Balance of the Status and Evolution of Agriculture and the Rural Milieu in the Americas: Challenges and Opportunities for the 21st Century

IICA
INSTITUTO INTERAMERICANO
DE COOPERACION PARA LA AGRICULTURA. OEA

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Foreword

America is one of the world's regions that has shown great dynamism in its integration into the globalized economy over the last two decades. In particular, LAC is one of the developing world regions that has most rapidly and completely integrated into the world economy, since it operates with one of the most open economies and one of the largest volumes in its trade, technology and financial flows.

The opportunities offered by integration and open markets to the world economy and its markets are significant and the region is taking growing advantage of them. In the second-half of this decade of the 90's, the rates of increase of agricultural and agri-industrial exports from LAC are on the order of 15 percent per year, which has allowed a three percentage point increase in world agricultural and agri-foodstuff market share, from 13 percent to 16 percent. America, taken as a whole, handles US$36 of every US$100 of the world agricultural and agri-industrial market, i.e., more than one-third.

Behind this effort at integration and utilization of opportunities there is a wealth of human, natural, and productive resources, which make America one of the major world regions with ample comparative advantages. The contribution of only three percent of primary agriculture (agriculture, animal husbandry, hunting, fishing, and forestry) to the total GDP of the Americas, represents a little more than 30 percent of the world's agricultural GDP.

In the context of integration and the application of profound economic reforms in the countries, especially in LAC, the 90's represent a decade of recovery of dynamic growth and important transformations for agriculture and the rural milieu. A majority of the countries have recorded significant changes in their productive, technological, trade, institutional, regulatory, and human structures. However, everything seems to indicate that these efforts should be reinforced to avoid, among other things, an on-going spread in the technological, productive, institutional, and social gaps and even more so those of competitiveness and poverty, with regard to the countries that are our trading partners and principal competitors. In the world's free economies, it is important not to lag behind other countries, since in the end one loses positioning, opportunities, and possibilities for growth and social welfare for broad segments of the population. This occurs within a given context where the axis of the future economy and society will be the human resource. America cannot miss the chance to take advantage of the opportunities beneficial to all and for the capitalization of the women, men, youths, and children of the rural milieu.

The document that we present herewith: "Preliminary Balance of the Status and Evolution of Agriculture and the Rural Milieu in the Americas: Challenges and Opportunities for the 21st Century", forms a part of three inputs prepared by the Institute and is aimed at providing food for thought on the subject: "Agriculture and the Rural Milieu: a strategic matter for the development of the Americas" that the Ministers of Agriculture, delegates, and other participants will consider on the occasion of the Tenth Ordinary Assembly of the Inter-American Board of Agriculture, between the 26th and 29th of October, 1999, in Salvador, Bahia, Brazil.

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Director General of the IICA

Introduction

Agriculture and the rural milieu in the Americas carry out important contributions to the economy and society from the environmental, economic, macroeconomic, and governance points of view. They have the capacity to reinforce these contributions, but also have precise limits. An essential one of these is the general environment, which determines to a great extent the possibilities and the very development of agriculture and the rural milieu, and today has a much more determinant role than in the past.

In this sense, although the last two decades for LAC have meant a full dedication to globalization and the 21st Century, it has had to do so with problems it has borne since the 19th Century. Such is the case of the educational, technological and social lags, and unequal income distribution. Over the last 17 years, this situation has shown no signs of significant change in internal relative terms, and also in comparative terms with other regions. The average level of schooling of the labor force and grown in the 90's at the rate of 0.9 percent per year, contrasted with a growth of 1.6 percent achieved by the region in the 60's, and 3 percent, for example, in the Asiatic countries over the last 30 years. In 1999, the magnitude of poverty continues to be an essentially unaltered constant, calculated at 40 percent of the population, LAC continues to be the world region with the most unequal income distribution.

The human resource is the world economy's axis and motor for competition. This resource represents the foundation of the knowledge and information society of the future. For the Americas in general, and for LAC in particular, there are many challenges, but one of the most important is how to permanently increase, under international standards, the capacities and competitiveness of the 660 million Latin American and Caribbean citizens that we will face in the coming 20 years. More precisely, the effort consists of: i) guaranteeing that the 160 million individuals to be born in the coming years will not only not grow up in poverty, but also will develop their abilities with these international standards; ii) that the 204 million currently poor persons will rise from poverty and also develop their capacities; and iii) that the rest of the current population will not fall into poverty and will develop their current capacities further and more completely.

Regional integration into the world economy provides both threats and opportunities. Globalization would seem not to be an eligible option, at least not without tremendous consequences. What would appear as a more likely option is the selection of insertion strategies to: i) obtain greater benefits from the opportunities; ii) deactivate the threats; and, iii) distribute the benefits more widely and more fairly. Beginning in 1998, the world economy embarked on its first financial crisis with significant consequences for our countries in the realms of growth, exports and capital flows. According to different estimates, the effects could carry through to the year 2000 or even 2001.

In the light of the general results for agriculture throughout the region, and standing on the threshold of the new millennium, it would be worthwhile to reflect on the road traveled and the direction and the challenges for the immediate future, in order to achieve a better positioning and sustainable development for agriculture and the rural milieu of the Americas.

Today, the challenges and opportunities seem to be more demanding in the face of the international crisis, the results of economic reforms, disasters and degradation of natural

resources, the changes in agriculture, the implementation of the resolutions from the Uruguay Round, and the beginning of a new round of negotiations in the World Trade Organization.

Contents of the Document

The document, preceded by an Executive Summary, consists of three chapters. The first chapter identifies the major factors that determine the importance and serve to emphasize the fact that agriculture and the rural milieu are a strategic matter for the present and future development of the Americas. The second chapter analyzes the recent evolution and identifies some of the main changes and limitations. The third chapter extracts some preliminary conclusions, challenges and opportunities that might contribute to the discussion centering on a probable agenda for the 21st Century.

The principal scope and limitations of the document are the following:

- It is a preliminary study that is intended to initiate an analytical effort that will be more systematic in the future, as well as motivating the reader to reflection.
- It is restricted to a general and aggregate view of the region, and does not analyze countries or specific topics in particular. These are both dealt with in the analysis in an overall sense, in order to construct the general view.
- The conclusions are preliminary since they are based on processes still underway in the region. The challenges and opportunities are merely intents to incite the collective construction of a strategy for positioning agriculture and the rural milieu in the Americas and their sustainable development.
- The intention is to create a perspective of agriculture and the rural milieu from the viewpoint of the Americas and their five regions. However, and particularly in Chapter II, the document concentrates on LAC. Due to information limitations, the period of study goes as far as 1997, with a few derivations and estimations for 1998. Thus one additional effort will be to update the information in view of the important occurrences in the last year and a half.
- The approach is systemic, which brings into play systems such as natural resources, primary agriculture (agriculture, animal husbandry, hunting, fishing, and forestry), agri-industry, and the productive, commercial and environmental services related to them. The document refers to this linkage as "extended agriculture". It is worth mentioning also that Section 2.2.6 on "agricultural support services" leaves out other very important aspects such as credit and financing, and certification and quality control for agricultural chemicals and seeds, among others. These aspects, as well as many other aspects in general could be incorporated in a later edition.
- The information available is not always the most ample, concentrated and sufficient. Information of this type is not always available, it doesn't always cover all of the countries in the same way, and the statistical series are not always uniform and comparable. A majority of the statistical information comes from the FAO, World Bank, IDB, and ECLAC, which have been of great value. Other sources, along with the foregoing have

been consulted for documentary information; in particular the analyses carried out recently by the Institute, together with many other centers of documentation and specialized organizations.

- This document is one of three inputs prepared by the Institute. The second input is the preparation of a Virtual Documentation Center, via Internet, which is available at http://www.iica-cdf.org, and has technical information on different matters related to agriculture and the rural milieu. The third input will be to hold the third Ministerial Forum on Agriculture and the Rural Milieu for the Americas, which is titled: "Agriculture and the Rural Milieu: a strategic matter for the development of the Americas". This Forum will be held on October 27th of this year within the framework of the Tenth Ordinary Assembly of the Inter-American Board of Agriculture, between the 26th and 29th of October, 1999, in Salvador, Bahia, Brazil.

Acknowledgements

This document is a contribution by the Management of the Technical Consortium with the participation of its technical personnel. We wish to record our profound appreciation to all those individuals in the Institute that contributed valuable technical information and who are mentioned in each case. Especially the national and international Directors and Technical Experts from the Technical Consortium who also made a number a valuable and important comments and observations, as well as the Extended Cabinet, who also provided relevant comments on different occasions. We also appreciate the contributions of the information and communication team in CONTEC, particularly the IICA Web Master and the COMUNIICA coordinating editor, for their untiring and permanent support throughout this effort.

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Executive Summary

1. Balance of the Status and Evolution of Agriculture and the Rural Milieu in the Americas: Challenges and Opportunities for the 21st Century

1.1 On the importance of agriculture and the rural milieu in the Americas

Historically, agriculture and the rural milieu in the Americas have been important for the economy and society as a whole. At present it continues to be put on an even more relevant plane, due to its interdependent and "multisectorial" character and for its multifaceted contributions, i.e., its important economic, macroeconomic, environmental, and governance contributions, which have all contributed to the growth, development, welfare and quality of life of all of the inhabitants, both in the rural milieu and in the cities throughout the hemisphere. As a consequence, at present and in the future, agriculture and the rural milieu are and will continue to be a strategic matter for all of the countries of the Americas.

1.2 On a vision of the future of agriculture and the rural milieu

The future scenario for the coming two decades can be characterized as one that is fundamentally inclusive and sustainable. It is based on the interdependence of the globalized economy, technologically developed and socially less unjust and more democratic. In general, the set of all of these conditions will allow agriculture and the rural milieu to enjoy a sustainable development in harmony with nature and with economic integration, technological transformation, in particular with human capitalization and rural development.

1.3 On the relationship of agriculture and the rural milieu with the rest of the economy and society

Agriculture and the rural milieu also make up a strategic matter because this sector constitutes a way of life for millions of individuals that work in it and live from it. However, for a majority of the countries, particularly in LAC, the rural milieu and its agriculture are suffering a chronic and overwhelming inequality of access to resources, means of livelihood, and income. These have determined a situation of structural heterogeneity and impoverishment of extensive sectors of the rural population, which is of considerable magnitude.

During the heyday of the import substitution model, it was generally surmised that their role was fundamentally to maintain economic growth and industrial and urban development on the basis of a depredation of natural, human and productive resources.

After the crisis of 1982, the countries began to reorient their economies towards full international integration and based their strategy on an "outward looking" growth model within the context of globalization. This new situation for agriculture and the rural milieu also meant a reorientation of the nature of their ties to the rest of the economy on more rational bases, neither distorting the economy nor penalizing any particular sector.

1.4 On the changes in general

In the light of the results of the economy in general and of agriculture and the rural milieu in particular, it can be concluded that although the forces of the new globalized economic growth model have had an impact on all of the countries, this has been differential with regard to its intensity, dynamism, and timing, and as a consequence, it has not been a linear process. Therefore, the results vary from country to country and from region to region.

Specifically, everything seems to indicate that at the end of the 20th Century, and after 17 years of economic reforms, many things have changed within the economic and social realms and at the aggregate level in LAC. However, the overall economic and social results to date, even with the application of these reforms, are precarious in some countries, as well as for broad sectors of the population, and insufficient for the majority.

Although the macroeconomic accounts have been kept in relative equilibrium, the rhythm of recovery of growth in general is still far from that recorded in the 70's, as well as that which is being recorded in the competitor regions in other parts of the developing world. Furthermore, these rates are far from supporting a development process with equity in the region.

Greater international integration has advantages but also high costs on the side of trade imbalances, the unfavorable terms in the relationship of the exchange prices and capital movements. Furthermore, they are particularly unfavorable due to the short-term strategy for this integration, which to a great extent is based on natural resources and on comparative advantages on the one hand, and insufficient productive and competitive advances with regard to the rest of the countries on the other.

Although the social welfare indicators show significant increases, poverty and indigence in general and their rural expression in particular, where they rule, have essentially not been resolved in the region in spite of the fact that during the 90's their accelerated advance during the 80's was brought to a halt. Nevertheless, unequal income distribution returned, after a significant reduction in the 70's, to its high prior levels.

1.5 On the changes in agriculture and the rural milieu

We can conclude that through the beginning of the 90's (1993), there had been no significant manifestation of great change. However, starting in 1994, the situation began to become more dynamic and changes can be observed at different levels. Agricultural production becomes more dynamic; the productive structure is visibly transformed on the basis of the utilization of natural advantages, of a greater productive diversification, especially in the oilseed-livestock and horticultural-fruit systems; agri-industrialization develops; agricultural and agri-industrial exports are more dynamic and alter their structure to correspond to the productive structure, and the productivity of croplands and the agricultural labor force increases, as does the use of productive factors.

However, although these changes are recent and encouraging, they are still insufficient in two senses. First, they are neither sufficiently developed nor generalized. Second, the depth and

dynamism of the changes are not as strong as those in countries from other areas of the world, which are competitors and/or represent potentially exploitable markets for our countries.

It would seem that natural resources and the environment in general have felt the deterioration caused by the pressures for competitiveness and those of a strategy for international insertion based on these resources. We must comprehend and understand the full dimension of the association between natural disasters, which are becoming an ever more permanent variable of ever more severe consequences, and the deteriorated state of the natural resources and our inability to prevent their consequences.

The results are not equal for all of the countries. Around one-half of the countries have a dynamic and growing agricultural sector which is accompanied by impressive economic growth. Also falling in this group is a majority of those countries that have increased their per capita food production, agricultural productivity, and yields. Here too we find a majority of those with the most advanced reforms, a majority of those that have reduced poverty, and a majority of those that are net foreign exchange contributors and have the greatest per worker export amounts.

On the other hand, we find the other half of the countries that includes a majority of those that have lower growth rates in agriculture and those that have recorded lower economic growth rates. It includes a majority of those with reduced foodstuff production per capita, and a good part of those with minimal productivity and yield increases. Those that have more recent economic reforms and less encompassing ones are also well represented. This group includes a part of those that have shown less poverty reduction or an increase thereof. Finally, there is a part of those that have contributed less significantly to ameliorate the trade deficit for total goods and even those requiring foreign exchange to defray their imports. Most of the countries that are net food importers fall in this group.

There are countries with all of the group's characteristics and others that combine characteristics from both groups. The foregoing suggests that these are complex phenomena in evolution. Only a case by case analysis will provide a greater level of precision and exactitude.

1.6 On the strategic supports for agriculture and the rural milieu

Most of the countries have not fully developed strategic support activities for agriculture in the more extensive interpretation, such as research and technology transfer services, which show low investment levels as a proportion of the agricultural GDP, food safety, which increase in strategic and public importance, but which are still at an incipient level of development; collaboration and coordination and negotiations in general, which form the core of the process to reach integration and specific agreements among the actors in the agri-industrial chains; communications and information in general, and price and market information in particular, which have become another of the determining elements of competitiveness; training, education, and extension, which are positioned as growth vectors, competitiveness, income and technology adoption and management abilities in general, and natural resource and environmental management in particular.

Several countries have demonstrated review and re-adaptation processes for public and private agricultural institutions, at the central, regional, and local levels, but it seems that these are still initial attempts that have not generalized.

Finally, we can conclude that in an open and competitive economy it is of particular concern to observe broadening productive, technological, computational, educational, managerial, institutional, and social gaps inside the countries in the Region, and for all of them in relation to the countries and regions that are our competitors and trade partners.

1.7 On competitiveness, poverty, and rural development

Agriculture and the rural milieu have very clear capacities and limits to contribute to raising the competitiveness of the system and to contribute to solving rural poverty. The solutions to overcoming the critical points allowing increased competitiveness in agriculture and the rural milieu, and those to overcome rural poverty will not be found uniquely and exclusively in agriculture and the rural milieu. Although they have a strategic role to play, and both are intimately related to each other, as part of the same phenomenon, the solutions encompass scopes and actions that are multi-sectorial and different, where protagonists different from agriculture and the rural milieu must participate, including actors from other activities and the rest of the economy.

Therefore, the causes that generate a particular level of competitiveness and of poverty are multi-sectorial and multidimensional. Each specific reality will allow a joint observation of the factors that intervene, their interrelations and their weight.

1.8 On the present and the immediate future

The international crisis occurring after July 1997 had negative consequences that were serious and broad ranging. It was the first great crisis of the globalized economy. The effects caused by this global financial crisis have led many countries to deepen their application of stabilization measures. According to different estimates and projections, it had and will continue to have adverse consequences for our countries, which will be graver still if we do not make an even more significant effort towards transformation and development. Some of these consequences are deceleration in economic growth, production, and world and regional trade in particular; as well as a reduction in both demand, particularly for raw materials, with special impact on agriculture for export, and external capital flows and external capital availability for the region.

In 1998, and especially 1999 the countries of the region have undergone very difficult years, which could cancel out some of the advances achieved during the previous 17 years, and could cause a deterioration of the main economic and social indicators.

By visualizing the results already obtained, and above all by confronting them with the vision of the future for the next two decades developed in Section 3 of Chapter I, we can conclude that greater challenges await the countries of the Region at the beginning of the 21st Century. At the outset, they will require starting with a broad-based reflection that seeks to disarm the threats,

deepen some measures, reorient others, and define strategies with a long-term vision. All of this will strengthen the weaknesses, empower the strengths and take advantage in the best way possible of the opportunities to benefit everyone.

2. *Opportunities and challenges*

The opportunities and challenges at the beginning of the 21st Century are greater than just a few years ago.

2.1 *On the importance of agriculture and the rural milieu, the strategy for positioning, the vision of the future, and a renewed approach*

The great challenge would seem to consist of maintaining, increasing, and consolidating the positioning of agriculture and the rural milieu of the Americas on the world stage, in a context of hypercompetitiveness and accelerated changes in human, institutional, commercial, and technological dimensions and knowledge in general, as well as duplicating the contributions they make to the economy and society, at the same time that they contribute to resolving poverty and indigence in the rural milieu. The specific challenges will be:

- Development of a great effort by all of society to collectively construct a vision of a shared, global, integral and integrating future, which would accelerate the necessary transformations in agriculture and the rural milieu, so that they can "get into alignment" with a changing and demanding reality, but also so that all of society will understand how important they are for present society and for the societies of the future.

- Definition and implementation of a strategy for positioning agriculture and the rural milieu, which is directly oriented to eliminating the "paradox of agriculture and the rural milieu", and to be disseminated and assimilated among all of the sectors of society. It must be coherent, functional, and based on facts.

- Construction of a new holistic and systemic focus, which would allow acknowledgement of a much more interdependent, multi-disciplinary and dynamic reality, and as a consequence, allow the formulation and implementation of a strategy in accordance with these new realities.

2.2 *On the reforms, the macroeconomic context, and the changes in agriculture and the rural milieu*

- Deepening of economic reforms and their quality, as well as the incorporation of social reforms and the achievement of greater equity in the face of the need to increase growth, achieve higher levels of competitiveness and of making a decisive attack on poverty and indigence on real and sustainable bases.

- Consolidation of a macroeconomic environment which would definitely and integrally promote competitiveness, profitability, investment, productive re-conversion, and exports.

- More dynamic progress towards changes and transformations, both permanent and generalized, in the productive, commercial, and institutional realms, and above all in terms of the regional balances between countries.

- Reorientation of the nature of the insertion into world trade, with a long-term vision and a re-evaluation of the products and services of agriculture and the rural milieu and the maximum impulse for the industrialization of agriculture and the rural milieu and agri-industrialization.

- Implementation of a support strategy that will lessen the effects of the world financial crisis, particularly for the most vulnerable populations, and that will explain for the masses where it came from, its effects and its duration.

2.3 On natural resources, the environment, and environmental services

- Productive conservation of natural resources and a prospective and rational utilization of biodiversity and reorientation of the insertion strategies into the international economy, based on an "extensive" exploitation of natural resources.

- More effective action and prevention in the face of the persistence of natural disasters and climate change, since the current challenges are greater, more persistent and massive in their effects.

- Definition of a strategy to promote prospection of biodiversity, i.e., its commercial utilization, as well as those environmental services such as pollution reduction, air and water quality, agri-tourism, and "scenic beauty".

2.4 On the institutions and strategic services for agriculture and the rural milieu

- Review of public and private institutions at the central, regional and local levels, to accelerate and deepen their adaptation, articulation, strengthening, and coordinated actions with a focus on "from the farm to the consumer's table". This should be with a view that combines what is urgent over the short-term with what is important over the long-term, with greater future and strategic vision, especially one that incorporates the international component in a manner consequent with the strategic definition of global insertion for our economies.

- Development of strategic support activities for extended agriculture, on the basis of their institutional suitability and under public and private combinations, centered on specific and priority fields.

- Definition of a specific strategy for greater participation in the international and regional organizations specialized in relevant matters and greater articulation and coordination among them.

