists systemic bottlenecks—those that affect each of the links of a chain along its length—and a summary of the specific bottlenecks common to each segment of the chain in particular. The systemic bottlenecks may be grouped into three areas: connectivity and infrastructure, market conditions and institutionalality.

- (i) The chains face restrictions related to air and ground transport infrastructure and connectivity. Difficulties in access to destinations were identified, well as contextual elements stemming from relatively unsafe travel conditions. Rural areas, in particular, have connectivity issues owing to the poor state of roads, which also hinder the transport of raw materials to different parts of the territories.

- (ii) In the institutional dimension, there was a lack of association among the actors comprising the value chain links. In addition, neither the traditional nor the non-traditional destinations in the chains studied compete under a collective brand. There are also technical weaknesses in local tourism committees, as well as little communication with the local government on tourism development or coordination of the chain through the consolidation of main suppliers. Furthermore, the statistical information available to the public for decision-making on tourism activities is inadequate. There are no up-to-date, standardized data available at the national, departmental and local levels on labour market conditions, local production, domestic and international tourist flows, and demand for services, among other indicators.
- (iii) In terms of systemic market-related bottlenecks, there is little awareness of how the tourism sector works or of how tourism value chains function in general. Destinations are not heavily promoted, especially rural destinations and attractions, and there is little diversification in terms of the tourism supply. There are no solid marketing strategies to position tourism products in new markets and diverse communities. Little consideration is given to alternative tourism schemes, such as ecotourism. In general, there is a lack of a tourism culture at the local level and there are no programmes or standards to ensure environmental sustainability (for example, difficulties in access to water for tourism and contamination of the territory and countryside). Providers of tourist products and services have inadequate access to credit and to suitable financial services. Some providers of tourist products and services are afraid to borrow in the formal financial system or lack the confidence to do so.

By link, restrictions are grouped in five main categories (see table VI.1): (a) distribution, (b) accommodation and gastronomy, (c) crafts and gifts, (d) transport, and (e) excursions. The link-specific bottlenecks influence the quality and business success of the firms that comprise the different links.

Table VI.1  
**Tourism value chains in rural areas: link-specific restrictions**

Distribution	Accommodation and gastronomy	Sale of crafts and gifts	Transport	Excursions
Little promotion of the products and services offered by municipalities	Difficulty in accessing drinking water and lack of wastewater treatment	Little innovation in the design of crafts	Traffic congestion on key routes (in the cases of El Salvador and Guatemala)	Lack of solid bargaining power of local tour operators and guides vis-à-vis international wholesalers (in the cases of El Salvador and Guatemala)
Lack of tourism culture among actors in the rural sector who act as suppliers	Shortage of equipment and infrastructure to produce and market local products	Tendency of craftspeople to work in isolation	Lack of modern, well-maintained infrastructure to connect complementary tourist products and services with traditional poles of attraction	Reluctance of tour operators to include new products and diversify their range of goods and services
Lack of cohesion between the different areas within a single municipality or department (countryside and city; beach and mountain)	Weak bargaining power of agricultural producers vis-à-vis intermediaries, which raises their costs	Lack of training for product marketing and promotion	Poor conditions of rural roads	Lack of consideration of alternative tourism schemes to promote and consolidate destinations
Little standardization of service quality	Agricultural producers' limited technical capacities and lack of product quality	Competition on price rather than on quality and value added		Absence of work on opening alternative market niches
	Higher energy costs for hotels	Non-existence of collective brands		

**Source:** Prepared by the authors on the basis of S. Garry and R. Martínez, "Fortalecimiento de la cadena de turismo en el Departamento de La Libertad, El Salvador", *Project Documents* (LC/MEX/W.18), Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC), 2016; R. Frias, S. Garry and N. Oddone, *Cadenas de Valor Turísticas en el Departamento de la Libertad, San Salvador*, Ministry of Tourism (MITUR)/Salvadoran Tourism Corporation (CORSATUR), 2016; N. Oddone and P. Alarcón, "Fortalecimiento de la cadena de turismo de Antigua Guatemala y de los municipios rurales del Departamento de Sacatepéquez", *Project Documents* (LC/MEX/W.15), Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC), 2016 and J. Alvarado, L. Gil and N. Oddone, "Fortalecimiento de la cadena de valor del turismo en Pedernales, República Dominicana. Versión Preliminar", *Project Documents*, Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC)/International Fund for Agricultural Development (IFAD), 2016.