2.5 On poverty, competitiveness and rural development

- Definition of an explicit and differentiated strategy for the attack on rural poverty and indigence based on a drive for growth and from an interdisciplinary, multi-sectorial view

towards a multiple solution. We consider it convenient to emphasize four simultaneous and complementary elements: i) the elevation of educational and health levels together with a channeling of the rural-rural exodus; ii) promote rural non-agricultural activities and income as a powerful and sustainable "route" to creating a regional dynamism; iii) strengthening the agricultural development "route" in and of itself; and iv) the application of social programs and guarantees to the vulnerable sectors which will increase their capacities and also avoid the great costs of the macroeconomic imbalances and programs for monetary and financial stabilization.

- Definition of a strategy to develop competitiveness, also with a multi-sectorial and systematic approach, throughout the chain "from the farm to the consumer's table". It must be centered on the development of dynamic competitive advantages at international levels and not just competitive advantages.

2.6 On sectorial policies

- Definition of inter-sectorial policies taking advantage of the margins established in international agreements and in congruence with the general strategies and policies on the basis of heterogeneous situations differentiated in the different agricultures and rural milieus of each region and country.

- Evaluation of the actual and required public and private institutional capacities for the implementation of policies that are differentiated on the basis of limited resources, institutional re-adaptation, and decentralization processes.

- Consolidation of a policy for collaboration and cooperation and public and private relationships with wide-ranging protagonism by private actors based on their co-responsible participation with true appropriation in the design, implementation, follow-up and evaluation of the programs, projects, and the actions.

2.7 On public and private investment

- Definition of a public and private financing policy oriented to an increase of the capacities that reduce productive, technological, computational, educational, managerial, institutional and social gaps with respect to the countries and regions of other latitudes that are our competitors or trade partners, and focusing on: i) development of infrastructure, ii) strategic support services for extended agriculture and the rural milieu; iii) promotion of credit, financing, and transaction cost reduction within the regional scope; iv) strengthening of institutional decentralization and modernization; v) strengthening of the public institutional capacities for insertion, negotiation, and fulfillment of international agreements; vi) productive conservation of natural resources and prevention of natural disasters; and vii) support for the development of the capacities of vulnerable and strategic populations, such as rural women, children and youths.

3. A corollary to the foregoing, there are four great challenges to begin our reflection:

- The first, to characterize or typify the balances or imbalances recorded between the innovation in thought, diagnosis, policies, and institutions. On the one hand, in order to find the key elements and main bottlenecks that would allow us to confront a redefinition of a strategy for the development of agriculture and the rural milieu in each country. On the other hand, take advantage of the wealth of the significant advances that the countries have achieved in several fields, and place them at the mutual disposition of all.

- The second challenge consists of defining a strategy and the key components, setting priorities and redefining public and private functions, ever more strategic the former and ever more protagonic the latter, in emerging topics, such as, among others: i) The new rurality, policies and the attack on rural poverty; ii) Trade negotiations, the implementation of agreements and export promotion; iii) Agricultural health, food safety and quality; iv) Technological innovation, intellectual property and the management of natural resources and the environment; v) Credit, financing, and rural infrastructure; vi) Information and communications of agri-foodstuff and regional-rural development; vii) Human resource development and curricula in educational and training centers; and viii) Institutional modernization and public - private relationships.

- The third challenge consists of designing and implementing a strategy for aligning all of the institutions at the central, state and local-municipal levels, a majority of which are public, that act directly and indirectly on agriculture in it broadest sense. This would promote their articulation among themselves and their interdependence with private institutions and civil society. None of those international and regional, technical and financial organisms and institutions that are linked to extended agriculture and the rural milieu in their different dimensions must be allowed to escape this process of alignment and articulation.

- The fourth challenge consists of generating a broad consensus of the need to re-dimension agriculture and the rural milieu in the face of the new reality and its complexities. It involves the collective construction of a new approach that would allow establishing a regional consensus, which will enable an improvement in the orientations of rural and agri-foodstuff policy, looking to its current positioning and that which will serve for the coming years.

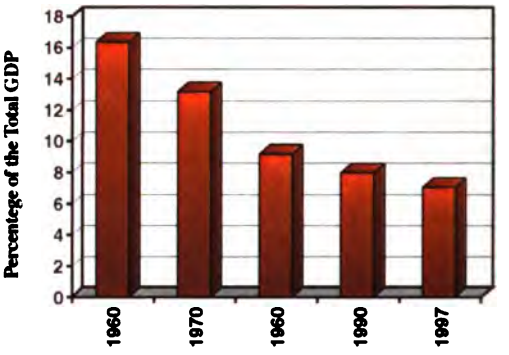
CHAPTER I

Agriculture and the Rural Milieu in the Americas, a Strategic Matter for the Present and the Future

1.1 The myth and the reality behind agriculture and the rural milieu in the Americas

In the view of the predominant culture of the "urban-city-dweller", the concepts of "agriculture", "countryside", and "rural", are frequently stigmatized as the "leftovers" of the development of modern and post-modern society and, in the extreme, as the flip-side of the coin. In contrast, industry, the city, and city life are associated with development and progress.

Figure 1. LAC: Agriculture's of the Overall GDP (1960-1997)



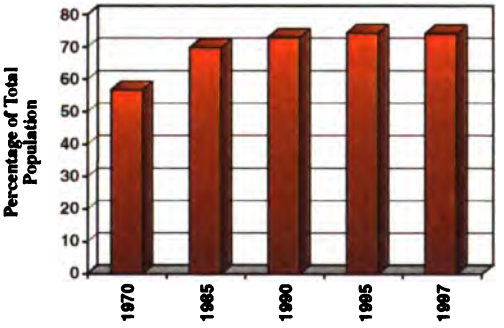
Prepared with data from CEPAL, 1981 y 1998

In a simplistic association of primary sector agriculture versus industrialization, the naturally declining trend of the *percentage share* of agriculture in the overall GDP is commonly presented as a basic argument for agriculture's loss of importance. In fact, in Latin America and the Caribbean (LAC), this participation did drop from 17 percent in 1960 to 7 percent in 1997 (Figure 1).

Urbanization is also frequently mentioned as having reduced the importance of the rural areas, since urban areas currently amass three-fourths of the total population .

In fact, however, this perspective is erroneous, since it does not allow one to appreciate industrialization, urbanization, and the knowledge and information society as positive manifestations of a diversification and development of economy and society as a whole. Within this overall society, agriculture and the rural milieu are constituent parts of this diversification. Their importance, rather than diminishing, is increasing.

Figure 2. Evolution of the Urban Populatio in LAC



Prepared with data from CEPAL, 1991 y 1998

1.1.1 The original sin: People say that agriculture, the countryside and rural life are no longer important

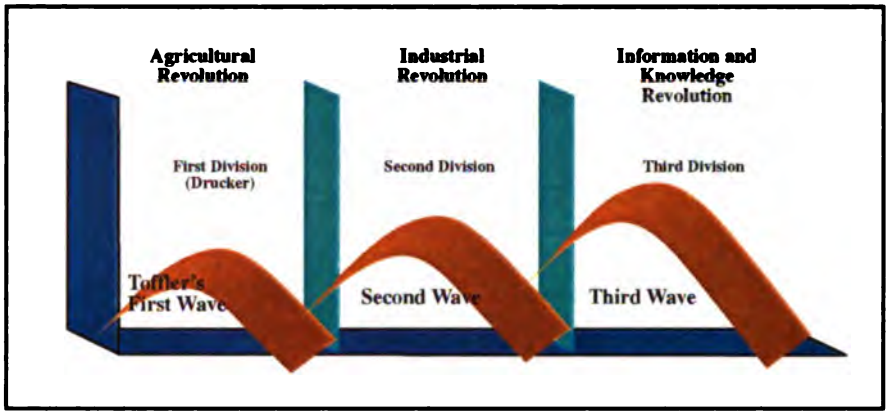
There is a generalized awareness of the obvious importance of agriculture and the rural milieu in the industrialization and urbanization processes in LAC, particularly as a source of financing and support. In this regard, there is no room for doubt. However, with the development of industries, services, and the mega-cities, particularly during the course of the 80's and 90's, recognition of the importance of the former has faded in a more accelerated manner, giving way to the phenomenon of the "agricultural paradox" (**Escudero**, 1998).

This is related to the conceptualization that in theory agriculture and the rural milieu are very important, but are not recognized as such in fact. Although there is a verbal recognition of their importance, in practice they get left behind both in terms of investment and in the discussion of their problems.

This is so, since the conceptual distortions bearing on agriculture and the rural milieu have a "boomerang" effect that returns to influence the reality itself. In other words, the relationship between thought and reality is a two-way street, they condition each other, giving this relationship a reflexive character (**Soros**, 1999) and thus an effect, in this instance, that causes a significant marginalization of agriculture and the rural milieu.

Although it is true that the trends towards *industrialization* and *urbanization* in America have been historically inexorable (**Timmer**, 1997), the dichotomic and opposed association of agriculture - industry and rural - urban represents a serious error with negative consequences both for agriculture and the rural milieu, as well as society in general.

Figure 3. Waves and Divisions of Humanity



To conceive of agriculture and industry as sectors independent of each other, or even in opposition, would mean denying the universality and hegemony of the industrial revolution that imposed its logic over all economic sectors during the last 200 years, including agriculture and the rural milieu.

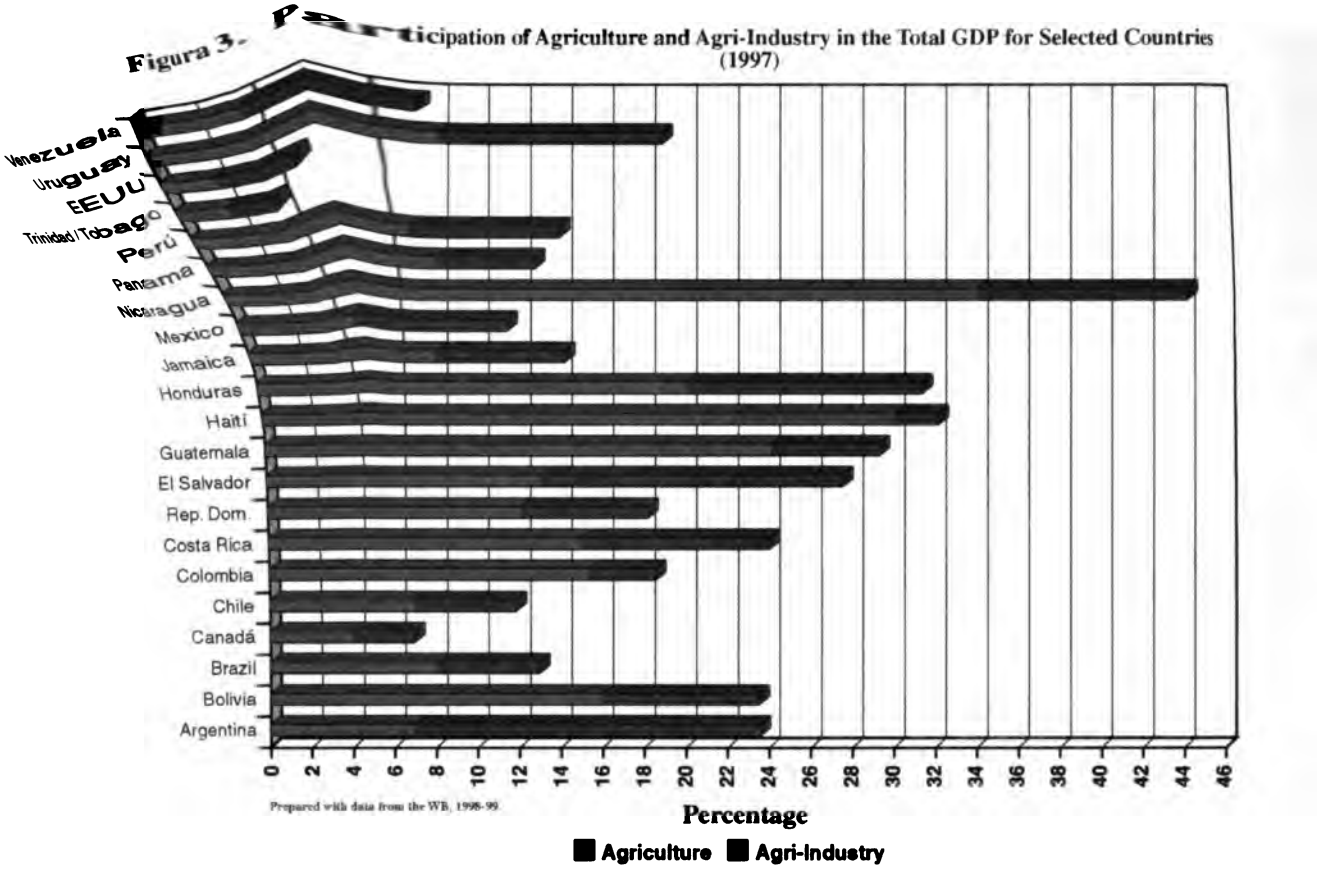
Graver still would be an abstraction that the arrival of the Knowledge and Information Society and Economy is dismantling the last barriers between the economic sectors and social conglomerates, regardless of their placement in the cities or the rural areas. In synthesis, this erroneous vision implies a denial of the *industrialization of agriculture itself and of the rural milieu*, in particular an *a priori* cancellation of the enormous possibilities of reconverting these systems on this basis and those of knowledge and information (Figure 3).

There are five elements present in the stigmatizing vision of agriculture and the rural milieu, which suffer from an excessive urban, sectorial, and static bias.

1.1.1.1 There is a lack of awareness that the contribution of agriculture in its more extended conceptualization is substantially greater than that accounted for in its primary productive activities.

The basis for this assumption is historical and arises from the association established among economic activities with a sectorial focus and the national accounts systems utilized. Although these allow an analysis of intersectorial relations through input-output accounting records (**FAO**, 1994), the sectorial focus continues to prevail in activities which are ever more interrelated and where the final competitiveness of a product depends on the different sectors that intervene until it reaches the consumer's table.

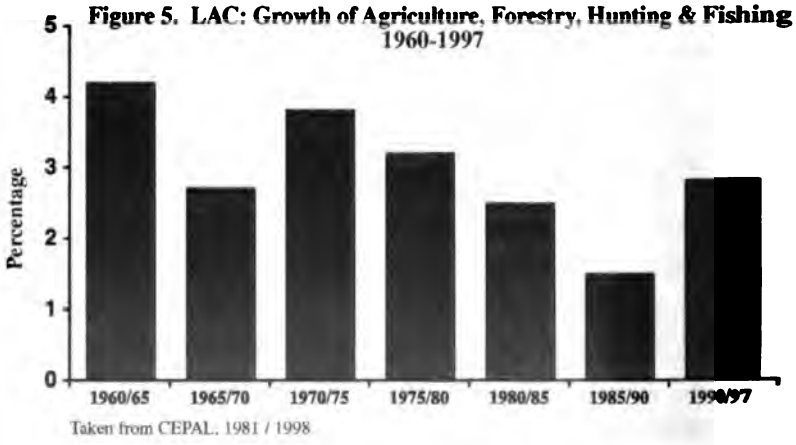
In a general sense, if an accounting is made for agriculture as a primary activity with its related agri-foodstuff and agri-industry operations and their contingent services, the contribution to GDP in LAC increases from 7 percent to a minimum of 25 percent on the average for the region (**Garrett**, 1995) (Figure 4). Furthermore, although the trend towards a reduction in its relative contribution will continue slowly over the long term, even for this extended conceptualization of agriculture, the essential aspect is to understand that the so-called relative reduction in the agricultural contribution is, in fact, an abstraction from reality expressed in statistical and relative terms.



Therefore, it would be erroneous to associate a relative reduction in the contribution of agriculture to the overall economy, with the idea of the *extinction of agricultural activities*. Evidence indicates that in the region, at faster or slower rates of growth, during the different periods, agriculture has not and will not cease to grow and diversify horizontally and vertically (Figure 5).

In conclusion, agricultural activities and the rural milieu are not only growing and diversifying, but are becoming tied to other activities in different sectors extending the network of interdependencies, which are the ones that truly structure the overall economy of our countries.

1.1.1.2 We do not comprehend that the intersectorial relations between agriculture and the rural milieu with the rest of the economy's activities are mutually beneficial.



For each dollar increase in agricultural production, the region generates a four dollar increase in total product (**Echeverría y Reca**, 1998). The intersectorial relationships are more important than is usually recognized by the average citizen, since the deep network of intersectorial relations of agriculture and the rural milieu with industry and services has grown in numbers as well as diversity and specialization.

Indeed, a productive, commercial, institutional, and human revolution is taking place in agriculture and the rural milieu. As a consequence, growth in activities in agriculture, animal husbandry, hunting, fishing, forestry, agribusiness, the agri-foodstuffs industry, agri-industry, agri-commerce, agri-tourism, agri-health, and other specialized agri-support services, such as research, extension, technology, biotechnology, animal and plant health, food safety and raw materials, and information, among others, also helps to foster the growth of the sectors that are related to them. These in turn promote the growth of the economy as a whole.

Beyond the consequences of this revolution, it is essential to note that the influences of the intersectorial interrelationships of agriculture and the rural milieu to the rest of the economy are two-way, and not in just one direction. Benefits also accrue to activities in the sectors that are tied to the former and in the final instance to the economy as a whole.

1.1.1.3 A lack of clarity as to the importance of the role that agriculture and the rural milieu of the Americas play in the world, in the countries, in the regions, and in their localities.

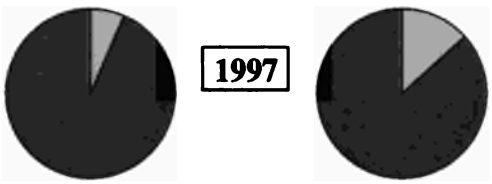
The urban perspective generally tends to observe the role of agriculture and the rural milieu in different environments with the same macro, static and partialized point of view. This is emphasized by the fact that although agriculture in the Americas (the 34 member countries of the IICA included), contributes 3 percent of the total GDP of the hemisphere, this small percentage at the same time represents about one-third of the total GDP of world agriculture (Figures 6a & 6b).

Figure 6a. Participation of Hemispheric Agriculture in the Total GDP of the Americas

Figure 6b. Participation of Agricultu in the Americas in World Agricultural GDP

Figure 7a. Participation of Agriculture in LAC in the Regional GDP

Figure 7b. Participation of Agriculture in LAC in World Agricultural GDP



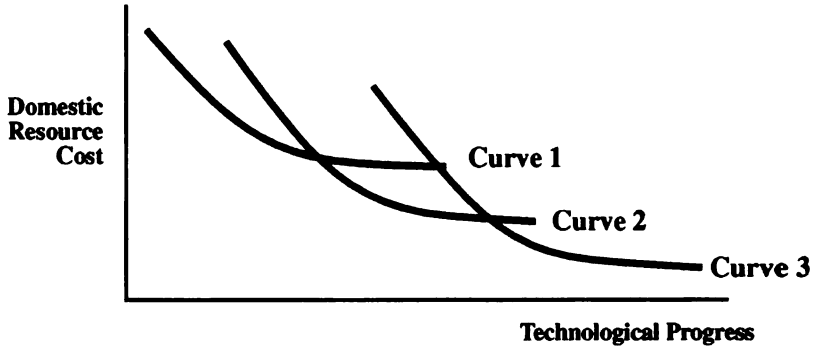
Prepared with data from CEPAL 1998 and the WB 1998/999.

In other words, with the 3 percent contribution of hemispheric agriculture to the region's total GDP, the Americas manage approximately one third of the total agri-foodstuffs and agri-industrial output of the world. This situation also occurs within the countries of Latin America and the Caribbean, since with a 7 percent contribution from the region's agriculture to the total GDP thereof, it manages 14 percent of the world's agri-foodstuffs and agri-industrial systems (Figures 7a & 7b).

Frequently, there are two causal factors for the lack of knowledge of agriculture and the rural milieu among broad sectors of society. These factors also foster the prevalence of the generalized, absolutist and static concept that our countries must look to the world market for those products, foods, and services in which we are not competitive. On the one hand, a profound lack of awareness of the potential and comparative advantages represented by the abundant and high quality natural and agricultural resources that the countries of the Americas possess. On the other hand, this vision also bears an analysis of static competitive advantages and not dynamic ones. These inhibit the development of a dynamic and prospective outlook that indicates and is aware of the profound changes that are occurring and will continue to occur in an accelerated fashion in the technological and biotechnological frameworks, as well as in communications, consumer

preferences, knowledge, and information in general.

Figure 8. Competitive Advantage and Technological Progress



These advances will lead to a displacement on the "curve" of technological progress and know-how in our countries and their agriculture, moving towards more advanced positions and dynamic competitive advantages at the international level. This means they will therefore progress towards a greater and more sustainable utilization of the competitive advantages that they already possess (Figure 8).

Furthermore, this same point of view is generally applied with regard to the importance of agriculture and the rural milieu in the countries, their regions, and localities. For example, the urbanization of our countries implies a separation of the cities from the material foundations of the generation of foodstuffs, as well as agricultural and rural products and services, which means that these populations are in absolute necessity of their products and services.

In a majority of the countries of LAC, this urbanization accelerated in the 70's and 80's with a clear trend towards the creation of very large cities, in excess of one million inhabitants, which conglomerate around 40 percent of the urban population of these countries. It has also led to the creation of mega-cities or megalopolises, which aggregate more than one-quarter of the whole urban population. These social agglomerations represent huge urban stomachs that consume the foodstuffs, products, and services from agriculture and the rural milieu.

This detachment from rural and agricultural domains, as the sources of foodstuffs and other necessities, has reached a serious dimension among urban-dwellers, and reaches surprising levels. Such is the lack of real and systematic contact with agriculture and the rural milieu on the part of the newer and younger generations that inhabit America's great and mega-cities, that they have assumed the idea of a "virtual agriculture" (promoted principally by the communications media). They no longer have direct contact with real agriculture and the rural milieu.

In addition, the urban point of view has lost sight of the fact that agriculture and the rural milieu have important roles to play at the regional and local levels of our countries. These are as relevant as or more relevant than the international and mega-city levels. Needless to say they play a determining role in the rural zones themselves, but are also very important in the states, provinces, regions, districts, and municipalities of our countries and even for the mid-size and small cities as well as for the so-called intermediate cities and rural population centers.

Although the inhabitants of all these cities, just like those in the mega-cities, require products and services from agriculture and the rural milieu, their separation from their natural foundations is not as complete. To the contrary, there are various degrees of complementarities and direct and indirect interdependencies that in many cases represent the basis on which the structure of the economic and social life of these regions and localities is built.

1.1.1.4 We are unable to clearly identify the contributions that agriculture and the rural milieu have made to society as a whole and to national economies.

This inability is basically a product of the predominance of a utilitarian and functionalist vision, which is sectorialist and static, and that has continued into the present. It assumed primacy during the phases of industrialization and urbanization of LAC, which began during in the decade of the 40's of the 20th Century.

In fact, agriculture and the rural milieu have always played multiple roles in all stages in our countries. Basically there are four main categories of contribution: i) as generators of products, services and resources; ii) as elements that strengthen macroeconomic stability; iii) as conservators of the environment and natural resources; and iv) as supporters of governance, political, cultural, and democratic development in broad sectors of the population as the foundation of society as a whole.

When speaking of agriculture and the rural milieu, they should be considered in an interrelated set of regionalized activities that are intersectorialized. An extended concept of agriculture has the capacity to generate and save essential foreign exchange for the governing economic model, generating a significant quantity thereof (130% of the trade balance deficit for total goods and services in the regional economy). Furthermore it has the ability to contribute to food supply stability with quality production and prices increasingly in decline. This is a basic relation in the less-developed countries with large impoverished sectors that use the largest part of their income for the acquisition of foodstuffs (a greater availability of foodstuffs for the poor has a nutritional impact that relates directly to increased productivity at work).

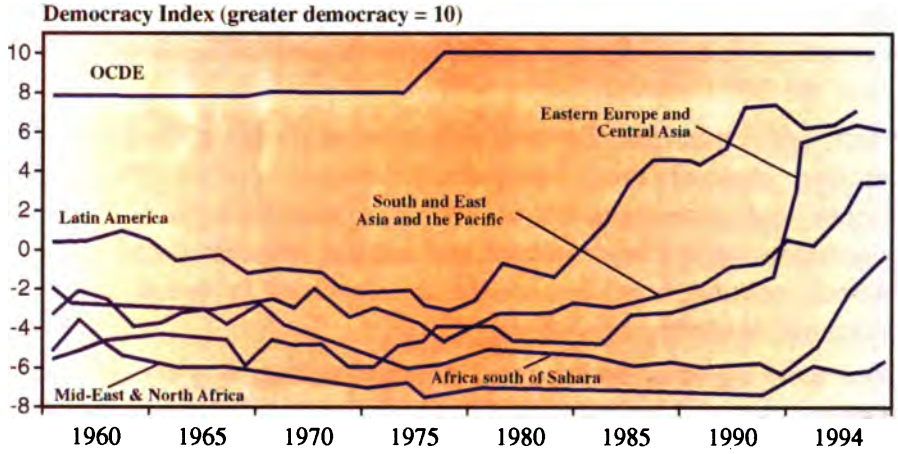
Agricultural employment can be generated and agricultural income increased, in a sustainable manner, and in significant amounts that make its growth more dynamic and raise productivity. This has been shown by recent experiences in several countries throughout the region. It is capable of generating a regional dynamism in the rural milieu and of fostering employment and non-agricultural rural income, which at present appears as a powerful alternative to regional development and direct attacks on poverty in broad zones of a majority of the countries.

At present, when concern for the degradation of natural resources and the environment is generalized, and is also becoming global, the role of agriculture and the rural milieu is raised to one of the highest priorities in the world as a whole. They are the key depositories of these resources and manage a great deal of the environment. These contributions are: on the one hand, the productive conservation of natural resources, and on the other, their contribution to social welfare, the improvement and restoration of health and an increase in the abilities of human beings, particularly in the face of what is known as "urban stress". In a similar fashion, there are clear ties between nutrition and productivity; thus the ties between agriculture and the rural milieu on the one hand and wellbeing, health, and restoration of human capacity on the other.

Finally, agriculture and the rural milieu were key elements in the social movements and the transformation of the societies of LAC, which occurred during the first six decades of the present century. Today, social mobilization contributes substantially to governance and democracy. Insofar as the last 15 years have implanted processes of decentralization and democracy throughout LAC (**IDB**, 1997), the contributions of agriculture and the rural milieu to this governance assume relevance. They are oriented to the harmonization of relations among the market, the State, and civil society in the regions and localities. These contributions effect greater order in the territory and physical space, as well as institutionality at the local level, strengthening

decentralization, and finally bringing peace, social cohesion, and democracy in the rural zones and even in the urban centers located within these territories (Figure 9).

Figure 9. The World is much more Democratic since 1980



Taken from Jaggers y Gurr. 1996

In summary, in the context of globalization and integration, agriculture and the rural milieu play an essential role in the development of our countries and are carrying out extremely important contributions to the economy, the macroeconomy, the environment, and governance of society in America and the world. For all of these reasons, agriculture and the rural milieu must be considered a strategic affair and a key piece in an economic and social development strategy. In particular, they play a central role, both directly and indirectly, in the reduction of rural as well as urban poverty.

At present, agriculture and the rural milieu have become interdependent activities that are as important or more important than they used to be. We now know that the economic, macroeconomic, environmental, and governance functions all fall on a plane of equality of importance and are perfectly aligned with the requirements of our economies that are ever more integrated and globalized. Thus, in the current era of globalization and the knowledge and information society, we are present at the inauguration of a phase, in which the four mega-functions merge, acquiring together great importance for society as a whole.

1.1.1.5 As yet there is no recognition that with the advance in communications and information, the traditional isolation of the rural areas has become merely relative.

In fact, the so-called "global village" has also reached the rural zones and no one can argue that there will be serious hindrances over the medium and long-term for communications and information technology to penetrate the rural zones, to influence the behavior and habits of the rural dwellers, and to provide greater relations between them and the urban population. The linking of the rural areas to the era of knowledge and information is merely a question of time, basically of access capacity.

The access problem is not a small one. In fact, in a majority of the LAC countries, and particularly in their rural areas, they are still far from achieving the standards typical in developed countries (**WB**, 1999). Although the topic of access to communications media and information for many, especially the low income and rural populations,

Table 1. LAC: Access to Communications Media

Media	Year	Measure	Developed Coutries	LAC
			Persons	Persons
Radios	1996	Per 1000	820	398
T.V	1997	"	647	264
Newspapers	1996	"	287	74
Cable Subscription	1997	"	165	31
Cell Phones	1997	"	189	26
Fax	1996	"	50	1
Computers	1997	"	264	33
Internet	1998	Per 10000	375	8

Prepared with data from the WB 1998-99

is currently important (Table 1), this does not gainsay the fact that today's possibilities are broader than ever. The so-called "global village" is a reality at levels perhaps unimagined and maybe even minimized.

Beyond the massive and globalized influence that can be expected with the development of communications and information, the most important aspect is that they are tearing down the antiquated and false idea of the city as counterpoised to the rural areas. The ancestral barriers between the rural areas and the urban areas have been disappearing for some time. However, the information age and globalization have opened up a new and real possibility of full cooperation between the countryside and the city, with both of them growing on a plane of greater equality in their possibilities, their know-how, and in their real performance.

1.1.2 The lessons to be learned.

First of all, and at all costs, we must avoid the creation of a myth that agriculture, the countryside, and rural life are of no importance. This concept will have no backing and the foundations for this argument are completely specious and reflect a lack of awareness of reality, which is at complete odds to an argument of this nature.

This concept, which arose during the Second Wave or Division, is now at a crossroads. It must either consolidate utilizing the advantage of the "immaterial" over "material", which is perceived as the component of value for products and the economic cycle in general, or it will finally unravel due to the influence of the consequences of this new era. For the latter to occur, there will have to be a new definition and implementation of a strategy to position agriculture and the rural milieu. This strategy will have to be expressly disseminated and assimilated among all of society's sectors, and be coherent, operative, and based on fact.

The second lesson to be learned refers to the need to understand that just as the urban view of agriculture and the rural milieu is partial, static and sectorial, there is also a widely disseminated ruralistic view among the active elements in agriculture and the rural zones. This rural perspective is equally partial, static, and sectorial, not only towards the urban milieu, industry and cities in general, but also, unfortunately, towards their own reality, agriculture, the countryside, and rural life, which essentially suffers from the same vices as the former.

In other words, the dichotomy lies between the two faces of the same coin of our societies, countryside versus city, agriculture versus industry and rural versus urban. It is an evil that we all suffer to a greater or lesser extent, because both sides draw their argument from the same causal basis that provoked the counterpoised approaches.

The effects of a distorted conception are broad ranging and constitute one of the main obstacles for achieving sustainable development in agriculture and the rural milieu. As a consequence, a great effort is required by all of society to construct a shared vision that is global, integrated and integrating, which would accelerate the necessary transformations in agriculture and the rural milieu. This would allow those sectors of society currently left behind to "get in alignment" with a demanding and changing reality, but also so that the society as a whole could understand how important these elements are for present society and for future societies.

1.2 The importance of agriculture and the rural milieu in the Americas, and their regions

Introduction

A futuristic scenario, such as the one offered, calls for an identification of the physical and human assets in agriculture and the rural milieu, in general terms. The conclusion reached is that in view

of their natural and human resources, due to their penetration of world markets, and due to their contributions to society, these are extremely important for the continent. This importance tends to increase, since they are continuously occupying a greater segment of world agri-industrial and agri-foodstuff systems. In the face of a dynamic world market for agricultural products, over the last 17 years, America enlarged its market share in those markets by increasing almost 3 percentage points. In fact, from the 33.3 percent that constituted the share of the Americas in the world agricultural export market in 1980, this increased to 35.7 percent in 1997. This gain is imputable to the LAC countries, which means they increased their share by almost 20 percent (LAC climbed from 11.7% to 14.7%, while the United States and Canada declined slightly from 21.5% to 21.0%).

1.2.1 Some indicators of their importance

Here follow some synthetic indicators allowing a rapid visualization of the importance of agriculture and the rural milieu of the Americas.

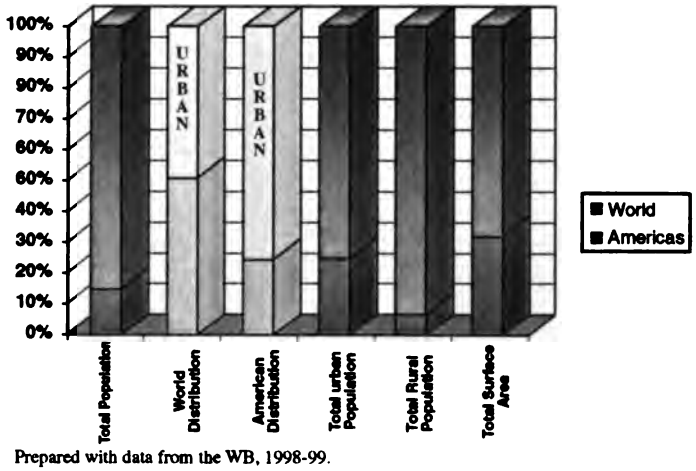
- The 3 percent contribution of primary agriculture to the total GDP of the Americas represents 30 percent of the worlds total primary agricultural GDP.
- America produces a large proportion of the world's major foodstuffs (80% of the soybeans, 60% of the coffee, 53% of the corn, 49% of the sugarcane, 44% of the beef and chicken, 16% of the pork, 42% of the bananas and sorghum, 26% of the fruits, 25% of the fish and seafood, 24% of the milk, among others).
- For every US$100 exported in agricultural and agri-industrial products in the world, US$36 comes from the Americas.
- America has 32 percent of the world's surface area, 25 percent of all the agricultural land and grasslands, 42 percent of the forestlands, and 14 percent of all irrigation.
- Agriculture and the rural milieu of the America's provide important environmental services. If fixes carbon at a cost 99 percent below what the world's contamination industries are paying. The average cost for preventing the emission of one ton of carbon into the atmosphere is US$60, while the forests do it for US$0.50 (**Espinoza**, 1999).
- The Americas offer an inestimable market related to "scenic beauty", which combines tourism, whether this be scientific or not, with nature, biodiversity, cultural heritage, and adventure.
- The Americas could generate on an annual basis an additional market in "functional" products (containing essential fibers and amino acids) and "nutriceuticals" (medicinal and nutritional) with a value greater than the agricultural GDP for the whole region. There are estimates that only 10 percent of the 250 thousand flower bearing species in the world have been examined scientifically.
- One of every four electoral voters is in agriculture or the rural milieu of the Americas.
- For LAC in particular, and in addition to the foregoing, we find that:
    - The 7 percent contribution from primary agriculture to the overall GDP of this region represents 14 percent of the world's total agricultural GDP.

- For each dollar produced in the total economy of LAC, US$0.25 is generated in expanded agriculture.
- From each dollar produced in primary agriculture, four dollars are produce in the economy of LAC.
- For each US$100 exported in agricultural and agri-industrial products around the world, US$16 come from LAC.
- For each dollar "embezzled" by society in LAC in its external trade of total goods, expanded agriculture pays US$0.90 of the bill (primary agriculture pays US$0.45).
- Each farmer feeds his or her family and six more persons in the society during the whole year.
- In addition, he or she feeds another person for the whole year with his/her exports, after having paid the cost of food imports and other agricultural inputs. He/she also provides quality foodstuffs at low prices, which is of particular benefit to the poor who must destine the greater part of their income to feed themselves.
- Agriculture generates around 59 million jobs in LAC. For every 100 jobs overall in LAC, 27 are generated by primary agriculture; for every 100 jobs overall in LAC, 35 are generated in expanded agriculture; for every 10 jobs in primary agriculture, four jobs are generated in the food industry and related services.
- LAC has 23 percent of the potentially arable land in the world and 15 percent of the land under cultivation; it has 27 percent of the world's fresh water and 30 percent of the world's tropical forests.
- LAC could generate on an annual basis, within the next ten years, an additional market for "functional" and "nutriceutical" products with a value that would represent more than the while GDP from agriculture in the Region (110%).

1.2.2 A general panorama of the present situation of agriculture and the rural milieu

America is inhabited by 785 million people (1997), who represent a little more than one tenth of the world's population (Figure 10). Most of this population (75%) is urban-centered and one fourth (25%) lives in the rural areas. The region holds almost one fourth of the world's urban population, but only 6 percent of the rural populace. America possesses almost one third of the

Figure 10. Rural and Urban Population and Surface Areas for the World and the Americas

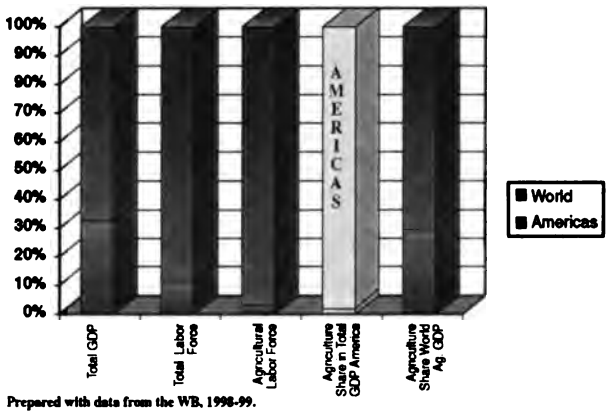


Prepared with data from the WB, 1998-99.

world's surface area and has one of the lowest population densities (20 persons per sq. km.) on the globe.

The Region generates more that one third of the Gross World Product, which provides it with an average personal income that is 154 percent greater than the world mean. It holds 12.5 percent of the world's Economically Active Population and only 3.9 percent of the planet's agricultural workers. Farm productivity (Agricultural GDP/Agricultural Workers) is 596 percent higher than the world average (Figure 11).

Figure 11. Gross Domestic Product and Agricultural Labor Force



Prepared with data from the WB, 1998-99.

The relative contribution of agriculture to total hemispheric Gross Domestic Product, although only 3.1 percent, represents close to 30 percent of the GDP of world agriculture. The Americas possess 31 percent of the world's agricultural land, forests and grasslands. To be specific, they hold 25 percent of the agricultural land and permanent grasslands and 42 percent of the forests (Figure 13).

Furthermore, the Americas contain 37 million hectares under irrigation, which represent 10 percent of the arable land in the region. This also represents 14 percent of the world's irrigated lands. These lands consume an average of 90 kilograms of fertilizer per hectare, 5 percent less

Figure 12. Income and Yields in America

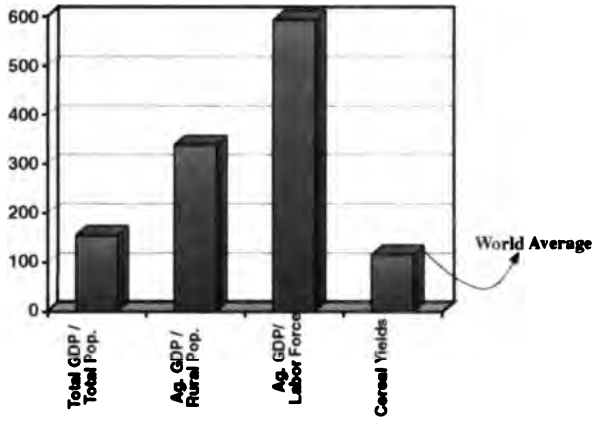


Figure 13. Land and Irrigation

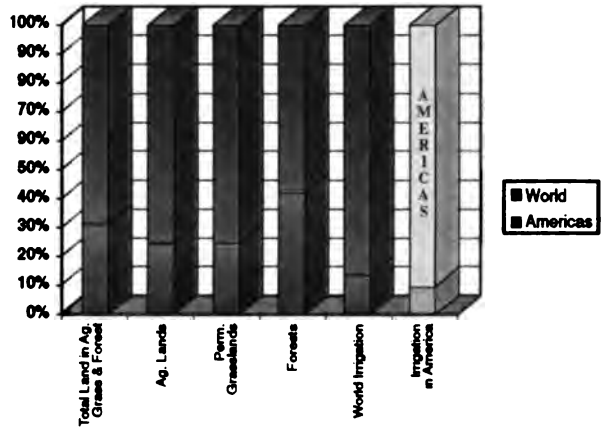
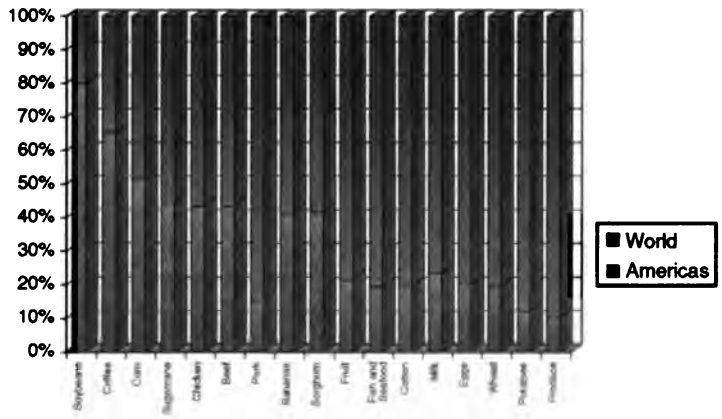


Figure 14. Production of the Worlds Major Crops



Prepared with data from the WB, 1998-99

than the world average. The Americas have, on the average, 238 tractors for every 1000 agricultural workers (Figure 12), which represents 1000 percent over the world average

Cereal production yields per hectare in the Americas is 14 percent greater than the world average. Its great productive capacity is also reflected in the importance of many of its products (Figure 14). Among others, it produces 80 percent of the world's soybeans, more than 60 percent of the coffee, a little over

half of the corn, almost one half of the sugarcane, 44 percent of the meat, including chicken and beef, 42 percent of the bananas and sorghum, a little over one-fifth of the fruits, one-fifth of the fish, shellfish and un-ginned cotton, 24 percent of the milk, 21 percent of the chicken's eggs, 20 percent of the wheat, 16 percent of the pork, 13 percent of the potatoes, and 11 percent of the horticultural produce.