- (i) **Distribution.** One of the main obstacles facing rural communities that have engaged in tourism activities is the proper distribution, commercialization and marketing of their products and services. This is often particularly relevant for non-traditional tourism alternatives, especially in rural areas. Smaller tour operators lack the scale to attend international fairs at which they could negotiate with international wholesales and propose changes to this governance structure. A major challenge to improving the distribution of activities in the rural environment is the lack of quality standards in the supply of products and services.
- (ii) **Accommodation and gastronomy.** In the chains studied, tourist accommodation, especially smaller facilities, are often built without considering technical regulations, and therefore do not meet minimum standards of design, construction and operation. Businesses need technical assistance in staff training, customer service, administration and hygiene, and in compliance with applicable national and international standards and rules, among other issues. Training in business and management skills for staff is notably inadequate. There are also particular bottlenecks associated with the link between accommodation/gastronomy and rural areas, mainly in the supply of inputs of raw materials and agricultural products. Most agricultural and rural producers work manually, make limited use of technology and have low levels of productivity. Because agricultural producers tend to have weak bargaining power vis-à-vis intermediaries, they remain isolated from the commercial sector.
- (iii) **Sale of crafts and gifts.** Another challenge for local communities is the lack of innovation in new handicrafts, souvenirs and gifts in order to compete on design, quality and differentiation. Some craftspeople also work in isolation and lack the skills and training necessary to market their products to tourists.
- (iv) **Transport.** The main rural access routes to tourist destinations have traffic congestion issues, especially in the cases of La Libertad and Sacatepéquez. There is also a lack of modern, well-maintained infrastructure to connect attractive destinations and provide complementary goods and services. As noted earlier, the state of rural roads complicates access to existing and potential tourist attractions outside the main core of the chains.
- (v) **Excursions.** Most local tour operators lack solid bargaining power vis-à-vis wholesalers to negotiate the inclusion of local tourist destinations. Tour operators tend to be reluctant to add

new products and services to their range of packages. In several cases, the chains studied did not include alternative or additional options, such as ecotourism or community tourism activities.

## **E. Strategies and public policy recommendations for tourism value chains**

There is increasing interest in all three countries studied in diversifying the tourism market. Although the new tourism products are defined as part of the objectives and strategies of sectoral policies, it is perfectly feasible to draw up public-private agreements for a destination (or destinations) and to prepare public investment programmes and private investment plans to strengthen the respective chains.

In its *Handbook on Tourism Product Development*, UNWTO (2012) set down suggestions and guidelines for the effective planning and implementation of tourism products and services within a territory. The *Handbook* states that tourism products should conform to the following principles:

- Be authentic and reflect the destination's unique attributes.
- Have the support of the host community (tourism culture).
- Respect the natural and cultural setting and avoid causing negative impacts.
- Be differentiated from the competition, without copying or imitating their initiatives.
- Be broad enough to represent a significant contribution to the economy, but not so broad as to drain economic resources.

Rural tourism—in the form of community tourism, sustainable tourism or ecotourism—has been promoted as a development alternative that can diversify income sources and create employment. Community tourism allows a high level of control and a considerable share of the planning of tourist activities and their benefits to remain in the hands of local communities. Decision-making on tourism development should involve cooperatives or neighbourhood organizations, among other agents. Community tourism implies a symbiotic relationship, in which the tourist is only part of the system, instead of the centre of attention. Ecotourism is a means for engaging members of rural communities in tourism sector activities and services, and helping to protect the environment. Sustainable tourism, aimed at reducing the negative externalities of the activity on the environment and on the cultural and social landscape, refers to actions geared towards ensuring the maintenance of natural resources and cultural expressions, while also providing socioeconomic benefits for countries and local communities.

Certification is a very common practice in the tourism sector. Certification processes are usually aimed at instilling a culture of service excellence, through continuous training for local human capital aimed at enhancing the quality of services and systematic improvement of quality. Professional and support services —such as certifications, technical assistance and research and development— are crucial for technological modernization, increasing value added and opening access to international markets. However, it is always necessary to judge the timing for certifications and consider who will carry out this task, which should be approached after the initial capacity-building and relative improvement in the quality of services (see diagram VI.2).

Diagram VI.2  
Tourism: certification process

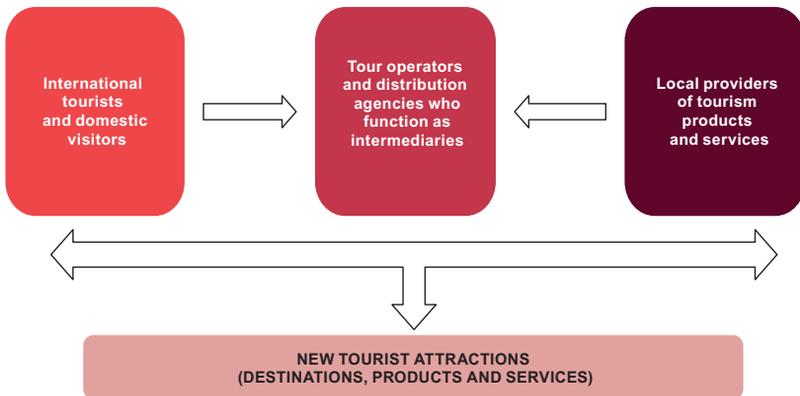


Source: Prepared by the authors.

Diagram VI.2 can readily be adapted to the reality of the three chains studied, since it starts with a group of homogenous individual sustainable enterprises that, with the support and assistance of international cooperation or government resources, can participate in a certification process. The development of this scheme, however, depends on the characteristics the process takes on and the governance structure of the respective chain. Governance of tourism chains is a very relevant factor, especially in the formulation of the different approaches to alternative tourism. In tourism value chains, governance refers to the relations and the balance of influence among the buyers, sellers, service providers and regulatory institutions operating in the chain and playing a central role in the steps necessary for taking a tourism product or service from its inception through to final use.