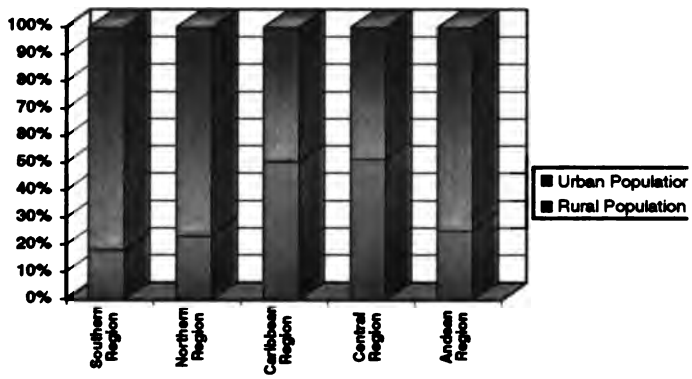
1.2.3 Agriculture and the rural milieu at the regional level

The enormous wealth of agriculture and the rural milieu in the Americas is expressed in different ways in each one of her regions, some of which are abundantly rich; others have less relative resources. However, in all situations, for each one of the regions, the resources and capacities available are important and must be seen in the context of each one of these realities and their own circumstances.

1.2.3.1 Andean agriculture and the rural Andes: Bolivia, Colombia, Ecuador, Peru, and Venezuela

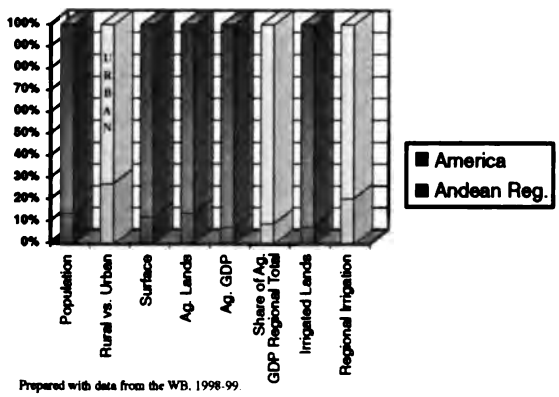
The Andean Region is home to 13.6 percent of the population of the Americas and 1.8 percent of the planet's inhabitants (Figure 15). It is the third most populous region of the hemisphere. Close to the average for the Americas, almost three-quarters of the population live in urban areas, and only one-fourth of the inhabitants are settled in the rural areas (Figure 16). It holds 14.6 percent of the rural population of the Americas and 13.4 percent of the urbanites. The land area constitutes 11.9 percent of the area of the Americas and 3.5 percent of the world's land area, which makes the population density slightly greater than the average for the Americas (Figure 17).

Figure 15. Rural Versus Urban Population in America



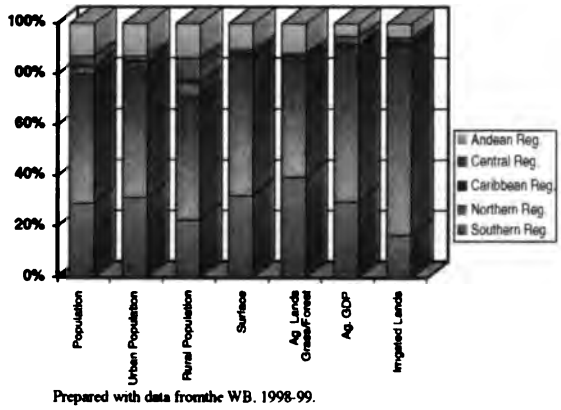
Prepared with data from the WB. 1998-99.

Figure 16. Andean Region



Prepared with data from the WB. 1998-99.

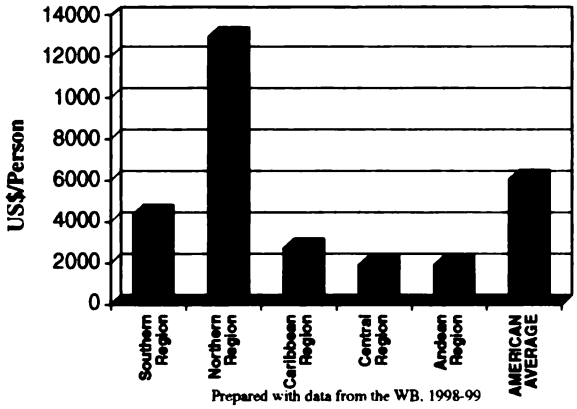
Figure 17. Agriculture in America and its Regions



Prepared with data fromthe WB. 1998-99.

It represents one-fourth of the GDP of the Americas, 0.8 percent of the world GDP and has an income 54 percent below the world average and 88 percent below the average for the Americas. Holding 12.3 percent of the total workforce of the Americas, it has, however, 20.3 percent of the agricultural labor force. Agricultural productivity is 124 percent greater than the world average, but 68 percent below the average for the Americas (Figure 18). The relative contribution of Andean agriculture to the total GDP for this region is 8.3 percent, but it provides only 6.5 percent of the total agricultural GDP for the Americas and 1.8 percent of the world's product.

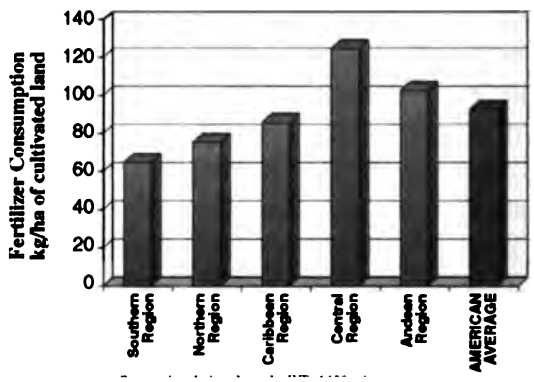
Figure 18. Agricultural Productivity



The Andean Region contains 13 percent of all the arable land, forests, and grasslands in the Americas, i.e., 4 percent of the world's supply. Eleven percent of America's arable land and 2.7 percent of the world supply, 13.7 percent of the permanent grasslands of the Americas and 3.4 percent of the world's, and 15.7 percent of America's and 6.1 percent of the world's forest lands can be found here.

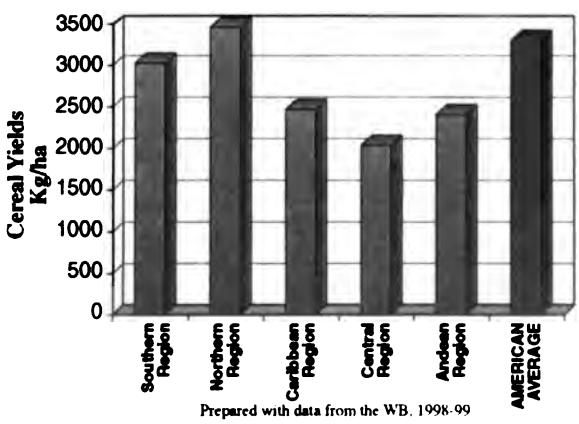
The region holds 7 percent of the irrigated lands in the Americas and 1 percent of the world's. It is the region with the highest proportion of arable land under irrigation in America (19.7%). Per hectare fertilizer consumption (102 kg. per hectare) is 14 percent above the average for the Americas (Figure 19). There is an average of 16 tractors per thousand workers occupied in agriculture in the region, one of the lowest indexes in the Americas and 20 percent below the world average.

Figure 19. Fertilizer Consumption in the Region



The Andean Region has a productive yield of 2.4 tons of cereals per hectare, which is 16 percent below the world average and 27 percent below the average in the Americas (Figure 20). The 1990/1997 average indicates that the region produced 19 percent of the world's **coffee**, and about one-third of that produced in the Americas; 16.1 percent of the world's **bananas** and 38.1 percent of America's; 8.5 percent of the world's **fish and seafood** and 35.6 percent of America's; 4.7 percent of the worlds **sugarcane** and 10 percent of America's; 3.2 percent of the world's **chicken** and 7.3 percent of America's (13 kg/person); 2.7 percent of the world's **beef** and 6.1 percent of America's.

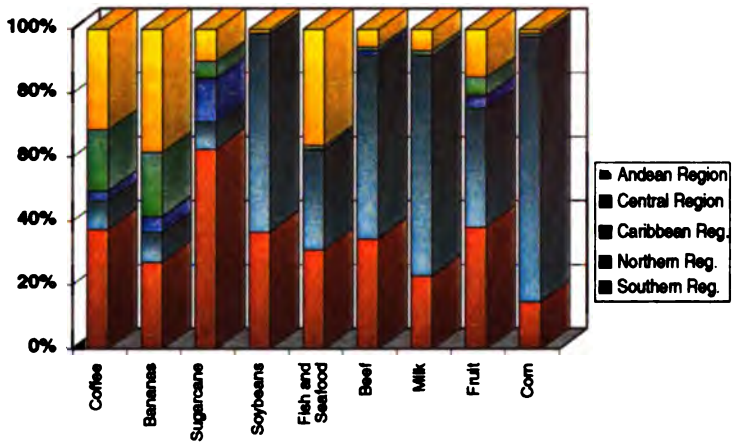
Figure 20. Cereal Yields in the Regions



The region produced 0.6 percent of the world's **pork** and 3.9 percent of America's; 4.1 percent of the world's **fruits** and 15.5 percent of America's; 1.6 percent of the world's **chicken's eggs** and 7.6 percent of America's; 1.7 percent of the world's **milk** and 7.3 percent of America's; 2.1 percent of the world's **potatoes** and 15.8 percent of America's; 0.8 percent of

the worlds **horticultural produce** and 7 percent of America's; 0.7 percent of the world's **soybeans** and 0.9 percent of America's; 1.9 percent of the world's **sorghum** and 4.5 percent of America's; 0.7 percent of the world's **corn** and 1.4 percent of America's; 0.9 percent of the world's **cotton** and 3.6 percent of America's; and 0.02 percent of the world's **wheat** and 0.3 percent of America's (Figure 21).

Figure 21. Agricultural Production in the Americas

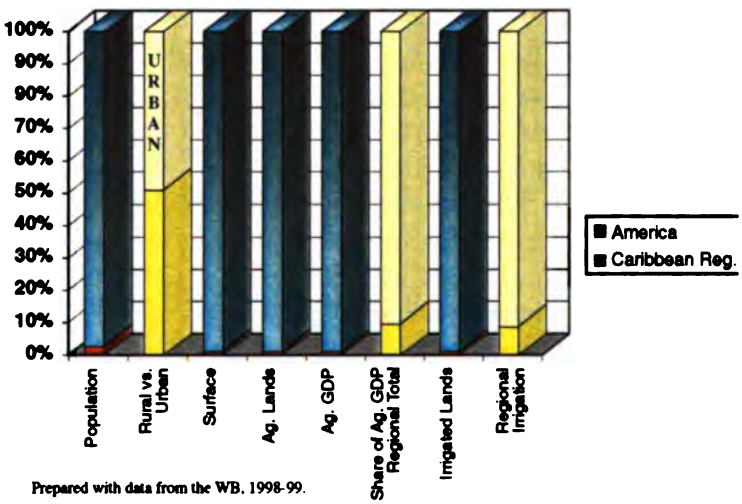


Prepared with data from the WB, 1998-99.

1.2.3.2 Caribbean agriculture and the rural Caribbean: Antigua and Barbuda, Bahamas, Barbados, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, St. Kitts and Nevis, St. Vincent and the Grenadines, St. Lucia, Suriname, and Trinidad and Tobago.

This region is inhabited by 2.7 percent of the population of the Americas and 0.4 percent of the world's population (Figure 22). This is the least populous of the five regions of the Americas. In contrast to the average situation in the Americas, only 49.3 percent of the population live in the urban zones, while 50.7 resides in the rural areas. The region holds 5.6 percent of the rural population of the Americas, but only 1.8 percent of the urban populace. It has 1.2 percent of the surface area of the Americas and 0.3 percent of the world's. Population density is 100 percent greater than the American average and comparable to that recorded for the whole world.

Figure 22. Caribbean Region



Prepared with data from the WB, 1998-99.

It represents 0.3 percent of the GDP of the Americas, 0.1 percent of the world GDP and has an income 87 percent below the average for the Americas and 68 percent below the world average. Holding 2.3 percent of the total workforce of the Americas, it has 2.4 percent of the agricultural labor force. Agricultural productivity is 56 percent below the average for the Americas, but 207 percent greater than the world average (Figure 18). The relative contribution of Caribbean agriculture to the total GDP for this region is 10 percent, but it provides only 1 percent of the total agricultural GDP for the Americas and 0.3 percent of the world's product.

The Caribbean Region contains 1.2 percent of all the arable land, forests, and grasslands in the Americas, and 0.4 percent of the world's supply (Figure 17). It has 0.6 percent of America's arable land and 0.2 percent of the world supply, 0.5 percent of the permanent grasslands of the Americas and 0.1 percent of the world's, and 1.9 percent of America's and 0.8 percent of the

world's forestlands can be found here. It has 1.1 percent of America's irrigated lands and 0.1 percent of the world's. The Caribbean Region has 8.5 percent of the arable land under irrigation, the second lowest proportion in all of the regions in the hemisphere, after Central America. Per hectare fertilizer consumption (85 kg. per hectare) is 14 percent below the average for the Americas (Figure 19). The average number of tractors is equal to the Andean region, 16 tractors per thousand agricultural workers.

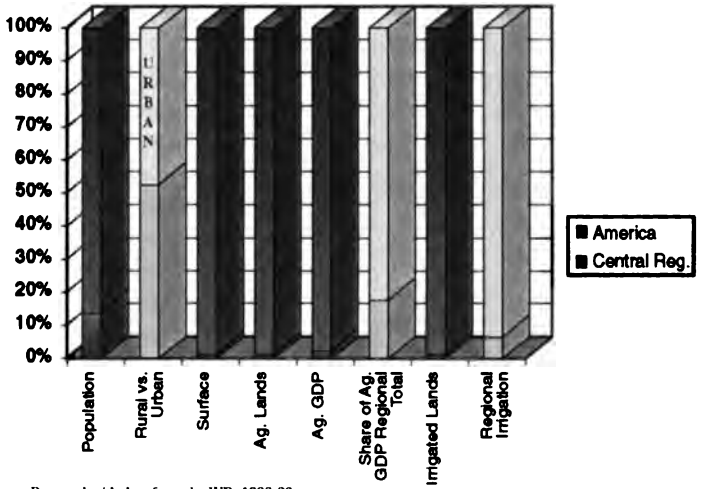
The Caribbean Region has a productive yield of 2.5 tons of cereals per hectare, which is 14 percent below the world average and 25 percent below the average in the Americas (Figure 20). The region produces 1.4 percent of the world's **coffee**, and 2.2 percent of that produced in the Americas; 2.5 percent of the world's **sugarcane** and 13 percent of America's; 2.1 percent of the world's **bananas** and 5 percent of America's; 0.3 percent of the world's **beef** and 0.6 percent of America's; 0.8 percent of the world's **fruits** and 3 percent of America's (Figure 21).

The region produces 0.1 percent of the world's **fish and seafood** and 0.4 percent of America's; 0.6 percent of the world's **chicken** and 1.3 percent of America's; 0.2 percent of the world's **chicken's eggs** and 1.1 percent of America's; 0.1 percent of the worlds **horticultural produce** and 1.3 percent of America's; 0.2 percent of the world's **sorghum** and 0.4 percent of America's; 0.01 percent of the world's **corn** and 0.1 percent of America's; 0.1 percent of the world's **milk** and 1.5 percent of America's; 0.02 percent of the world's **potatoes** and 0.1 percent of America's; 0.1 percent of the world's **pork** and 0.7 percent of America's.

1.2.3.3 Central American agriculture and the rural milieu of Central America: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama

The region houses 4.4 percent of the population of the Americas and 0.6 percent of the world's population. Taking into account the number of inhabitants in the five regions of the Americas, this region is next to last in population size. Similar to the Caribbean, slightly less than one half of the population is found in the urban areas and the majority lives in rural areas. The region holds 9.2 percent of the rural population of the Americas, but only 2.8 percent of the urban populace (Figure 23).

Figure 23. Central Region



Prepared with data from the WB. 1998-99

It has 1.3 percent of the surface area of the Americas and 0.4 percent of the world's, which makes the population density the highest in the Americas, 222 percent greater than the American average and 49 percent over that of the world. It represents 0.5 percent of the GDP of the Americas, 0.2 percent of the world GDP and has the lowest average income of the American regions, 89 percent below that of the Americas and 71 percent below the world average.

The region has 3.4 percent of the total workforce of the Americas, but 8.8 percent of the agricultural labor force. Agricultural productivity is 121 percent above the world average, but 68 percent below the average for the Americas (Figure 18). The relative contribution of Central

American agriculture to the total GDP for this region is the highest of the American regions (17.5%). However, it provides only 2.8 percent of the total agricultural GDP for the Americas and 0.8 percent of the world's product.

The Central Region contains 1.5 percent of all the arable land, forests, and grasslands in the Americas, and 0.5 percent of the world's supply. It has 1.8 percent of America's arable land and 0.4 percent of the world supply, 1.6 percent of the permanent grasslands of the Americas and 0.4 percent of the world's, and 1.2 percent of America's and 0.5 percent of the world's forestlands can be found here (Figure 17).

The Central Region has 1.4 percent of the irrigated land of the Americas and 0.2 percent of the world's. Only 6 percent of the arable land in Central America is irrigated, this represents the lowest proportion of all the regions in the hemisphere. Average per hectare fertilizer consumption (124 kg. per hectare) is 32 percent above the average for the Americas (Figure 19). This region has the highest per hectare consumption. The average number of tractors is only 11 tractors per thousand agricultural workers, the lowest rate in the Americas and 50 percent below the world average.

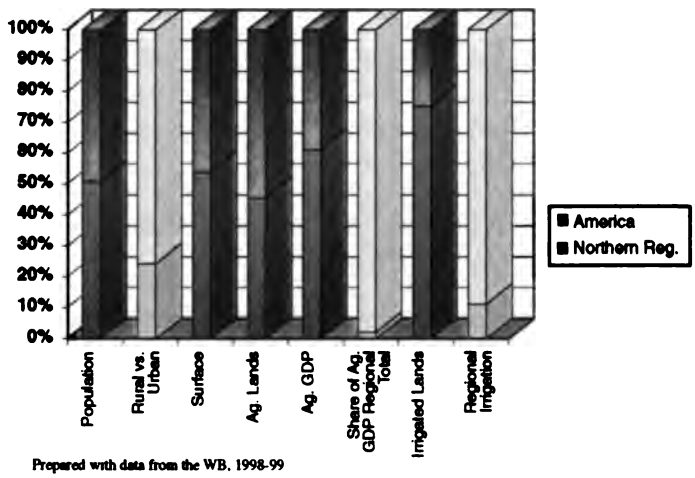
The Central Region has a productive yield of 2.1 tons of cereals per hectare, which is 28 percent below the world average and 36 percent below the average in the Americas. The region produces 12 percent of the world's **coffee**, and 19 percent of that produced in the Americas; 2.5 percent of the world's **sugarcane** and 5.3 percent of America's; 8.4 percent of the world's **bananas** and 20 percent of America's; 1.2 percent of the world's **fruits** and 6 percent of America's; 0.6 percent of the world's **beef** and 1.4 percent of America's (Figure 21).

The region produces 0.7 percent of the world's **chicken** and 1.6 percent of America's; 0.6 percent of the world's **chicken's eggs** and 2.7 percent of America's; 0.3 percent of the world's **milk** and 1.5 percent of America's; 0.2 percent of the world's **fish and seafood** and 0.9 percent of America's; 0.5 percent of the worlds **corn** and 0.9 percent of America's; 0.2 percent of the world's **horticultural produce** and 2.1 percent of America's; 0.06 percent of the world's **soybeans** and 0.07 percent of America's; 0.7 percent of the world's **sorghum** and 1.7 percent of America's; 0.2 percent of the world's coffee and 0.7 percent of America's; 0.01 percent of the world's **potatoes** and 0.5 percent of America's; 0.1 percent of the world's **pork** and 0.7 percent of America's.

1.2.3.4 North American agriculture and the rural milieu of the North: Canada, the U.S., and Mexico

This region is home to one-half of the population of the Americas and 6.8 percent of the world's population. This region has the most numerous population of the five regions. Three-quarters of the population are found in urban areas and only one-quarter lives in rural areas. The region holds 48.8 percent of the rural population of the Americas, and 51.2 percent of the urban populace. It has 11 percent of the world's urban population but only 3 percent of the rural dwellers (Figure 24).

Figure 24. Northern Region



Prepared with data from the WB, 1998-99

It represents slightly more than one-half of the surface area of the Americas and 16 percent of the world's, which makes the population density slightly below the average in the Americas. It contributes slightly over 80 percent of the GDP of the Americas, 29 percent of the world GDP, and has an average income 67 percent above the American average and 325 percent above that of the world.