In tourism value chains, such as in the cases of the Departments of Sacatepéquez and La Libertad, power tends to be concentrated in the hands of tour operators and distribution firms. The actors in other links of the chains are also relatively dependent on tour operators to promote their new destinations and tourist services and to sell innovative tourism products. This is extremely important in the case of rural products and destinations, since these actors have less capacity to promote their services. In this regard, the tourist is also relatively dependent upon local tour operators to obtain information about alternative or complementary tourism activities, as well as access to other territories or municipalities (see diagram VI.3).

**Diagram VI.3**  
**Governance of tourism value chains: key actors and their role in developing new destinations or products**



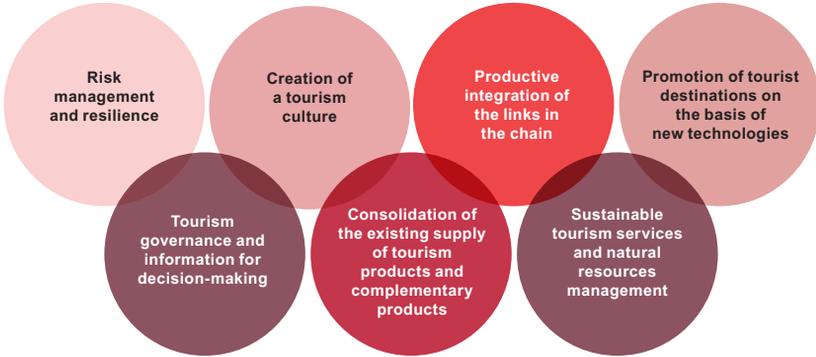
**Source:** Prepared by the authors on the basis of N. Oddone and P. Alarcón, “Fortalecimiento de la cadena de turismo de Antigua Guatemala y de los municipios rurales del Departamento de Sacatepéquez”, *Project Documents* (LC/MEX/W.15), Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC), 2016 and S. Garry and R. Martínez, “Fortalecimiento de la cadena de turismo en el Departamento de La Libertad, El Salvador”, *Project Documents* (LC/MEX/W.18), Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC), 2016.

In the Province of Pedernales, conversely, given the relative lack of mature distribution agents and tour operators, there is scope to experiment with alternative models for tourism promotion and destination management (Alvarado, Oddone and Gil, 2016). In the absence of a mature distribution link, the more consolidated hotels and restaurants play an important role in the governance of the local chain and in regulating its organization.

Economic and social upgrading strategies are designed with reference to international good practices and success stories, with an emphasis on lessons from other Central American and Latin American countries. The recommendations were designed so that their implementation will promote tourism development in the destinations, and improve the distribution of value added along the chain. This will be accomplished through the technical enhancement of tourism activities and coordination among services, the formulation of linkages with markets, the supply of new services and products to incorporate the rural sector, the projection and marketing of rural tourism destinations under collective brands and identities, and efforts to enhance enterprise sustainability.

In tourism, recommendations must be integrated within a collective public policy framework (including industrial policy, rural policy, and science and technology policy, among others) involving all the links of the value chain and, therefore, taking into account complementarity with other national strategies. Diagram VI.4 summarizes the public policy strategies for upgrading in tourism value chains.

Diagram VI.4  
Strategies for strengthening tourism value chains



**Source:** Prepared by the authors on the basis of S. Garry and R. Martínez, “Fortalecimiento de la cadena de turismo en el Departamento de La Libertad, El Salvador”, *Project Documents* (LC/MEX/W.18), Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC), 2016; R. Frías, S. Garry and N. Oddone, *Cadenas de Valor Turísticas en el Departamento de la Libertad, San Salvador*, Ministry of Tourism (MITUR)/Salvadoran Tourism Corporation (CORSATUR), 2016; N. Oddone and P. Alarcón, “Fortalecimiento de la cadena de turismo de Antigua Guatemala y de los municipios rurales del Departamento de Sacatepéquez”, *Project Documents* (LC/MEX/W.15), Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC), 2016 and J. Alvarado, L. Gil and N. Oddone, “Fortalecimiento de la cadena de valor del turismo en Pedernales, República Dominicana. Versión Preliminar”, *Project Documents*, Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC)/International Fund for Agricultural Development (IFAD), 2016.

Work on the strategies for strengthening rural tourism value chains has identified a number of specific opportunities for private sector action, as well as strategic areas of public sector management and support, which together can consolidate and build on the work of the actors that comprise the chain. These programmes and strategies form a road map for the integration of tourism sector actors in the respective destinations, each from their own perspective. Public sector authorities, small tourism business-owners and those involved in projects to develop local tourism must all be aware of their role in the value chain and must understand how their individual development impacts collective development.

There follows a summary of cross-cutting public policy options for strengthening tourism value chains, with the aim of building more equitable and sustainable tourism. The strategies are grouped within seven public policy programmes that offer specific actions for resolving the shared bottlenecks found in the chains studied.

A programme to strengthen tourism culture can be based on the following strategies:

- **Identify or add value to natural and cultural resources** as main tourist attractions in the respective destinations. Stimulate local, rural or community enterprises under a collective rationale.
- **Transform the way communities view tourism** through a process of awareness-raising. Carry out a citizen sensitivity training and

tourism culture building programmes to convey the positive impacts of tourism activities for local populations, such as direct and indirect job creation, increased spending in local markets, and community and economic development. The programme should take into account the different target audiences and make use of the formal school system.

- **Build the capacities of skilled labour** by organizing training and programmes to increase levels of professionalism for local craftspeople. This should be done with the aim of integrating young people and women, by recovering local craft techniques, and support for innovation with respect to the materials and sales and marketing techniques used not only to support in situ demand, but also to generate a supply that can be commercialized at the national level. Boost capacity-building opportunities for workers in the sector and for service providers, small businesses and tourism providers through skills certification.

The following strategies may be considered for consolidating the existing tourism product supply and developing complementary alternatives:

- **Build tourism products with technical expertise** to facilitate the structuring of good-quality, sustainable thematic routes and innovative tourist circuits. Create complementary local, rural and community products and services, developed under a rationale of quality and sustainability to reduce the failure rate and favour social upgrading.
- **Promote the strengthening of tourism routes and circuits in a systematic manner** in each destination. Foster the integration of municipal-level tourist routes and circuits to complement national and regional ones, and ensure proper coordination between municipalities.
- **Strengthen tourism in rural communities** by generating pilot products to ensure proper local governance aimed at sustainable tourism. Promote the sustainability of tourist services offered along the chain. Focusing on different types of tourism —such as ecotourism, rural community tourism and others— diversifies the traditional attractions of traditional tourism destinations.

There are a number of possible strategies for developing sustainable tourism services and managing natural resources:

- **Progress towards building a normative structure that will help to ensure proper environmental management;** the aim is to progress at the national, departmental and local levels in the preparation of legal operating standards and codes or zoning

systems to support responsible upgrading of the value chain. Building principles that avoid damage to natural resources must be applied when developing the infrastructure needed to expand tourism products and services.

- **Design an awareness-raising programme on the environmental aspects and impacts associated with hotel and restaurant services**, with particular reference to the high consumption of water and energy and the generation of waste and wastewater. Long-term investment in infrastructure for wastewater and sewage treatment, waste management and the use of energy from different sources are key aspects of this programme. At the more operational level, the different links in the chain should also apply clean production methods or tools and use natural resources in an equitable manner, for example in the use of water for cleaning hotels and restaurants, among others.

To foster integration between the links in the chain, strategies based on the following activities may be considered:

- **Strengthen commercialization and negotiation** and promote participation in local and international fairs. These tools include leaflets, guides, participation in promotion and marketing events, “fam” trips, marketing alliances and targeted training courses.
- **Promote the supply and purchase of local inputs** by establishing a network of tourism businesses. Foster the establishment and purchase of collaborative local inputs by planning in stages and ensuring that supply can be linked with the specific demand for each product.

With regard to the use of new technologies to promote tourism destinations, key strategies include:

- **Design a comprehensive plan for digital tourism marketing** to enhance the position of the marketing strategies in search engines. Marketing initiatives can be strengthened by creating a regional electronic marketing office to boost the destination’s social networks and tourism activities, and to manage partnerships with other online sites. As practical steps, innovation schemes can be used to design mobile applications and redesign the websites of tourism ministries and tourism promotion agencies.
- **Facilitate the development of a collective brand** to identify and position the region as a rural/cultural or natural destination complementing the initial product or destination. It is important to design a tourism brand that represents the destination, so that a single symbol represents the characteristics of the tourism offerings,

differentiates a place from other destinations and gives the local tourism product its own image. An associated communications plan will also need to be designed and put into practice.

As a central pillar of a policy to strengthen tourism governance and information for decision-making, the following is recommended:

- **Improve the collection and measurement of tourism-related statistical data** (flows, expenditures, and employment, among other indicators) with the support of central banks, national organizations and international agencies. Promote inter-institutional dialogue by creating forums with shared information on proposals, perspectives and courses of actions undertaken by different actors. It is also essential to develop the various tools for managing tourism data, such as the collection of local statistical data through the Tourism Satellite Account. Access to information strengthens the sector and empowers those making decisions on tourism-related matters.

Lastly, as part of a programme to manage risk and build tourism resilience, the following strategies may be considered:

- **Design and apply an integrated tourism risk management plan**, compiling information about the sources of risk. This should be conducted on the basis of scientific data, records of past events and consultations with stakeholders, experts and the main groups affected. These risks may come from natural sources (disasters, volcanic eruptions, floods or fires), social threats (political violence, changes in power), health (influenza such as A(H1N1)) or situations of violence (terrorism). Establish the parameters and indicators within which risk management activities will be conducted.
- **Strengthen national tourism safety programmes** in coordination with the national police force and police specialized in tourism-related matters. Identify concerns and risk perceptions in the destination in order to establish the criteria for risk evaluation and, if necessary, increase the police presence in the area.

## F. Concluding reflections

This second empirical chapter has illustrated the application of a rural industrial policy strategy in the services sector, by strengthening tourism value chains in rural areas. Generating complementary sources of income for the rural population, by their direct participation in the provision of tourism services or in value chain links as providers of primary inputs, promotes inclusive development in the territories.