The region has slightly over one-half of the total workforce of the Americas, but only 28.5 percent of the agricultural labor force. Agricultural productivity is 113 percent above the American average, and 1,382 percent above that of the world (Figure 18). The relative contribution of North American agriculture to the total GDP for this region is only 2.3 percent. Notwithstanding it participates with 61 percent of the total agricultural GDP for the Americas and 16.4 percent of the world's agricultural product.

The Northern Region contains one half of all the arable land, forests, and grasslands in the Americas, and 14 percent of the world's supply. It has 48.5 percent of America's arable land and 12.2 percent of the world supply, 40.5 percent of the permanent grasslands of the Americas and 10 percent of the world's, and 45.7 percent of America's and 19 percent of the world's forestlands can be found here (Figure 17).

The region has 74.9 percent of the irrigated land of the Americas and 10.5 percent of the world's. The Northern Region has 11.2 percent of its arable land under irrigation, the second highest proportion of the regions in the hemisphere following the Andean Region. Average per hectare fertilizer consumption (74 kg. per hectare) is 18 percent below the average for the Americas (Figure 19). There are 1,052 tractors on average for every thousand agricultural workers in the region, the highest rate in the Americas and the world.

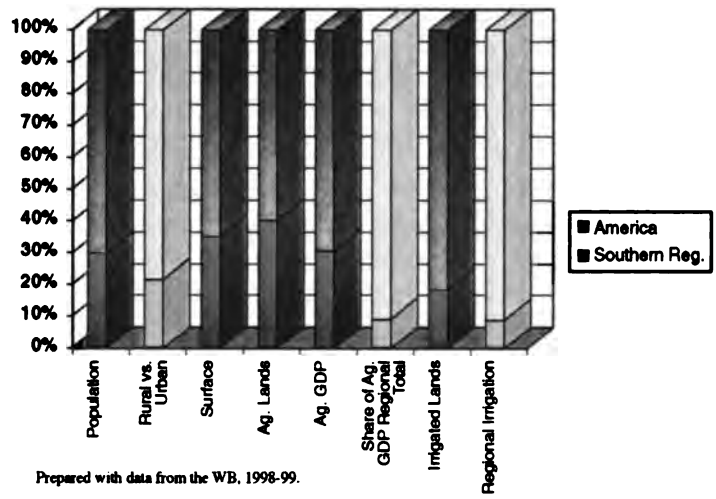
The Northern Region has a productive yield of 3.5 tons of cereals per hectare, which is 21 percent above the world average and 6 percent above the average in the Americas (Figure 20). The region produces 5.6 percent of the world's **coffee**, and 9.7 percent of that produced in the Americas; 3.8 percent of the world's **sugarcane** and 8.1 percent of America's; 3.8 percent of the world's **bananas** and 9 percent of America's; 51 percent of the world's **soybeans** and 62.7 percent of America's; 34 percent of the world's **sorghum** and 82 percent of America's; 18.7 percent of the world's **cotton** and 75.5 percent of America's (Figure 21).

Furthermore, the region produces 16.8 percent of the world's **wheat** and 85.3 percent of America's; 8.9 percent of the world's **potatoes** and 67.3 percent of America's; 9.7 percent of the world's **fruits** and 36.6 percent of America's; 25.2 percent of the world's **beef** and 57.4 percent of America's; 29.3 percent of the world's **chicken** and 66.9 percent of America's; 14.3 percent of the world's **chicken's eggs** and 67.3 percent of America's; 15.7 percent of the world's **milk** and 67.5 percent of America's; 8.2 percent of the world's **fish and seafood** and 32.4 percent of America's; 44.7 percent of the worlds **corn** and 82.8 percent of America's; 7.9 percent of the world's **horticultural produce** and 69.2 percent of America's; 12.9 percent of the world's **pork** and 79.6 percent of America's.

1.2.3.5 Agriculture and the rural milieu in the Southern Cone: Argentina, Brazil, Chile, Paraguay and Uruguay

Twenty-eight percent of the population of the Americas and 3.8 percent of the world's population inhabits this region (Figure 25). This region is the second most numerous in population of the five American regions, after the Northern Region. Slightly over 80 percent of the population is found in the urban areas and only 18.9 percent lives in the rural areas, it is the most urbanized region in the Americas. The region holds 21.8 percent of the rural population of the Americas,

Figure 25. Southern Region



Prepared with data from the WB, 1998-99.

and 30.8 percent of the urban populace. It has almost one-third of the land area of the Americas and one-tenth of that of the planet, which gives it, together with the Northern Region the lowest population density in the Americas.

It produces 11.7 percent of America's GDP and 4 percent of the world's. The region is second only to the Northern Region in average income per inhabitant per year, but it falls 59 percent below the average for the Americas and is slightly above the world average. It has 28 percent of the total workforce of the Americas, but only 40 percent of the agricultural labor force. Agricultural productivity is 28 percent below the American average, but 400 percent above that of the world (Figure 18). The relative contribution of the Southern Cone's agriculture to the total GDP for this region is 7.8 percent. This, however, allows it to contribute with 29 percent of the total agricultural GDP for the Americas and 7.8 percent of the world's product.

The Southern Region contains 38.6 percent of all the arable land, forests, and grasslands in the Americas, and 12 percent of the world's supply. It has 38 percent of America's arable land and 9.6 percent of the world supply, 44 percent of the permanent grasslands of the Americas and 11 percent of the world's, and 36 percent of America's and 15 percent of the world's forestlands can be found here (Figure 17). The region has 15.8 percent of the irrigated land of the Americas and 2.2 percent of the world's. The Southern Region has 6.6 percent of its arable land under irrigation, a proportion similar to that of the Central Region. Average per hectare fertilizer consumption is 64 kg. per hectare, 29 percent below the average for the Americas. This region has the lowest per hectare consumption in the Americas (Figure 19).

There are 96 tractors on average for every thousand workers occupied in agriculture in the region, the second highest rate in the Americas and 300 percent of the world rate.

The Southern Region has a productive yield of 3.1 tons of cereals per hectare, which is 7 percent above the world average and 6 percent below the average in the Americas (Figure 20). The region produces 22.4 percent of the world's **coffee**, and 36.9 percent of that produced in the Americas; 27.3 percent of the world's **sugarcane** and 58.6 percent of America's; 11.4 percent of the world's **bananas** and 26.9 percent of America's; 29.5 percent of the world's **soybeans** and 36.3 percent of America's; 4.7 percent of the world's **sorghum** and 11.4 percent of America's; 4.9 percent of the world's **cotton** and 20 percent of America's.

Furthermore, the region produces 2.8 percent of the world's **wheat** and 14.3 percent of America's; 2.1 percent of the world's **potatoes** and 15.6 percent of America's; 10.1 percent of the world's **fruits** and 37.9 percent of America's; 15.1 percent of the world's **beef** and 34.2 percent of America's; 9.9 percent of the world's **chicken** and 22.5 percent of America's; 4.3 percent of the world's **chicken's eggs** and 20.4 percent of America's; 5.3 percent of the world's **milk** and 22.7 percent of America's; 8.2 percent of the world's **fish and seafood** and 32.3 percent of America's; 8 percent of the worlds **corn** and 14,8 percent of America's; 2.4 percent of the world's **pork** and 14.5 percent of America's; and 2.2 percent of the world's **horticultural produce** and 19.8 percent of America's (Figure 21).

In summary, agriculture and the rural milieu of the Americas are of significant importance both for their position in the wold's agri-foodstuff economy, and for their importance within each region and country. Agriculture should be measured both for its weight in the Americas as a whole, and even at the world level, but in particular for its per capita productive capacity in each region and country. There are large differences between the absolute advantage (magnitude of the production by product – where the South and the North are of great weight) and the relative advantages (per person productive capacity). This latter is a truer reflection of the real size of agriculture at the product by product level. The smaller regions such as the Central or Caribbean are, nevertheless, of equal or greater importance than the large regions such as the South (Table 2).

Table 2. Average Food Production per Person/year 1990-97 (Kg)

Products	REGION				
	Andean	Caribbean	Central	Northern	Southern
Coffee	10.6	4.8	20.0	0.9	6.0
Sugarcane	500.0	3,232.0	831.0	108.0	1,405.0
Bananas	81.2	65.0	132.0	5.2	27.5
Soybeans	8.5		2.0	162.6	167.0
Sorghum	10.7	5.4	12.8	52.9	13.1
Wheat	3.1			242.0	72.2
Corn	37.2	17.4	80.0	608.0	193.0
Cotton	4.6		0.3	34.0	12.1
Potatoes	55.1	15.2	5.3	63.4	26.1
Fruits	176.4	231.0	2.1	111.0	204.0
Produce	39.5	54.6	36.4	105.7	53.6
Beef	13.2	10.0	9.3	33.8	35.8
Chicken	13.0	15.0	8.9	32.0	19.1
Pork	4.5	7.7	2.4	79.6	8.1
Eggs	6.2	8.4	6.2	14.9	8.0
Milk	85.7	58.7	55.0	214.0	127.5
Fish and Seafood	80.8	11.1	6.9	21.0	351.0

Prepared with data from FAO-STAT

This difference, although reflecting to a great extent the natural vocation of their soils and climates, can also be seen in the output of products that are much more independent of these natural variables or that are similar. For example, in the production of sugarcane between the Caribbean region and that of the South (and all the other regions) there is an absolute per capita difference in favor of the first region (3232 kg/person vs. 1405 kg/person, respectively). This is also obvious in per capita output of pork where the Caribbean produces more than the Andean and Central Regions, and is practically equal to that of the South. In a similar fashion, it is possible to distinguish between horticultural production where the Caribbean produces more than all of the other regions, with the exception of the Northern Region. The same is true in egg production, where once again the Caribbean produces more per person than all of the other regions, with the exception of the North. In a set of 17 products, the relative differences among the five regions vary in every direction, i.e.; some regions improve and surpass others in per capita output.

1.3 A vision of the future: A period of changes or a change of paradigms for agriculture and the rural milieu

Introduction

In order to build a vision of the future, one that is global, integral and integrating, we have to start with a recognition of the main driving forces for change, which LAC has been undergoing over the last two decades. This will allow us to take full advantage of the opportunities and inactivate the inherent threats.

The challenges and opportunities that confront our countries at this time bear a special and historically unique seal. The center of gravity of the economy is moving continuously towards abstract and non-material activities, where knowledge and information become the essential productive factor of value and competitiveness, as well as the foundation of the society of the future.

On the threshold of the third millennium, challenges and opportunities are determined by a set of deep and accelerated transformations that have brought us to a change of paradigms more than a period of changes.

1.3.1 Forces driving change in agriculture and the rural milieu.

Extended agriculture, i.e., taking into account agri-foodstuff and agri-industrial systems at the world level and in the Americas, is changing rapidly due mostly to seven pivotal forces that bear heavily on it, to wit:

(a) A macroeconomic framework that is suitable and stable for growth,
(b) Freer markets and economic integration,
(c) The scientific and technological revolution and increasing productivity,
(d) Education, training, and information,
(e) A transformation of consumption structures and preferences,
(f) A predominance of conditions of quality, hygiene, and sanitation, both animal and vegetable, as well as human, and environmental conservation, and
(g) A growth in democracy and decentralization.

The first point represents the establishment of a world-scale and national level stable macroeconomic framework that is suitable for growth. Consolidation of a strong economic base may occur here as a function of the achievement of a social equilibrium working from strategies and policies that promote a process of sustained egalitarian development. This context, macroeconomic policies, and economic reforms have definitely determined the behavior of agriculture, agri-industrial, and agri-foodstuff activities within the region. The whole system of relative prices, and therefore, the assignment of and access to productive resources, investment, technological innovation, and sustainable management of natural resources, among others, have undergone substantial transformations.

The second aspect is the growing integration of economies through globalization, where the predominance of free markets demands an operation under demand-side conditions with efficiency and competitiveness. The freer economies and market integration have opened up tremendous opportunities, but with great challenges, for the countries to increase their economic growth from an agricultural and rural milieu starting point. The great American spaces with abundant natural resources and the region's productivity and environment, agriculture and the agri-foodstuffs and agri-industrial systems provide exceptional comparative advantages. The countries of the Americas are taking great advantage and can and must take further advantage of the opportunities that appear with ever freer, transparent and dynamic markets.

The third driving force for change is the scientific and technological revolution that pivots around knowledge and productivity, which lower unit costs, and increase quality, safety, and congruity with the environment. The scientific and technological revolution has increased the possibilities of augmenting productivity, creating an enormous potential for specific knowledge, focusing on the structure of the materials and genetic engineering, which are available to an extended agriculture. This opens tremendous possibilities to move away from an unsustainable system of extensive, horizontal and irrational exploitation, that uses and abuses natural and human resources. What is proposed here is a leap forward towards a system based on the sustainable use of these resources and creation of dynamic competitive advantages at the international level.

The fourth force is education and training, which represent the keystone of competitiveness and dynamic competitive advantages at the international level for firms, economies, and societies in general. Education, training, and information are bringing about a qualitative transformation in the conditions of regional and world agriculture and rural milieus. Some of the greatest demands and conditions currently imposed on extended agriculture are efficiency, productivity and competitiveness, technological innovation, quality, agricultural health hygiene, food safety and raw materials, trade negotiations and the implementation of agreements, information and communications, environmental conservation, and even the amelioration of poverty. These demands are essentially funneled through the development of human resources focused in part, but not exclusively, on an increase in agri-entrepreneurial capacity and technological development.

The fifth force is the demand for development and improvement in the quality of life, where health, quality, and environment represent the basic conditions of any productive act, commercial or social, local or international. With the development of trade exchanges and commerce at the international as well as the local level, there is an overwhelming demand for conditions of quality, hygiene, and sanitation, both animal and vegetable, as well as human, and the conservation of the environment. These demands are both regulated at the international level, and demanded by the consumers within the countries.

The sixth force is the transformation of consumption behavior, preferences, and tastes, which are growing at a heretofore unheard of rate. And more so now, with the globalization of foodstuff systems that create a global "delicatessen" demanding high quality, competitive prices, timeliness and regularity in supply (especially for out-of-season items) and a much greater differentiation of products (**Timmer**, 1997).

The seventh of the forces for change is represented by democratization and decentralization throughout the world and in Latin America and the Caribbean in particular, which create conditions for achieving important modifications in the processes for generating and distributing wealth, and thus drawing social welfare closer. Although the advances are significant, there are still limitations in some countries, but the orientation of this process is correct and has passed through a stage of coalescence. A solid, open, participatory and integrative social base has thus been consolidated, not only with regard to electoral and representative aspects, but also economic, institutional, social, cultural, and political ones.

The individual and combined effect of these seven forces is unquestionably leading to a transformation of the paradigms, of the model of growth and development, and even of society's life styles.

Here follows a forecast of some trends towards the year 2020, in order to provide a shared vision of agriculture and the rural milieu. These trends are a reflection of the most adequate focus that would assist in defining an integral action strategy to integrate the present with this vision of the future.

It is possible to foresee, define, and implement short and long term strategies within the horizon of the year 2020. These would respond to the challenges represented by the changes in social and economic policy, which will improve the situation of agriculture, the rural milieu, and their inhabitants, as well as the food supply and the environment, particularly in LAC.

The forces driving the changes and transformations that are occurring in the economy, in agriculture, and in the rural milieu, which have arisen from the reforms begun during the 80's and which continue at present, have and will continue to have transcendental and long-lasting effects in the coming decades on our economies and societies.

1.3.2 A vision of agriculture and the rural milieu for the coming decades

In this scenario, agriculture and the rural milieu are of strategic importance for the development of our societies, because they reach a very high degree of two-way interdependence with other dimensions and variables, both within the external, macroeconomic, and agri-industrial surroundings, as well as their own operational micro-dimension.

In the future, agricultural and rural activities in the Americas will have three essential characteristics. They will be prosperous. They will be well positioned in the countries of the hemisphere and around the world. They will be considered as strategic affairs within overall development, given their contributions to society.

Some of the most visible prospective trends that allow us to configure this probable and feasible scenario surrounding agriculture and the rural milieu in 2020, are the following (**Escudero**, 1998).

The globalization of the economy, agriculture, and the rural milieu has been consolidated. The worldwide integration in the fields of trade, investments, capital, technology, communications and manpower flows has knit a network of linkages among nations that has made them vitally interdependent.

International trade flows are multiplying rapidly. The fallen international barriers to the exchange of merchandise, investments and capital, manpower, and technology have given great dynamism to both the global economy and global trade, as well as production and agricultural and agri-foodstuff trade.

The world market and national markets operate without significant distortions. Distortions are situation specific, whether they arise from insufficient or limited state participation, from the existence of monopolies or power groups, or even from insufficient market mechanisms or inadequately developed markets, especially those that bear on the rural environment.

The markets in the developed nations are open on a reciprocal basis to the products and services from the rest of the countries. Free access for the products from LAC, especially agricultural and agri-foodstuffs, to the markets in the developed countries will allow them to obtain additional revenue from exports, in amounts that represent several times current export levels.

Relative stability in the main world macroeconomic variables will assist the growth of the developing countries and thus, their agriculture. The recuperation of the world economy will contribute to this stability, as it is currently growing at 3 percent per year (**WB**, 1998/99). The declining inflation rate, lower international interest rates, and a greater stability foreseen in international prices for major products will also contribute. The foregoing factors are accompanied by a significant flow of capital and technology towards the developing countries.

A stable macroeconomic context is one of the most important public goods that the State can guarantee for economic growth and growth in agricultural and rural activities. This translates into minimal deficit spending on the part of the public sector, monetary supply levels that are not excessive and under control, a transparent financial system, low and stable interest rates, and a continuous growth that does not generate inflation over single-digits.

The third industrial revolution is fully developed and continues to represent one of the major engines of economic and general trade growth, particularly that of the agri-foodstuffs sector. The global mutation, borne by the accelerated range of changes that occurred after World War II, has covered a sweeping range of science and technology, information, communications, arts and culture, welfare, health, and the economy.

Free markets and integration stimulate technological innovation and technical diffusion in a special way, as well as more rational resource utilization. The prevailing technical progress allows the utilization of available resources in general, and natural and productive resources in agriculture and the rural milieu in particular, in a more productive and rational way than in any other era of human history.

Knowledge and information are the fundamental factor in production and trade. Knowledge and information acquired a great importance and became the main factor in the economy and agriculture. Beyond the importance of knowledge in the economy, i.e., as a productive factor, it acquired a broader connotation, transforming itself into the power that encompasses society and the State (**Toffler**, 1990).

Investment in human capital continues to be one of the fundamental movers of a country's technological and economic development. It is clear that education accelerates the adoption of new technologies and makes a nation's economy and agriculture more productive and competitive. Investment in human capital has an extremely high economic return; in fact, a large proportion of the increases in the economy and in agriculture is based on this investment.

Industry universalizes its hegemony based on knowledge and information. With the third technological revolution focused on knowledge and information, the hegemony of industry over any other activity has been consolidated, and it has developed in a much more specialized, diversified, and universal manner. This includes knowledge and information, describing processes that are continuously more interdependent and related with globalization of the economies and the growing integration of nations.

The world economy is characterized by the predominance of flexible and adept productive structures, capable of competing at the lowest unit costs, with greater product quality and security. They are also capable of a rapid response to segmented, specialized, sophisticated, changing, and dynamic markets. This has implied the consolidation of production lines integrated in a perfectly symmetrical, interdependent and versatile sense, both horizontally and vertically. Thus the relationships between agriculture and industry have become so close-knit that one can hardly be distinguished from the other.

The rhythm of world population growth continues to decline. By the year 2020, the world's population growth rate will be around 1 percent. This rate is significantly different from the 1.9 percent rate recorded between 1970 and 1980. The world's urban population is solely responsible for this growth. It has become an absolute consumer of the products and services from agriculture and the rural milieu. For its part, the rural population is consolidated and holding stable at one fourth of the world's population. In this environment, non-agricultural rural activities have become predominant, even though a significant part of it is based on agricultural activities. A majority of the LAC countries have reached the point where 20 percent to 30 percent of their population is rural, and depends directly on agricultural or forestry activities.

Real income differentials continue to decline among the industrialized countries and the developing countries of greater relative development, although this is not the case with the less

advanced developing nations. These latter are advancing at a pace that can still be considered slow. The differential between urban and rural incomes is particularly noticeable, although the trend continues to close the gap.

Standards of living have improved substantially. The time necessary to obtain tangible modifications in the standard of living has been significantly reduced over the course of the centuries. This means that within this scenario, it will be possible to achieve a better standard of living more quickly with regard to those achieved at the end of the 20th Century (**WB**, 1991). In particular in the rural milieu there have been advances as part of an explicit strategy to retain the population in rural settlements, where the opportunity cost of inhabiting these zones is progressively lower in the face of the services and opportunities offered in the cities.

For the first two decades of the 21st Century, important progress is foreseen in overcoming poverty, most significantly in the world's poorest countries. There is an ongoing convergence of development indicators among countries, even though they are more convergent in some than others. One of these indicators refers to the health status of the population and its life expectancy.