Reflecting on the make-up of tourism value chains and their economic and social spillovers requires analysis of the conformation and delimitation of each of its links, the governance structures in each territory and the real possibilities of upgrading. Undoubtedly, it means analysing the local capacities needed to generate and distribute tourism value added among the participating populations, as well as strict and conscientious care of natural resources and the environment. It is also worth reviewing the composition of local links at the territorial level that can be connected with traditional economic activities, such as agriculture or fishing, whose actors can operate as suppliers of inputs for the chain or as providers of tourism services through visits to their farms or boat trips or fishing along the coast, when the activity is available.

In the three cases analysed, despite the keen interest of the local population in engaging in tourism activities, there is little awareness of how tourism value chains work or how the market operates. Local enterprises and the population in general do not know how to treat tourists and do not necessarily have a tourism culture in terms of customer or visitor service orientation. Most enterprises are fairly experimental, therefore they are likely to face difficulties further down the line owing to improvised facilities and a lack of technical and administrative skills. Businesses tend to be highly informal and they usually have difficulties in accessing financing or support programmes.

The current and potential flows of international tourists visiting the Dominican Republic, El Salvador and Guatemala, as well as domestic visitors, represent an opportunity to create new experiences and diversify the supply of tourism products, as well as to launch specific projects linked to rural and community tourism, ecotourism or sustainable tourism, in a regional context whose tourism industry is based mainly on the sun and sea segment.

The value chains approach also empowers communities and territories to consider and formulate the type of development they aspire to, be it mass sun and sea tourism, gastronomic tourism based on local agriculture and primary products native to the region, or ecotourism and sustainable tourism based on the local natural and cultural resources. Defining the sort of tourism to be fostered helps empower actors along the chain and to channel their efforts in pursuit of joint development. Tourism value chains are useful tools for driving both economic and social upgrading, especially in rural communities.

If the municipalities that were studied here are to benefit from tourism, they will have to work jointly to attract tourists to the areas outside the main poles of attractions —sun and sea in the cases of El Salvador and the Dominican Republic, and the core attraction of colonial tourism in Antigua in the case of Guatemala— towards rural or mountainous areas and communities surrounding the main attractions,

which operate as a pull factor. To achieve that, they must strengthen the capacities of local residents to participate more actively and efficiently in the economic activities of the chain. Combining the tourism segmentation produced by the existing demand with the design of complementary products and destinations will contribute to upgrading tourism chains. Resolving the transport difficulties identified will help to consolidate an alternative range of possibilities for international and domestic tourists, as well as visitors seeking good-quality, alternative recreation in safe areas.

The value chains analysed enable the construction of multidirectional collective processes. The actions of the private sector must be treated as complementary to —and not as substitutes for— the efforts and responsibilities of the public sector. It is important to make sure that the private sector does not interfere with government action, especially in aspects relating to the regulatory framework. At the same time, the public sector must also offer potential private investors the necessary development space and openness, while overseeing due compliance with the existing legislation. In this regard, it is essential to have financing options available that are tailored for the characteristics of the actors in each chain, in order to leverage projects and enterprises under development and consolidate and improve the quality of existing options.

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## Chapter VII

# Conclusions

*Ramón Padilla Pérez*

Section A of this last chapter offers final thoughts about the central argument of this book: that strengthening value chains, as a rural industrial policy tool, is a highly effective approach for bringing about progressive structural change. Section B focuses on the creation of new chains using a variant of the value chains methodology discussed earlier that can also be applied in rural areas. As part of the joint project of the Economic Commission for Latin America and the Caribbean (ECLAC) and the International Fund for Agricultural Development (IFAD) entitled “Inclusive Growth, Rural Industrial Policy and Participatory Value Chains in Latin America and the Caribbean”, technical assistance was provided to the Government of Costa Rica in the creation of a largely rural agro-industrial chain for the production and commercialization of vacuum-fried chips. Since this initiative is detailed in one of the project documents (Cordero and Padilla, 2017a) and in chapter VII of Oddone and Padilla Pérez (2017), this section will simply provide a brief overview and then focus on the contribution it has made to the design of industrial policies for application in a rural environment. Section C explores the strengths of the value chain approach and the challenges to be met, then goes on to plot out some lines of future work.

## **A. Strengthening value chains, rural industrial policy and progressive structural change**

Structural change, understood as changes in the composition of the structure of value added and employment (Krüger, 2008), is widely recognized as being closely associated with greater economic growth over the long term (Harada, 2015; Szirmai, 2012; Lin, 2012; McMillan and Rodrik, 2011). Structural change does not, however, necessarily translate into better economic and social conditions for the population. ECLAC (2016) has added in the term “progressive” to reflect the fact that not all forms of structural change have the same kinds of outcomes. Progressive structural change is characterized by a transformation that leads to steady, inclusive and environmentally sustainable growth, and in order to achieve that type of growth, an integrated policy package needs to be in place.

As in other regions, the rural areas of Latin America and the Caribbean have undergone sweeping changes in recent decades. Accordingly, rural development strategies need to be rethought in order to adapt them to these changes. Chapters I and II defined the rural environment —on the basis of a combination of demographic, sectoral and territorial criteria— as geographical areas with low population density in which social interactions and economic processes take place that reflect shared objectives and provide them with a collective identity. Rural economic activities are multisectoral and, while the core activities are sited in the agricultural sector, complementary manufacturing and service activities, such as agro-industry, crafts and rural tourism, are gaining ground. Major changes now taking place include a decline in the shares of agricultural employment and value added in total rural economic activity, greater interdependence between agriculture and other sectors such as manufacturing and services, the growing importance of learning and innovation processes, the shrinking rural population, changes in connectivity with urban centres and the emergence of new agents and new forms of inter-agent coordination.

The challenges facing rural areas were discussed in chapter I. That analysis focused on Central America and the Dominican Republic, where most of the work to strengthen value chains was done under the ECLAC/IFAD project. These countries’ rural areas continue to account for a large part of their economic activity, despite the structural changes that have taken place in the last few decades. In 2015, the rural population represented 46% of the total population in Honduras, 44% in Guatemala and 42% in Nicaragua. Sharp economic and social differences between rural and urban areas also remain. For example, in Guatemala, the poverty rate among the rural population in 2015 was 77.2% as compared to 58.1% in the country’s urban areas.

Productive development challenges in the rural environment were grouped into four categories: institutional, environmental sustainability,

commercialization, and productivity and innovation challenges. The institutional challenges have to do with centralism in the design and implementation of public policies, regulatory schemes that do not provide opportunities for smaller production units and the absence of participatory processes for the development, implementation and assessment of public policies applied in rural areas. Environmental sustainability challenges include the formulation of strategies for coping with the hazards and risks posed by weather-related events, the effects of climate change on water resources and the mitigation of production activities' environmental impacts. The challenges to be met in the area of commercialization relate to the highly volatile nature of international commodity prices and the barriers in the form of a lack of market information, certifications and transport equipment, among other things, that face producers who want to sell their products on formal markets. Challenges in the area of productivity and innovation include a lack of technical knowledge and managerial expertise, limited access to financing and lack of linkages within value chains.

Rural industrial policy is aimed at meeting those challenges. It involves the use by the State of policy tools designed to strengthen rural production activities as a means of bringing about structural change based on the promotion of processing (manufacturing) and service activities, along with heightened integration and complementarity with other faster-growing and more knowledge-intensive activities, markets and sectors. In order to develop an integrated approach to these challenges, rural industrial policy needs to be coordinated with agricultural and rural development policies, among others. Although the term "rural industrial policy" may seem to encompass contradictory concepts, the recent shifts in rural areas have blurred the apparent contradiction. It is important to note that rural industrial policy is not aimed at sidelining the core production activities of rural areas, but rather at upgrading them and supplementing them with activities associated with the secondary sector (e.g. agribusiness and craftwork) and tertiary sector (e.g. rural tourism, environmental services and professional services).

The methodology for strengthening value chains presented in chapter III is an instrument of rural industrial policy. First, it takes a microeconomic approach focusing on the agents that make up the various segments of the value chain and their interrelationships. This approach makes it possible to identify bottlenecks and devise targeted strategies. Second, the methodology entails an analysis of public organizations and institutions that regulate and support the chain and can enhance the coordination of the various public policy tools for strengthening chains in various areas. Third, the central pillar of this methodology is close involvement of the public sector, the agents in the chain and support agencies (employers' associations, universities and specialized service

providers, among others) at every stage of the process in roundtable discussions, focus groups and the actual work involved in implementing the project. The creation of dialogue roundtables provides an opportunity for forging agreements not only between public and private agents but also within the public and private sectors themselves.

Rural industrial policies do not necessarily bring about progressive forms of structural change. The approach and the tools used to implement those policies are what determine the kind of economic, social and environmental impact they will have. The participatory methodology developed by ECLAC and its incorporation of environmental, gender and social inclusion considerations help to ensure that the strategies that are designed will pave the way for progressive forms of structural change.

Chapters V and VI provided a cross-cutting analysis of the work done under the project to strengthen seven rural value chains, which were grouped into two categories: primary and agribusiness chains and tourism value chains. Both types of cases illustrate the application of rural industrial policy tools. In the first category, strategies were directed towards fostering a culture of quality and safety among agribusiness producers, supporting their efforts to build the productive and technological capabilities needed to move into processing activities, encourage producers to form associations, open up access for small producers to formal national and international markets and provide incentives for the use of techniques and measures to mitigate the environmental impacts of the chain's activities. The work done within the framework of rural industrial policy to strengthen tourism value chains focuses on integrating the production activities conducted in each link of the chain, promoting tourism destinations with the help of new technologies, fostering sustainable tourism services and natural resource management, consolidating the existing supply of tourism services and developing complementary products and destinations.