Other indicators are infant and adult mortality, which have been receding year after year in a significant fashion in a majority of countries, including low-income ones. Something similar has happened with literacy, in contrast to what was occurring at the end of the 20th Century, when it demonstrated less dynamism, it has picked up its rhythm of growth during the first two decades of the new millennium.

Sustainability is no longer just a political intention, but a sine qua non *practiced in these first decades of the 21st Century.* The continuity of agricultural activities and those of the rural milieu is now considered from the perspective of the transcendence of the present generation towards future generations. The rural population and farmers, who develop the activities more directly related to natural resources and the environment, are no longer seen as those with the primary liability for the deterioration of these resources.

Social agents, interdependence and their inclusion are all factors for success. The processes of drafting the conceptualizations and carrying out the actions in agriculture and the rural milieu, in particular, lead to a broad and integrating perspective that guarantees the success of the actions. Thus, there is a requirement for developing the capacity to dialogue and lead effectively and strategically, with a recognition and linkage between agricultural economics and socio-political aspects, in a broad-ranging process of coordination, collaboration, and participation.

Agriculture and the new institutionality. Since the beginning of the year 2000, the countries in Latin America and the Caribbean will have begun their transit towards a second generation of institutional reforms in agriculture and the rural milieu, guided by a strategic and proactive view responding to the question, what institutions are required to position agriculture and the rural milieu within the context of integration and globalization? In the new futuristic scenario, the existence of a deliberate strategy for harmonious development with the market is perfectly viable, distancing itself from facile but false counterpoints, the State vs. the market, intervention vs. "*laisser-faire*".

There is a consensus on the need for selective intervention in areas such as: social, physical, administrative, and legal infrastructures, the war on poverty, social and distributive investment, support for international insertion, macroeconomic equilibrium and stability, the incorporation of technical processes into the productive and trade process, education, training, and protection of the environment.

In synthesis, the aforementioned trends configure a probable and feasible scenario for 2020. In this scenario, the interdependence of the countries is almost absolute from economic, technological, ecological, and probably cultural and political standpoints as well. The globalization of the economy will be consolidated and national borders will only be imaginary lines marking fully interpenetrated countries.

National economic policies will have lost their secular autonomy, and instead, the countries will have a greater role in the joint definition of the policies and in multilateral decisions. The motor for growth will be trade and the basis for dynamism will continue to be the transformation of knowledge and technology.

The sustainability of this scenario will depend on a solution for poverty. This is so for matters of governance, and also for considerations of ethical and social justice, especially due to the imperious need to understand that development and competitiveness and the post-modernity of world capitalism itself will depend on human capitalization.

In fact, it is a scenario that is characterized by being basically all inclusive and sustainable. In addition, it is based on the interdependence of a globalized economy, technologically developed and socially less unjust and more democratic. In particular, it apprises us of a necessary correspondence that must exist between growth and social development as a condition for having competitiveness and growth, on the one hand, and between governance and sustainability, to attain viability and efficacy, on the other.

With regard to agriculture and the rural milieu, this scenario has analyzed them as a set of activities that are regionally localized and interdependent upon the rest of the economy, but also as something of strategic importance for the development of a globalized society and economy. In general, the set of all of these conditions allows a sustainable and harmonious development with nature and with economic integration, technological transformation, and especially with human capitalization and rural development.

To attain this scenario starting from current reality will require a renewed focus of thought and action in the operation and implementation of agriculture and the rural milieu, under a systemic and holistic perspective which will allow a better comprehension of the nature of the phenomena and their multiple interdependencies.

CHAPTER II

The General State and Recent Evolution of Agriculture and the Rural Milieu in LAC

2.1 Agriculture and the rural milieu have another side to the coin

Introduction

Agriculture and the rural milieu in the Americas are not just of strategic importance due to their economic importance, their contributions and penetration into the world agri-foodstuffs market. This is also true because they constitute a way of life for millions of individuals that work and live there. For most of the countries particularly those in LAC, the rural milieu and agriculture suffer from a chronic and overwhelming inequality of access to resources, the ways and means, and income that determine a situation of structural heterogeneity and impoverishment of broad sectors of rural society in considerable magnitude.

The original sin behind this situation must be found in the style of rural development carried out throughout the 20th Century. Generally, there was a presupposition that development could be achieved behind the back of agriculture and the rural milieu without negative consequences, not only for those suffering this situation, but also for society taken as a whole.

This premise, just like the one related to the loss of importance, cannot be held either by logic or in theory, and even less for its empirical evidence. Thus, just as there have been no developed nations with weak agriculture, it is also true that in the underdeveloped countries. Among these, in a majority of the countries in LAC, their agriculture and rural milieu represent their "feet of clay".

The topic is centered of the fact that historically, there have been two ways of facing and leading to a linkage of agriculture and the rural milieu with the rest of the nation's economy. One of these is a rational and sustainable manner, to supply themselves with the labor and capital from agriculture. This is the one selected by the developed countries that promoted national development by integrating agriculture and the rural milieu on equitable bases. The other way of supplying these resources is irrational and unsustainable, by extracting the financial, human, and natural resources, which has been applied over the long term by a majority of the underdeveloped countries, promoting development strategies that, in effect, turn their backs on agriculture and the rural milieu.

In the first case, the result was a strong agriculture and rural milieu unified in their development; and in the second case an agriculture and rural milieu, weakened and structurally heterogeneous and bimodal, with scant capacities for contributing to resolving problems like rural poverty, to the extent that they actually became a part of them and to a great extent the origin thereof.

Either of the two forms required a development strategy and a full institutional arrangement which would make viable the objectives and goals being pursued. In other words, it required a vision of policies and instruments and of institutions and actors that would define the rules of the game and the environment within which they were to act.

2.1.1 A subsidiary vision of agriculture and the rural milieu

For over 30 years, between 1950 and 1982, LAC opted in fact for a subsidiary and extractive behavior with regard to agriculture and the rural milieu's resources, to benefit the rest of the economy and society, even though it wasn't always said so straightforwardly.

2.1.2 What we know about the subsidiary role of agriculture in LAC

For more than 30 years, LAC opted for an "inwards" development strategy by means of the drive for import substituting industry, which required a Quasi-isolation from the international context, an omnipresent state intervention and a powerful bias towards things urban and industrial.

Agriculture and the rural milieu in this context became one of the central pillars of development in the model. In most countries, they were the main or one of the main sources of resources that financed the development of industry and the cities. This role was played starting with a set of contributions from products, services and varied resources.

The production of *food and raw materials* allowed the process of industrial accumulation via the cost reductions for salaried goods and raw materials both for foodstuffs and non-foodstuffs. Notwithstanding the application of anti-export measures for this long term, agriculture and the rural milieu also generated the *foreign exchange* needed to promote the import substitution industries.

In conditions in which the LAC countries were basically rural, cheap supply and an abundant *labor force* for the nascent industry and emerging services, represented a highly appreciated input. Similarly, *job* generation by agriculture and the rural milieu created markets for these products coming from the nascent industry, all of which went to reinforce the logic of the model.

For agriculture and the rural milieu, disconnection of the national economy for the international environment simply meant transferring the unfavorable relation of the international terms of exchange to the national arena, to its detriment. This was doubly damaging, since exports were made under unfavorable international terms of trade, at the same time that it was penalized for anti-export and anti-agriculture domestic policies, which also meant the extraction of their capital and their financial surpluses.

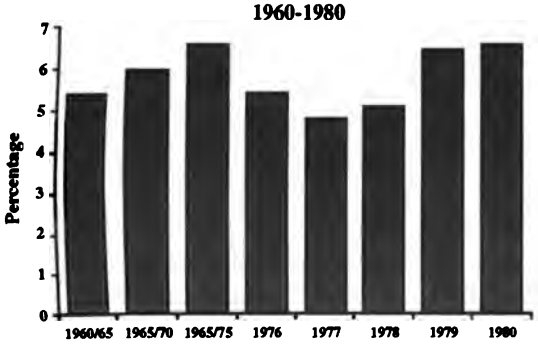
On the other hand, the absence of markets that would increase through regional integration lead to an inward development that was excessively costly, highly concentrated, and monopolistic, centered in just a few companies in the industrial sector. This required the levels of protection and isolationism to be reinforced in the face of the outside world, with a clear benefit for industry and almost always to the detriment of agriculture.

The rapid urbanization that was a result of this model also applied heavy pressure on agriculture, keeping in mind that it financed a good part of the aforesaid development. A major economic crisis and the demand for foreign exchange as well as the greater calls for resources from urban society, extracted ever more agricultural surpluses, and reinforced the importance of its contributions.

2.1.3 What we know about some of the relevant macro outcomes through 1980

During all of this period, the economy of LAC grew dynamically at annual rates of 6 percent (Figure 26). This allowed a real per capital growth of 2.4 percent between 1960 and 1965; of 3.1 percent between 1965 and 1970; of 3.9 percent between 1970 and 1975, and close to 3.0 percent between 1975 ad 1980.

Figure 26. LAC: Growth of Total GPD of the Economy 1960-1980

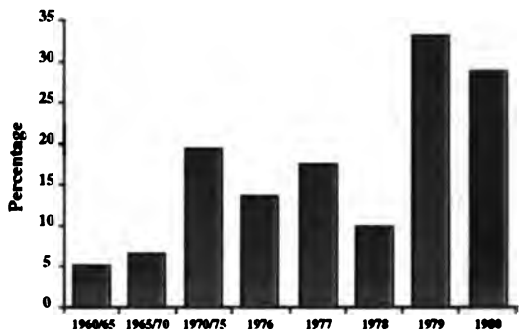


Prepared with data from CEPAL, 1981 y 1998.

Furthermore, exports during the 60's grew at a rate close to that of production; however, during the 70's, exports jumped and continued to be dynamic, especially in 1979 and 1980 (Figure 27).

Over this long period, LAC became urbanized. In 1950, almost one-half of the whole population lived in the cities. Thirty years later, in 1980, two out of every three individuals were living in the cities. Urban development implied a considerable increase in the levels of social welfare indicators, such as health, education, housing, life expectancy, electrification, and potable water, among others. Similarly, there was a notable increase in physical, industrial, and service infrastructures, and institutional development occurred as well, both among private and public sector institutions.

Figure 27. LAC: Growth of Total Exports of Goods



Prepared with data from CEPAL, 1981 y 1998

2.1.4 Rural poverty and inequality in income distribution

Nevertheless, an unequal and heterogeneous development model was set-up, providing modernity for some, the few, but leaving large parts of the population to straggle along. Overall, poverty increased and the rural-urban exodus grew from the 50's onward (Table 3).

The most severe burden was poverty, which by 1980 encompassed 136 million people (**ECLACb**, 1998) representing 35 percent of all of the households in the region. Towards the end of the 70's, LAC had already earned the dubious honor of being one of the regions, if not the region of the greatest inequality in income distribution on the planet, around 58 Gini points, comparable but greater than the countries of Africa (**IDB**, 1997 and 1998-99). (Figure 28).

Table 3. Poverty and Indigence in LAC

Percent of Households

	Poor			Indigent		
Year	Total	Urban	Rural	Total	Urban	Rural
1980	1980	25	54	15	9	28
	Population					
1980	135,900	62,900	73,000	62,400	22,500	39,900

Prepared with data from CEPAL, 1998

There seems to be evidence that the rapid growth of the 60's led to an appreciable improvement in income distribution, estimated at a reduction in 5 points in the Gini index (**IDB**, 1998-99). During this period, the ratio of the income accruing to the wealthiest 20 percent of the population to that accruing to the poorest 20 percent dropped from 23 to 18-fold. However, this reduction was ephemeral, since during the 80's the situation reverted (Figure 29).

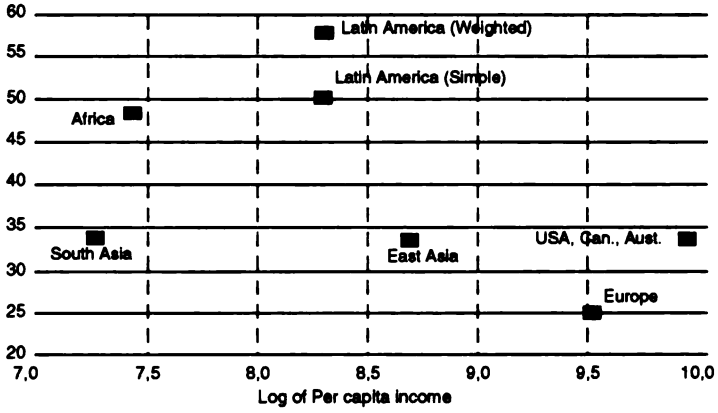
The greatest part of the social and economic lag in both relative and absolute terms is concentrated in the rural areas of LAC, since that is where 53.7 percent of the poor and 62 percent of the indigent populations are found. This meant that for every 20 inhabitants of the rural areas, 10 were poor, while in the cities it was only five.

2.1.5 Agricultural performance

During this long period, agricultural performance has been good (Figure 30). The so-called "green revolution" was the clearest expression of this phase of modernization in agriculture (**Hewith**, 1978). Both production and exports of agricultural products responded dynamically. During the stage of import substitution at whatever cost, agricultural production grew by 50 percent (**FAO**, 1994).

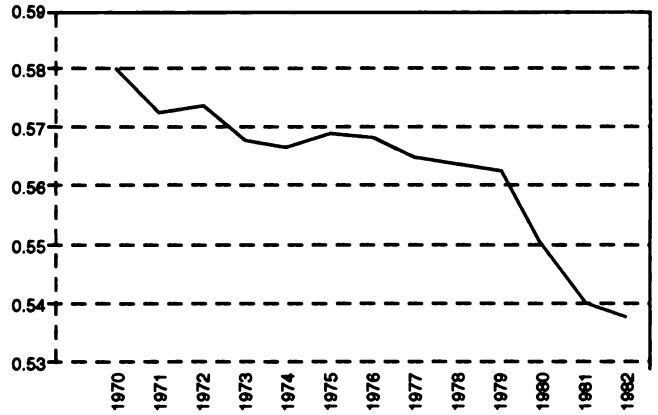
Through 1974, the index of food production was of concern because it was lagging behind the growth of the population. However, after that year, the sustained growth in food production and the availability of calories and proteins placed the problem not on the supply side, but on the demand side (Figure 31). To wit, as a problem of accessibility to foodstuffs, and therefore, one of income.

Figure 28. Inequality by Region in the 90's
(Gini Coefficient)



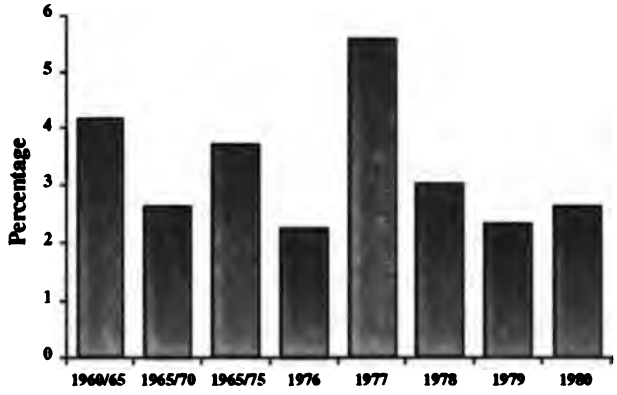
Source: Londoño & Székely (1997) based in Deininger & Squire (1996). Taken of BID, 1997

Figure 29. Concentration of income and Poverty in LAC, 1970-1982



Source: Londoño & Székely (1997). Taked of BIID

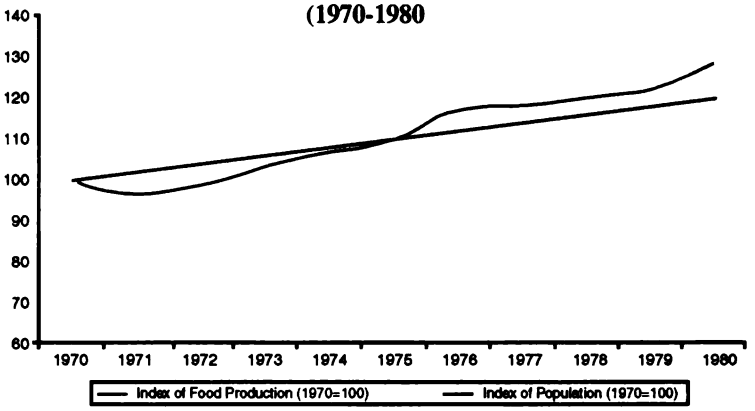
Figure 30. LAC: Growth in Agriculture, Forestry, Hunting and Fishing Percent



Prepared with data from CEPAL, 1981 y 1998.

Over this same period, the value of exports increased almost six-fold, and imports slightly more. This occurred while maintaining the traditional positive trade balance. Thus, availability of foreign exchange for other sectors of the economy increased from US$3.8 billion to US$18 billion per year. Although regional agricultural exports in 1960 represented around 50 percent of all exports, by 1980 they represented one third (Figure 32).

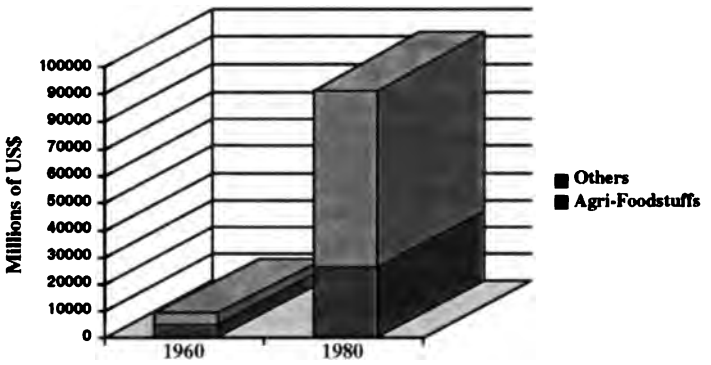
Figure 31. Food Production in LAC (1970-1980



Source: IICA/CEPAL, 1997.

A good part of this effort was accompanied by agricultural modernization, which among other indicators is clearly expressed in the increases in yields, in the use of fertilizers that is rising at the rate of 9.2 percent per year. Similarly, with regard to the number of tractors, which increased from 472,000 to 1,045,000 with a 5.4 percent per year growth rate. However, in many countries of LAC, after the mid-60's, agriculture began to show signs of weakening in its rhythm of growth.

Figure 32. Share of Agriculture and Foodstuff Industry Exports in Total LAC Exports



Prepared with data from CEPAL, 1998

2.1.6 Natural resource depletion

During the 60's and 70's, natural resource depletion accelerated. This arose basically due to the interaction of three phenomena. First of all, as a consequence of a model that excluded large groups of farmers and rural dwellers, who were sidelined to surviving in difficult conditions and to the over-utilization with a logic based on survival. The second phenomenon arose from the modernization processes in agriculture, which in several countries initiated in the 50's and deepened in the 70's. This implied a severe depletion of natural resources, caused in particular by bad cropping practices, such as an over-utilization of tractors and inadequate and spendthrift soil and water management, as well as the exhaustion of the agricultural frontier. To this we must add the improper and in some cases excessive application of inputs such as pesticides, herbicides, fertilizers and other agricultural chemicals that were very harmful to the farmers' health, the environment and natural resources.

The third phenomenon arose from the logic of surplus extraction and with an excessive transfer of resources from agriculture and the rural milieu to the rest of the economy, which accompanied

the import substitution model. The basic principle behind this logic was that of considering the natural resources, earth, water, soil, and forest, as free goods, inexhaustible, and without social nor economic value. The low prices generally imposed on agricultural products and the need to maintain certain levels of return therein, led to overloading nature with part of the cost in this unfavorable relationship in terms of exchange between the countryside and the city.

2.1.7 Policies and instruments, their effects on agriculture and the rural milieu

During the long period of import substitution industrialization, the vision and the strategy implemented in relation to agriculture the rural milieu and their ties to the rest of the economy, industry and the cities in particular, required the configuration of a macroeconomic context and pro-urban and pro-industrial policies. The macroeconomic and sectorial policies and instruments contributed substantially and specifically to this context, and also made the projected development strategy viable (**Escudero**, IICA 1995).

2.1.7.1 Exchange policy

This was oriented to modify the internal composition of production in favor of the products for internal consumption, by managing overvalued rates and a system of multiple exchange rates. Its main effect was the overprotection of the economy with adverse results in exports and the trade balance, as well as the cost structure, income, and relative prices.

2.1.7.2 Trade policy

This was also oriented to provoke an inward looking and protected economy with emphasis on industry and to agriculture's detriment. It was reinforced with direct and monopolistic public participation in internal and external trade in goods and services, with the control and semi-closure of the borders. Different mechanisms were utilized; such as tariffs and non-tariff barriers to control imports and limit exports. The main effects on agriculture were a deterioration of the terms of countryside – city trade, lethargic trade, especially in technological aspects, unequal allocation of assets, as well as the inhibition to utilize the productive potential and the comparative advantages.

2.1.7.3 Price stability policy

This policy was oriented by administrative control over macro-prices and specific prices. This brought about an excessive distortion in relative prices and tremendous price instability, especially in the final phases when the panorama was accompanied by inflation and even hyperinflation. This policy was unfavorable for agriculture and increased uncertainty, gave rise to indecision, a contraction in private investment, and export-bound production. The policy was oriented to provide protection for the consumer, disconnecting the growers and the consumers from the market prices, and introducing a clear pro-urban and industrial bias.

2.1.7.4 Monetary policy

Monetary policy was oriented to reactivating the productive infrastructure by means of the distribution of credit resources, usually subsidized, to increase the production and the productive and

trade infrastructure. The policy held special privileges for agriculture and agri-industry, but its positive effects were generally short-lived, contributing thereby to a great loss of resources and scanty internal savings generation, which increased the public deficit, drove inflation, and promoted a capital flight from the financial situation.

2.1.7.5 Spending and investment policy

These policies were oriented to transforming the economic and commercial structure based principally on public investment. This investment effort had few effective and lasting results; it also showed a minimal capacity for an on-going attraction of private investment and achieved scant margins of recovery of the investments. In agriculture, it caused an important increase in the storehouse of agricultural and agri-industrial capital, but this was untenable over time, not having achieved even a scant multiplier effect and a partial and unsustainable investment process.

In synthesis, until 1982, the macroeconomic management and the combined effect of these instruments turned out to be anti-agriculture and anti-exporter, which had more negative than positive direct and indirect effects for agricultural vitality.

2.1.7.6 Compensatory instruments and policies

Parallel to the foregoing, specific sectorial instruments were applied to compensate for the most prejudicial effects of the macroeconomic management. Generally, these compensatory policies consisted of the establishment of certain preferential tariffs, subsidized credit, cheaper provision of capital goods and inputs, direct subsidies, fiscal exemptions, and revenue transfers by means of public investments and technical support programs for production and social assistance.

Indeed, the State intervened with policies, which achieved the transformation of the conditions in the countryside. Among other things, they sought to develop scientific research, professional training, production of inputs and their distribution and dissemination, technology transfer through adoption, capital formation, improvement of the physical infrastructure and market adjustments.

However, the combination of macroeconomic policies that penalized agriculture and the compensatory policies for this sector led to a costly pattern of agricultural development and rural development that due to its nature and its high cost was unsustainable over the long term.

2.1.8 The institutions and the actors

The strong presence and intervention of the State in the economy in general and in agriculture in particular, as well as the complicated handling of numerous and diversified policies, mechanisms, and instruments, called for normative and operative institutions and organizations throughout the breadth and width of agriculture. It also required political and social mechanisms and instruments to complement them.

In general terms, and with tremendous differences among the countries in question, the institutionality of agriculture was characterized by the role of protagonist played by the public sector to levels of omnipresence of the State, and subordination of the farmers and private sector to public

institutions. Basically, the public sector fulfilled three functions inherent to the model: a State that regulated the economic cycle and the markets, an agent that promoted accumulation and growth, and the promoter of better distribution (**Martinez**, 1998). The result was a planning, intervening and entrepreneurial State.

The public institutional scaffolding created to fulfill these functions was complex, since it accumulated a set of specific policies, as well as widely diverse mechanisms and institutions in size and number, created to implement the exchange, monetary, trade, and fiscal policies.

At the same time, a clientele – policy relationship was created among the actors and the institutions of the State, with a paternal and subsidiary style. When the actors were able to insert themselves into the benefits arising from these policies, they generally remained trapped in a logic of penalization/compensation, which finally resulted in the loss of their autonomy and the capacity for self-direction.

The logic of the State's omnipresence and the paternalistic or client relationship inhibited the initiative of the actors, corresponding to a policy that induced the separation of the farmers from their markets and an isolation of the technological change and of competition. With this logic, access to subsidies, credit, technology, inputs, irrigation, and other support services benefited few, usually those in the large pressure and power groups, and to a lesser extent small farmers and peasants.

An essential characteristic that explains the later institutional performance in agriculture and the rural milieu consists of the sectorial logic under which the institutions performed, their lack of articulation and the creation of organizations in the face of every problem that presented itself. The crisis of 1982 highlighted the inoperability and the exhaustion of these institutions, of their logic, and of the vision they worked under during the import substitution model.

2.1.9 The lessons learned

The evidence left by this long passage of history in agriculture and the rural milieu indicates that it was inefficient, anti-economic, and politically unsustainable in its social aspects, and with regard to the environment, it was an irrational extractor of labor and capital from agriculture and the rural milieu.

This model allowed agriculture to fulfill relatively well its role of supplying the urban-industrial sector with sufficient low-cost foodstuffs as well as raw materials, foreign exchange and labor, including creating employment, markets and economic surpluses in general. However, this occurred at the cost of the deterioration of the natural, human, and economic resources. It submitted agriculture to a powerful technological, economic, and social heterogeneity that resulted in a polarization that led to a loss of livelihood for broad contingents of peasants and farmers (many of whom had significant productive and organizational potential). It brought about increased poverty in the countryside, which reached the point of concentrating a majority of the poor and indigent in these countries and accelerated the rural-urban exodus.

It hindered the development of social and private organization as well as the self-administrated movement. This could be due to the paternalistic and interventionist, exclusive and inefficient, corporate and client-oriented, highly politicized, and finally, in not a few cases, corruptible public -

private institutionality. To summarize, it led to a costly pattern for development, which due to its own nature resulted unsustainable and showed signs of a generalized exhaustion starting in the 70's.

The lessons to be derived from this vision, their outcome, supported by numerous and extensive research and studies, are there to be seen and they are reflected in the following assumptions:

(a) To recognize the importance of agriculture and the rural milieu and turn our back on them is not a viable solution, at least without enormous costs;

(b) To promote programs and projects both for agri-foodstuff development as well as rural development and attacks on poverty within a penalizing macroeconomic framework was fruitless, since in almost every case they were a failure;

(c) To eliminate the powerful urban bias and the differential protection policies leads to greater growth in agriculture and the rural milieu, as well as the economy as a whole;

(d) To participate without efficacy and co-responsibility on the part of the beneficiaries of the programs, projects and actions, without them having a true "empowerment" and appropriation, and without a transparent relationship between the public and private actors turned out to be non-viable and unsustainable upon implementation;

(e) To establish congruence, efficacy and efficiency for the vision, policies, instruments, institutions, and actors is essential for the success of the programs, projects, and actions.

2.2 General measures of the reforms, differential effects, and unequal outcomes for agriculture and the rural milieu in LAC

Introduction

In the light of the results for the economy in general and for agriculture and the rural milieu in particular, it can be concluded that although the force of the new globalized economic growth model has had an impact on all the countries, it has been differential with regard to its intensity, dynamism, and scheduling. As a consequence it has not been a linear process. Therefore, the results vary from country to country and from region to region. This is true for the economy in general as well as for agriculture and the rural milieu in particular, particularly because these latter have a heterogeneous and profoundly unequal character. In this sense, the reforms have acted on historical trends from the past and on heterogeneous socioeconomic structures that came into being over several decades.

The debt crisis at the beginning of the 80's announced the disintegration of import substitution as a model for growth and development. With regard to agriculture and the rural milieu, two things remain clear: first, it would have to overcome its condition of structural heterogeneity and impoverishment of broad sectors of the rural population, since this was a task left pending for some time. Second, the great challenge was to take advantage of the opportunities offered by falling trade barriers and international market integration, given the comparative advantages based on the extensive and rich natural and human resources in the Americas and their regions. In both cases, a

necessary but not sufficient condition was to substantially alter the subsidiary terms of the relationship between agriculture and the rural milieu with the rest of the economy. However, it was also clear that an efficient allocation of resources had to be established, and to that end, market logic was allowed to operate as one of the main forces apportioning that reallocation. In the meantime, the State would accompany the process to warranty macroeconomic stability, liberalization and deregulation of the economy by guiding important economic reforms and the drive towards decentralization, overseeing social welfare and the management of social policy and instruments, among which are health and education.

After the crisis of 1982, the countries reoriented their economies towards complete international integration and rooted their strategies in an "outward looking" model of growth, within the context of globalization. The major ingredients of the economic order defined by this development model are: open markets and economic integration, deregulation and liberalization of the economy, structural adjustment, privatization of public enterprise, a search for macroeconomic equilibrium and economic stabilization, and an alignment of macroeconomic and sectorial policies of the countries participating in the integration processes.

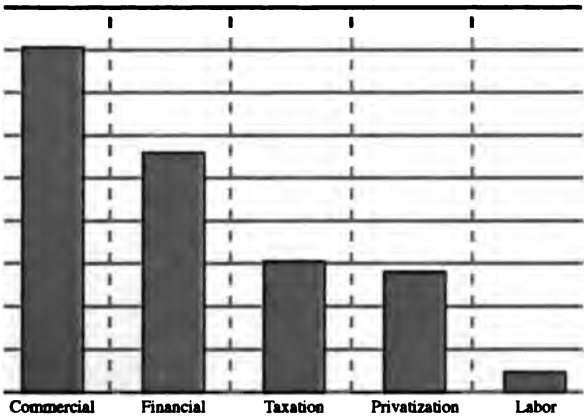
The new situation for agriculture and the rural milieu also represents a reorientation of its nature and ties to the rest of the economy on more rational bases, and without distorting the economy nor penalizing any sector.

In order to achieve this new proposal, just as was the case in the import substitution model, it has been necessary to establish a development strategy and a complete institutional arrangement, which would make viable the objectives and the goals established in the new model. In particular, a vision, policies and instruments have been necessary, as well as institutions and actors that adopt the rules of the game and act within a defined environment.

2.2.1 What we know of the macro-outcomes of the reforms.

A summary and general review of the macroeconomic outcomes of the LAC region (**IDB**, 1997) indicates that macro-stability has been recovered. In the 90's, growth returned; inflation was held to a single digit; and the fiscal deficit did not surpass 2 percent of the GDP; on the other hand, policies are oriented to facilitating market operations and reducing interference by the State. Trade and financial polices have shown significant advances (Figure 33).

Figure 33. Advance in Structural Reforms, 1985-95



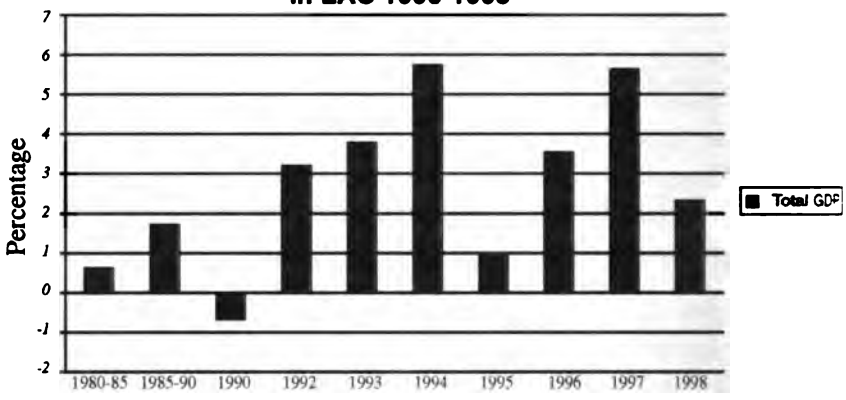
Source: Lora (1997)

With these last policies, restrictions on imports have been eliminated, lowering tariffs from 42 percent to 13 percent, interest rate controls have been removed, directed credit systems have been eliminated and the bank reserve rate has been reduced to less than 20 percent. The advances have been notable in the areas of tax simplification and modernization as well as in the area of privatization.

2.2.1.1 Growth returned to LAC

From the point of view of an aggregated region, in the 90's, economic growth rebounded to annual rates of 3.5 percent between 1991 and 1998 (Figure 34 & Table 4), which led to a real per capita increase greater than 2 percent. This rate of growth surpasses in an obvious manner the 1.9 percent growth recorded during the 1980 - 1991 period. It is, however, far from achieving the levels recorded in the sixties and seventies, which were on the order of 6 percent per year. The difference in per capita increases in production between the two periods is minimal (2.69% versus 2.19%), given that the rate of growth of the population has also diminished.

Figure 34. Growth in the GDP of the Economy in LAC 1990-1998 [1]



1 Preliminary Estimate
Prepared with data from CEPAL 1998

2.2.1.2 The economies of LAC are ever more integrated into the world economy

World market integration is one of the principal characteristics of these changes. Market drive in general is visible and grows two or three times more dynamically that production itself. Exports in particular have acquired an unexpected dynamism. Between 1987 and 1997, with the exceptions of very few countries, exports of goods and services are growing several times more dynamically than all the other economic activities (Table 5).

Table 5. Countries that in the last 10 years (1987/1997) showed greater or lesser dynamism in the export of goods and services in comparison with the dynamism of the economy as a whole (Average Annual Growth Rate)

Number of times lower at the total growth rate	*Number of times higher at the total growth rate*
Trinidad and Tobago (-2.4) *Honduras (-0.2)*	*Paraguay (10.8), Dominican Republic (10.7), Argentina (9.2), Mexico (9.2), Colombia (7), Nicaragua (6.7), El Salvador (6.6), Haiti (6.5) Brazil (6.4), Uruguay (6.2), Costa Rica (5.4), Canada (4.8), EEUU (4.6), Chile (4.4), Peru (4.2), Guatemala (4.1), Bolivia (3.2), Venezuela (2.6%), Ecuador (2.1%), Jamaica (1.6%), Panama (0.7)*

Prepared with data from the WB, 1998/99

Table 4. Growth in the GDP of LAC by Country 1990-1998

Countries	*1990-1998 (Annual χ %)*
Guyana	8.5
Chile	7.4
Argentina	5.8
Dominican Republic	5.0
Peru	4.8
Panama	4.7
El Salvador	4.7
St. Kitts and Nevis	4.3
Bolivia	4.2
Guatemala	4.2
Belize	4.1
Costa Rica	3.8
Uruguay	3.7
Colombia	3.6
LAC	3.5
Honduras	3.4
Mexico	3.1
Ecuador	3.0
Trinidad and Tobago	2.8
Brazil	2.7
Nicaragua	2.7
Antigua and Barbuda	2.7
Dominica	2.6
Grenada	2.5
Paraguay	2.4
St. Vicent and Grenadines	2.4
Venezuela	2.2
St. Lucia	1.9
Surinam	1.5
Barbados	1.0
Jamaica	0.2
Haiti	-1.7

Prepared with data from CEPAL 1998.

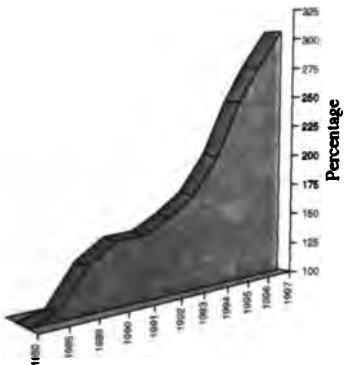
Table 6. External trade movement of LAC TXAC (1987-1997)

Regiones más dinámicas	
Exporters	***Importers***
East Asia and the Pacific (15.6%)	East Asia and the Pacific (16.6%)
LAC (12.1%)	Other high income Pacific (13.4%)
Other high income economies (11.9%)	LAC (12.9%)
USA. (10.5%)	Europe and Central Asia(10.7%)
Other industrial economies (10.1%)	Other industrial economies (10.7%)

Prepared with data from the WB 1998/99

This process has led the LAC region to occupy a second place after South East Asia and the Pacific as the most dynamic region in foreign trade in the world. It occupies a second place with an annual rate of export growth of 12.1 percent and third place as an importing region with a 12.9 percent annual rate of growth (Table 6). As a result of the dynamic foreign trade sector, the LAC region has tripled the value of the exports between 1980 and 1997, growing from US$100 billion to a little more than US$300 billion in current dollars (Figure 35 & Table 7).

Figure 35. Evolution of the value of exported goods from LAC (1980=100)



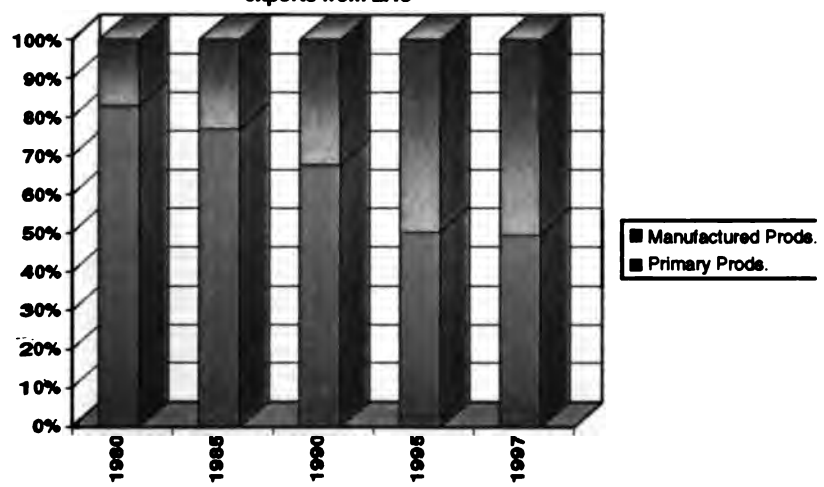
Prepared with data from CEPAL 1998

Table 7. Countries that increased their exports by:

< 100%	*> 100% < 200%*	*> 200%*
Bolivia (24%) *Guatemala (71%)* *Nicaragua (66%)* *Peru (74%)* *Venezuela (24%)*	*Brazil (163%)* *Colombia (193%)* *Costa Rica (195%)* *Ecuador (107%)* *El Salvador (125%)* *Honduras (114%)* *Panama (165%)* *Uruguay (163%)*	*Argentina (214%)* *Chile (260%)* *Mexico (512%)* *Paraguay (841%)* *Dom. Rep. (341%)*

Source: Prepared with data from CEPAL 1998.

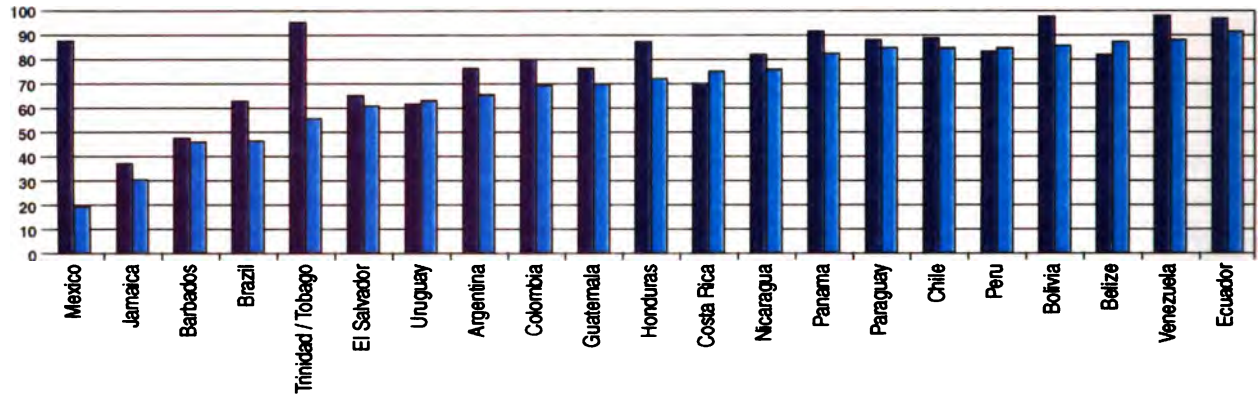
Figure 36. Evolution of the structure of the exports from LAC



Source: Prepared with data from CEPAL 1998.

Another important characteristic has been the change in the structure of the exports, with regard to the degree of aggregated value. Manufactures exports have grown from representing less than 20 percent of total exports in 1980, to 50 percent, including draw-back industries, in 1997 (Figure 36). An important characteristic is that a majority of countries continue to export over the natural resource base (Figure 37) (agriculture, mining, hydrocarbons, etc.). The share of natural resources in the structure of exports shows a growing trend in the region. (ECLAC, b).

Figure 37. Evolution of the share of primary product exports in Total LAC exports (In percentages)



Source: Prepared with data from CEPAL 1998.

Intra-regional trade in LAC is undergoing dynamic growth in size and intensity. Intra-regional foreign trade among these countries is the most dynamic. Between 1987 and 1997 intra-regional foreign trade grew by yearly rates of around 16 percent, while their exports to the rest of the world grew at the rate of 12.1 percent per year and their imports at 12.9 percent (Table 8). Note that the regions of East and Pacific Asia and South Asia are exporting to the LAC region at a spectacular rhythm, with rates on the order of 27.2 percent and 31.8 percent per year, respectively. Intra-regional dynamism has meant that of the total exports and imports of LAC to the world, the segment corresponding to intra-regional trade has climbed from 15.9 percent in 1980 to 19.7 percent in 1997 (Figure 38).