## **B. The creation of value chains**

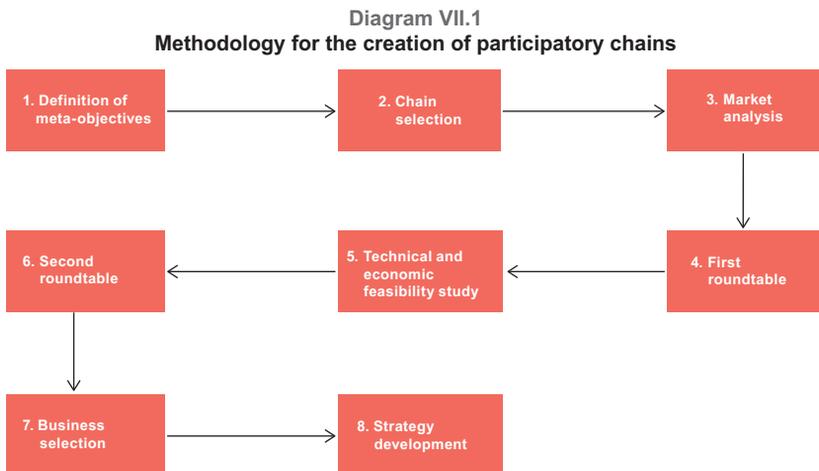
In 2014, the Foreign Trade Corporation of Costa Rica (PROCOMER) and the Ministry of External Trade of Costa Rica (COMEX) requested technical advisory services from ECLAC to assist with the creation of export-oriented value chains. In response to this request, ECLAC broadened its methodology to incorporate productive start-up concepts and tools by drawing on its previous work in strengthening existing value chains: (i) market studies; (ii) technical and economic feasibility analyses; (iii) identification of potential agents of the chain; and (iv) marketing and sales strategies.<sup>1</sup>

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<sup>1</sup> This section is based on the full report of the work done with this value chain (Cordero and Padilla, 2017a).

In order to develop a sound strategy for creating a new chain, a consortium of the following four different teams was formed: (i) PROCOMER and COMEX, as representatives of the public sector of Costa Rica in its effort to further the country's productive development of exportables, contributed their expertise in the areas of commercial intelligence and supporting business initiatives; (ii) the Centre for Science and Food Technology (CITA) of the University of Costa Rica provided the technological know-how required to develop the chain's main product; (iii) Auge, the University of Costa Rica's business incubator, which joined the project through the Sinergia start-up project run by CITA and the Costa Rican Food Industry Chamber of Commerce, helped to prepare the technical and financial feasibility study, the commercialization and sales plan and the strategy for the start-up of operations; and (iv) ECLAC coordinated the work of the various teams and provided assistance with the application of the methodology. This consortium brought together the knowledge and experience needed to create the new value chain while at the same time helping to consolidate a national structure that could be used to create more chains in the future.

Diagram VII.1 illustrates the eight steps involved in the methodology for the creation of value chains: (1) definition of meta-objectives; (2) selection of the chain; (3) market analysis; (4) first roundtable; (5) technical and economic feasibility study; (6) second roundtable; (7) business selection; and (8) development of strategies for the start-up of the chain's operations.



**Source:** M. Cordero and R. Padilla, "Creación de una cadena de valor: chips fritos al vacío en Costa Rica", *Estudios y Perspectivas-Sede Subregional de la CEPAL en México series*, No. 171 (LC/TS.2017/14; LC/MEX/TS.2017/6), Mexico City, Economic Commission for Latin America and the Caribbean (ECLAC), 2017.

A brief description of each of the stages involved in the creation of the vacuum-fried chips value chain is given below.

- PROCOMER and COMEX were in charge of setting the project's meta-objectives, which were defined as follows: create jobs; place priority on the least developed areas (outside the San José Greater Metropolitan Area (i.e. rural areas); promote exports; and boost value added by expanding local production linkages.
- The process of selecting the chain began with an analysis of the proposals submitted for 10 agrifood products prepared by CITA. A matrix of quantitative indicators was built for this purpose, and it was determined that the vacuum-fried chips proposal held the greatest potential for achieving the meta-objectives that had been defined.
- The market study for this value chain was conducted by the Commercial Intelligence Division of PROCOMER using an exploratory methodology and information from secondary sources (primarily international databases such as Euromonitor International and Marketline). The study indicated that a fruit-based (rather than vegetable-based) product should be chosen in order to make a bid for the fastest-growing markets (especially in the United States and the United Kingdom). In view of Costa Rica's current tropical fruit production capacity, it was concluded that these kinds of fruits should serve as the inputs for the new value chain.
- The first roundtable was convened by PROCOMER and was held after the market study had been prepared. Its objectives were to provide information to the participants about the project on the creation of a new value chain and to announce and validate the findings of the market study.
- The technical and economic feasibility study was carried out by CITA researchers and ECLAC consultants. The technical portion of the study determined what the optimum conditions were for the processing of commodities (e.g. temperature, vacuum pressure and frying time; slice thickness; speed of rotation and centrifugation time; identification of quality parameters that determine the shelf life of the products; and preliminary selection of packaging materials based on their useful life and cost). The economic portion of the study gauged the required size of the initial investment and the direct and indirect costs, estimated the unit cost and computed the projected financial flows. It also projected the economic and environmental impacts of the creation of this chain.

- The second roundtable was held after the technical and economic feasibility study had been completed and the business selection mechanism had been developed. The chief outcome of this roundtable was the drafting of an agenda for technology transfer for each business and the development of strategies for the creation of the value chain.
- The selection of the firms or producers that would be recipients of technology transfers and technical assistance was carried out on an objective basis. A group of potential participants were invited to fill out a form on which they were asked to provide the following information: (i) how they could contribute to the achievement of the meta-objectives; (ii) what experience they had in the area of project development; (iii) what capabilities they had to meet the requirements set out in the technical and economic feasibility study; and (iv) how much entrepreneurial drive (motivation) they had to join the project. In the end, the four enterprises that met the basic requirements and scored the highest were selected.
- The last stage was the provision of support for the start-up of the chain's operations. The first step was to tour the selected firms in order to analyse their baseline situation and evaluate their business models. Because the intellectual property rights to vacuum-frying technology are owned by the University of Costa Rica and because business enterprises want to protect their confidential information, confidentiality and licensing contracts had to be negotiated. The next step was to draw up a plan for technology transfer, financial management and the start-up of operations.

The support provided for the creation of this vacuum-fried chips value chain serves as an example of one type of rural industrial policy for promoting the conversion of primary products into higher-value-added agro-industrial goods. The value chain approach proved to be a valuable addition to the initiative of private sector agents (producers, processors and suppliers of equipment and machinery) and of the various regulatory and other public and private agencies that supported the new chain.

### **C. Strengths, challenges and future lines of work**

The methodology for strengthening value chains that has been presented here has four main strengths. First of all, it includes exhaustive microeconomic analyses of the value chain itself as part of the baseline study and of the proposed rural industrial policy strategies. It also facilitates the development of programmes for bringing small producers into the larger production process and the design of tools for ensuring that

the value added generated by the chain is captured and distributed more equitably among the various agents involved, as well as promoting quality job creation and the consideration of gender, environmental and other cross-cutting factors. Because of these attributes, it helps to bring about progressive structural change.

A second strength of the methodology is that it is a participatory process. One of its pivotal elements is the organization of roundtables at which the participants analyse and validate the baseline study and the proposed strategies. These roundtables provide a transparent vehicle for analysing and arriving at decisions that will pave the way for public and private agents to reach agreement. Thus, one of the key components of the rural industrial policy proposal put forth here is the design of participatory strategies. The private sector plays an active role in the development and implementation of these strategies.

A third strength lies in the fact that the methodology fosters local capacity-building. At all stages in the process, provision is made for the active involvement of public sector agents and, in some cases, of representatives of private organizations, such as chambers of commerce, as well. The work done with these chains involved traditional rural actors (e.g. agriculture ministries), but differed in that these actors were invited to try out a new approach that entailed integrating their work with processing and service activities. Other agents that have frequently not figured among the traditional actors' high-priority rural development partners, such as ministries of industry and commerce, were also given a role to play.

The fourth strength of this methodology is that it is based on a systemic approach to industrial policy. The support provided for value chains is not confined to the main link or segment formed by the producers of final goods or services. Instead, the support network also takes in input and equipment suppliers, service activities (quality control, diffusion of new technologies, transport and others) and commercialization. Rural industrial policy thus needs to be integrated with rural development, agricultural development and other policies.

Two major challenges have been identified in the use of this value chain methodology. The first is the lack of funding for the implementation of the strategies developed in the process. It is often the case that a government will not have the financial capacity to fund implementation, which can discourage the agents that have been taking part in the initiative. It is therefore important to ensure that, from the very start, the baseline analysis and the strategy formulation process include an exploration of possible public, private and international funding sources. The second challenge is the possible lack of sufficient commitment and participation on the part of the agents involved in the chain and the public sector. Since this is a participatory initiative, a lacklustre response on the part of the

agents involved will slow down the process and reduce its impact in terms of the joint development of strategies and local capacity-building.

Its work with value chains has given ECLAC an opportunity to support the countries of the region in their efforts to implement strategies for changing production patterns by introducing new approaches and new policy tools. ECLAC continues to receive requests for technical assistance in strengthening value chains and remains firmly committed to providing member countries with this assistance. New lines of work and avenues for technical cooperation are also being opened up:

- The use of family remittances to strengthen value chains. Remittances are a valuable resource for facilitating the financial inclusion of small producers. These financial resources can be used productively to carry out strategies for strengthening value chains.
- The analysis of cross-border value chains. This line of work focuses on spurring inclusive growth and changes in production patterns through regional integration processes.
- Technical assistance for the development of specific links in value chains. Assistance can be provided, for example, in building the capacity of commodity producers to act as suppliers for large hotel chains or in identifying potential agro-industrial products as an outcome of the work done to strengthen commodity value chains.

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# Rural industrial policy and strengthening value chains

RAMÓN PADILLA PÉREZ  
Editor

Economic Development

Rural areas have undergone major changes in recent decades, such as the declining share of agricultural jobs and added value in total

economic activity, the greater interdependency between the agricultural sector and other sectors (manufacturing and services), and the increasing importance of learning and innovation processes. Notwithstanding these changes, rural areas are still heavily represented in the economic structure of Latin America and the Caribbean.

This book underscores the need for a rural industrial policy that promotes a structural change based on innovation, greater value added and better employment and living conditions, all in harmony with the environment. The proposal builds on the experience of the Economic Commission for Latin America and the Caribbean (ECLAC) in strengthening rural value chains and offers a novel approach to industrial policy and rural development, issues that have traditionally been addressed separately. The book also sets out the value chain methodology developed by ECLAC and presents a comparative analysis of processes to strengthen rural value chains around commodities, agribusiness products and rural tourism.

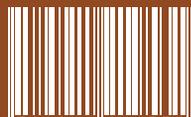
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