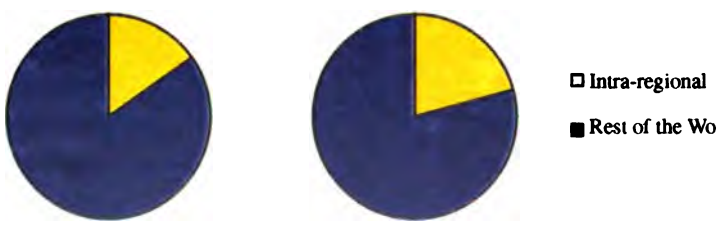
Table 8. LAC regional trade
Average annual growth rate (1987-1997)

Countries	LAC Exports (%)	LAC Imports (%)
LAC	15.7	15.7
USA	13.9	14.4
EU	6.3	9.7
Japan	7	9.5
Other Industrialized	12.3	6.5
Su-Saharan Africa	7.9	10.3
East Asia and the Pacific	15.1	27.2
South Asia	9.9	31.3
Europe and Central Asia	3.9	10.9
Mid-East and North Africa	7.2	-1.4
World	12.1	12.9

Source: Prepared with data from WB 1988/99

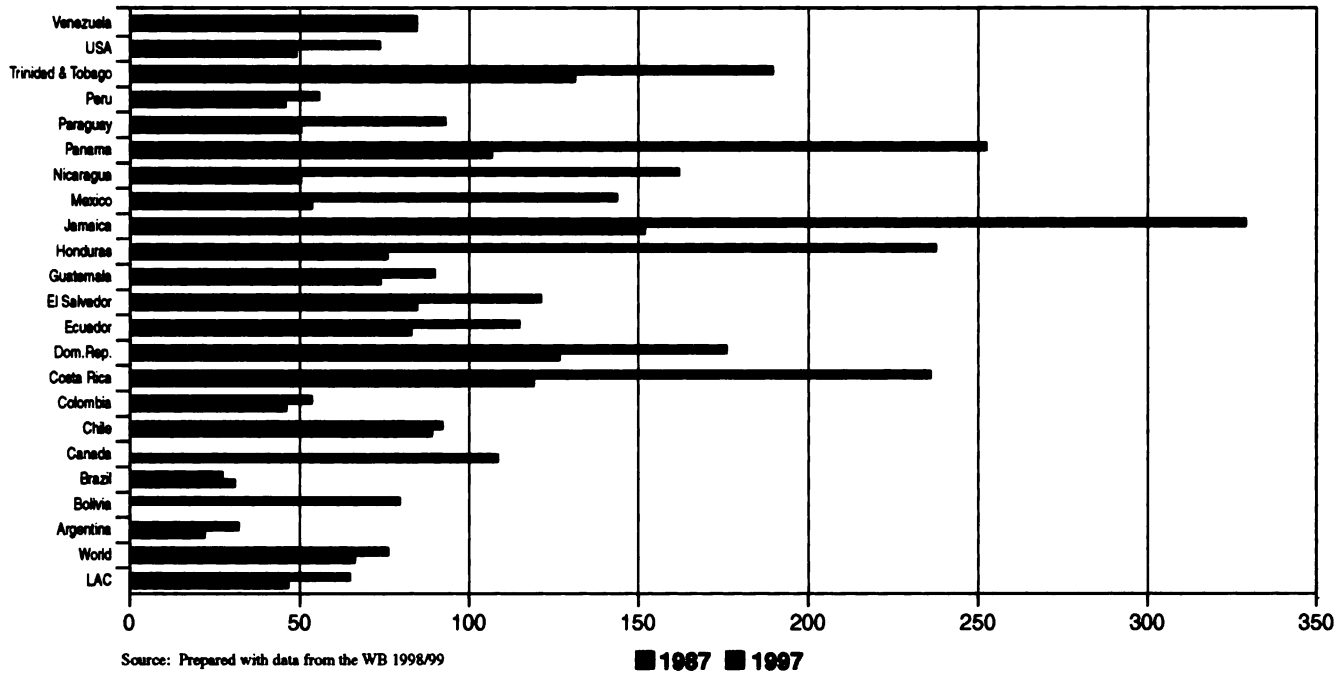
Between 1987 and 1997, the share of imports and exports of goods compared with the GDP of total goods in the region grew from 47 percent to 57 percent; this also expresses the degree of trade integration into the international economy (Figure 39).

Figure 38. LAC Foreign Trade



Source: Prepared with data from CEPAL 1998.

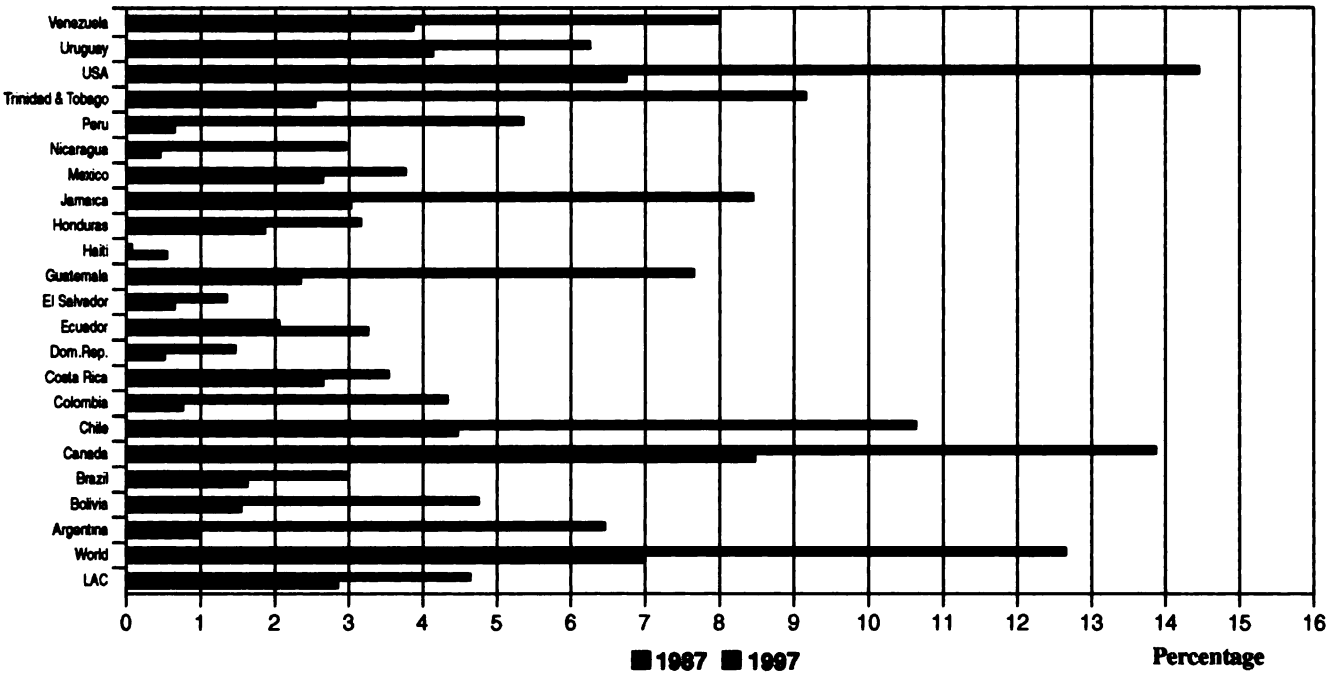
Figure 39. Share of goods imports and exports in the Total Goods GDP of the Economy



Source: Prepared with data from the WB 1998/99

The growing integration of the countries of the Americas into the globalized economy can also be seen by using the yardstick of the importance of gross private capital flows with relation to GDP. This measure shows an increase from 2.9 percent of the regional GDP to 4.7 percent during this period (Figure 40).

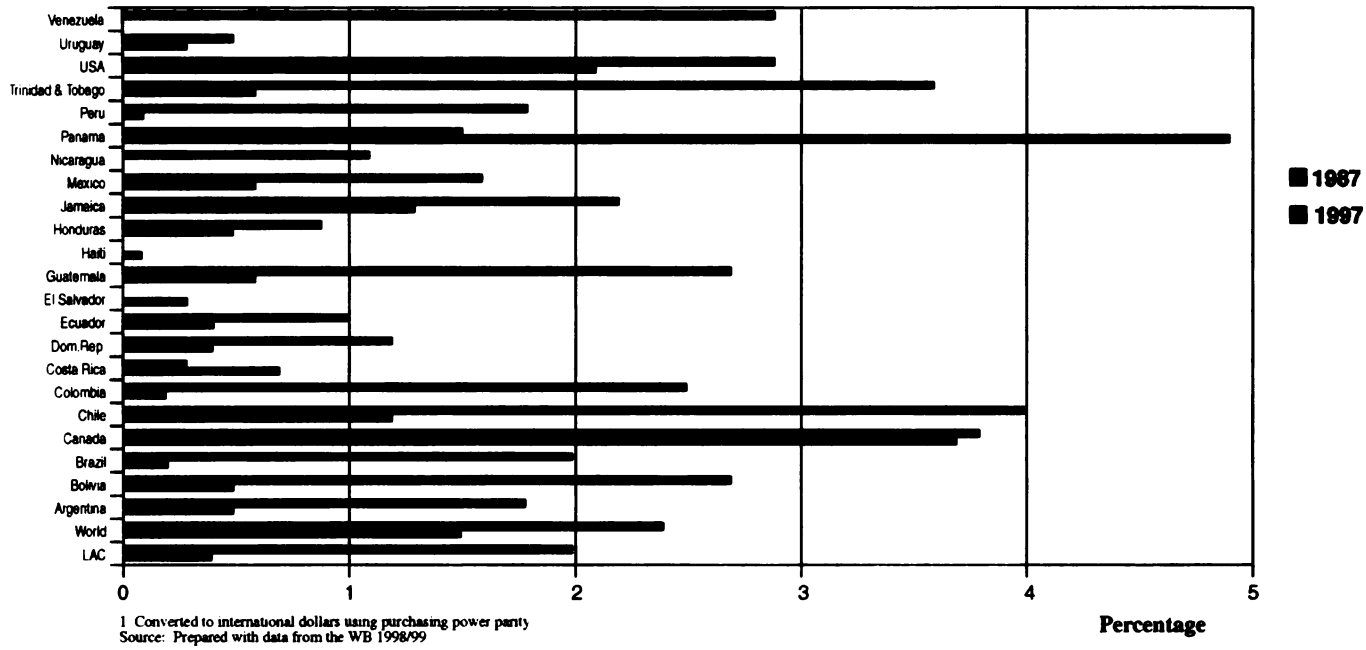
Figure 40. Importance of gross private capital flows with respect to the GDP[1]



1 Converted to international dollars using purchasing power parity
Source: Prepared with data from the WB 1998/99

Gross direct foreign investment as a percentage of GDP of the receiving country also increased from 0.4 percent to 2 percent of the GDP (Figure 41).

Figure 41. Importance of gross direct foreign investment with respect to the GDP[1]

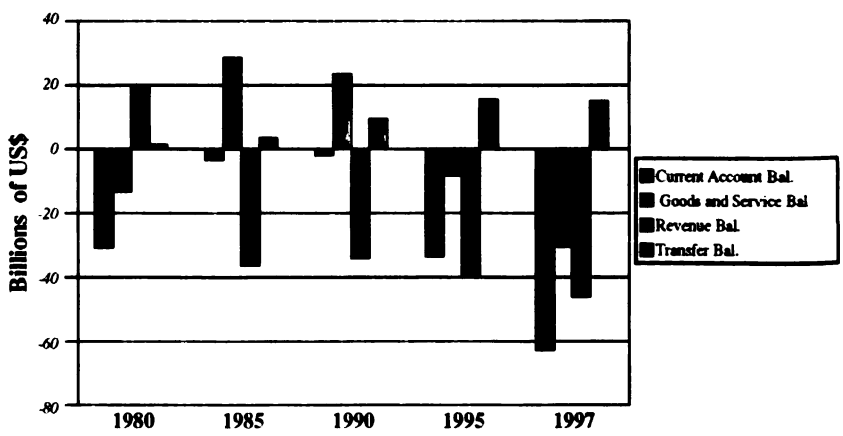


1 Converted to international dollars using purchasing power parity
Source: Prepared with data from the WB 1998/99

The benefits derived from the export effort have been severely limited on the supply side by the behavior of international prices. In 1993, LAC exported more than double the quantity of capital goods (214%). However, it only received 50 percent more foreign exchange (**FAO**, 1994). The difference results from the export price index for the region fell to 70 percent of its value for 1980. This trend has continued to the present, although during some years there have been some changes (**ECLAC**, 1998). From the point of view of imports, the situation is similar to that for exports, since the quantity index increased more than the value index for imports. The index in terms of exchange shows a trend towards reduction over the last 17 years, although it shows a slight recovery in the two most recent years (1997-1998).

2.2.1.3 Greater integration has advantages, but also high costs

Figure 42. Evolution of the current Account Balance of LAC



The deficits in current accounts and in the trade balance are large. Starting with the 90's, the deficit in both balances continued to grow (Figures 42, 43 & 44). In 1980, the deficit in current accounts for the region grew to US$30 billion and after that point in time and for the whole decade of the 80's they dropped to minimum levels. However, during the 90's, they took off again, to the point that by

Figure 43. Main countries contributing to the LAC current account balance

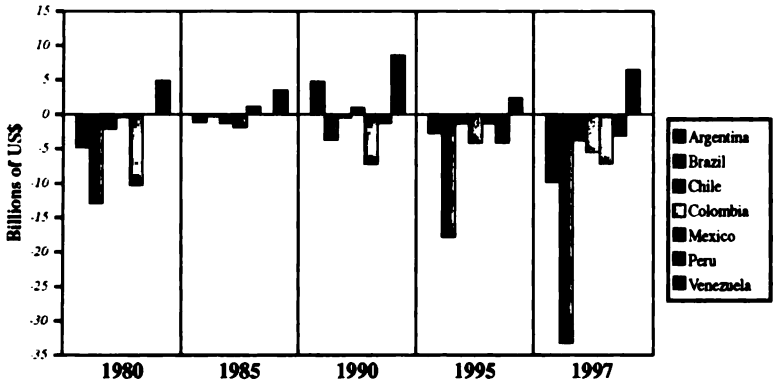
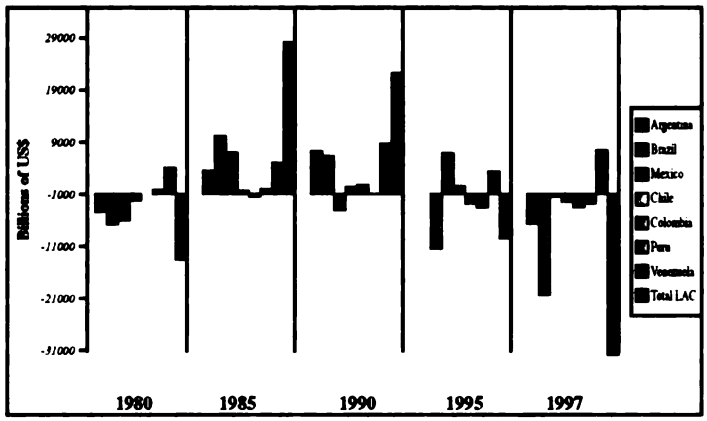


Figure 44. Main countries contributing to the balance in the trade balance for goods and services

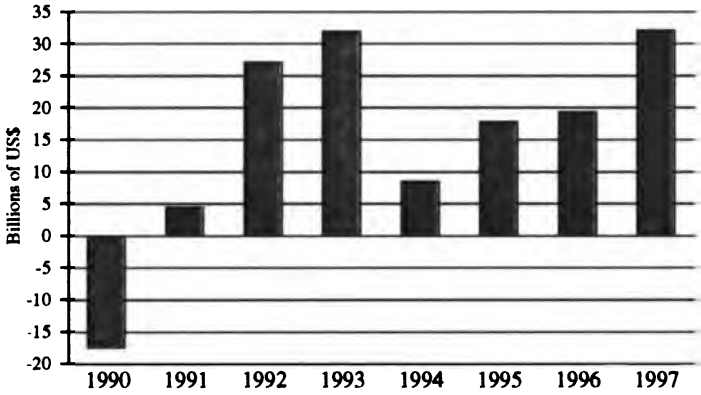


Source: Prepared with data from CEPAL, 1998.

1992, the deficit was similar or greater than that of 1980. From that point on through 1997, the deficit grew to US$63 billion. There are estimates that for 1998 the deficit will reach US$ 84 billion (**ECLAC**b, 1998).

On the other hand, the trade balance for goods and services, which constitutes a substantial part of the current account, showed a surplus for the 80's in amounts ranging from US$25 to 30 billion. Nevertheless, in the 90's, it shows a deficit and this deficit shoots to amounts falling between US$25 and 30 billion per year. For 1998, the same estimates indicate that the deficit will reach US$ 50 billion. More and more countries are sharing in this deficit.

Figure 45. Net resource transfers 1980-1997



Source: Prepared with data from CEPAL, 1998. Information for 19 countries.

Table 9. LAC: Net capital income and net resource transfers [1]

Year	Net capital income [2] (I)	Net payment of earnings and interest(II)	Net foreign exchange transfers (3=I-II)
1990	16.8	-34.2	-17.4
1991	35.6	-31.3	4.3
1992	56.2	-30.3	25.9
1993	65.5	-34.6	30.9
1994	44.8	-36.6	8.2
1995	58.0	-40.4	17.6
1996	62.2	-43.1	19.1
1997	79.4	-46.8	32.6
1998	68.5	-49.8	19.0

1. Includes 19 countries
2. Autonomous and non-autonomous
Taked from CEPAL, 1998.

Since 1991, there has been a net positive capital inflow (Table 9). The net resource transfers resulting from the net capital influx (autonomous and non-autonomous) less the net payment for earnings and interest, continues to be favorable in differing amounts that make a substantial contribution to covering the deficit in current accounts from the balance of payments (Figure 45). Notwithstanding, for 1998, there are estimates that the overall balance will show a deficit of more than US$21 billion, which will put severe pressures on exchange reserves and could lead to a call for loans and credits from the IMF and other sources.

The net capital influxes have grown from US$35 billion in 1991 to US$80 billion in 1997. For 1998, the estimate is for US$68 billion. On the other hand, the net external payments for earnings and interest have grown from US$30 billion in 1990 to US$47 billion in 1997. The 1998 estimate is US$50 billion. This would leave a net transfer of about US$30 billion during the 90's and an estimate of only US$20 billion for 1998. Thus, the region's dependence on capital flows for the globalized economy grew, with all of the risks implied by the volatile and speculative nature of a good part of these flows.

On the other hand, external debt disbursements continue to spiral upwards (Table 10). The debt has gone from US$220 billion in 1980 to an estimated US$698 billion in 1998, which represents a 217 percent increase, i.e., external debt has more than tripled. Although the amounts for debt service in relation to exports are ever smaller in relative terms, they do not cease to be a variable of concern that could place more than one country in a pinch.

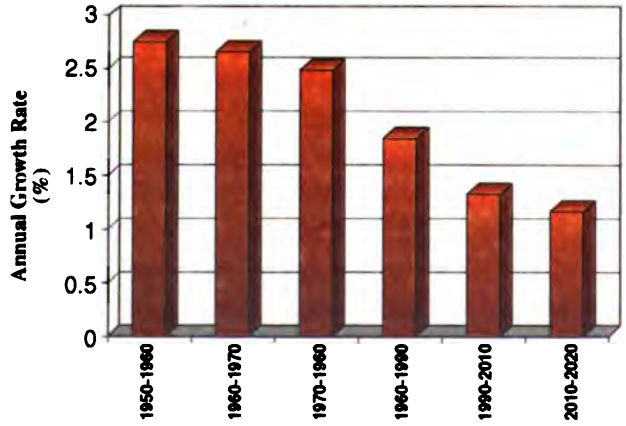
Table 10. LAC: Total external debt disbursement(a)

Country	1980	1985	1990	1995	1998 (b)
Total	220444	379244	443049	556730	697792
Brazil (d)	64000	105126	123439	159256	222500
Mexico (e)	50700	97800	101900	164200	158000
Argentina (c)	27162	49326	62233	89321	118200
Subtotal 1	141862	252252	287572	412777	498700
Chile	11207	20043	18576	21736	30670
Colombia	6805	14063	17848	25050	34000
Peru	9595	13721	19996	33515	29780
Venezuela	26963	31238	36618	38498	31600
Subtotal 2	54870	79065	93035	118799	126050
Subtotal 1+2	196732	331317	380607	531576	624750
%	(89.2)	(87.3)	(85.9)	(95.5)	(89.5)

a) Includes debt with IMF
b) Preliminary figures
c), d), e) Cepal, 1998 pag. 775

One of the consequences arising from these macroeconomic movements, and related to agriculture is the "vicious cycle" (**Escudero**, 1995, **Valdez**, 1996), which occurs between a total balance in deficit, and the need to raise internal interest rates to attract capital that would allow it to be repaired. This in turn pressures the currency into an exchange appreciation, which proceeds to make imports cheaper and exports more expensive. Meanwhile, the interest rates, although they also contribute to keeping inflation down, make access to financing more difficult, thereby hindering industrial re-conversion to increase productivity. The result is that the lower the competitiveness the greater the trade balance deficit for goods and services and so forth.

Figure 46. Population growth dynamics in LAC



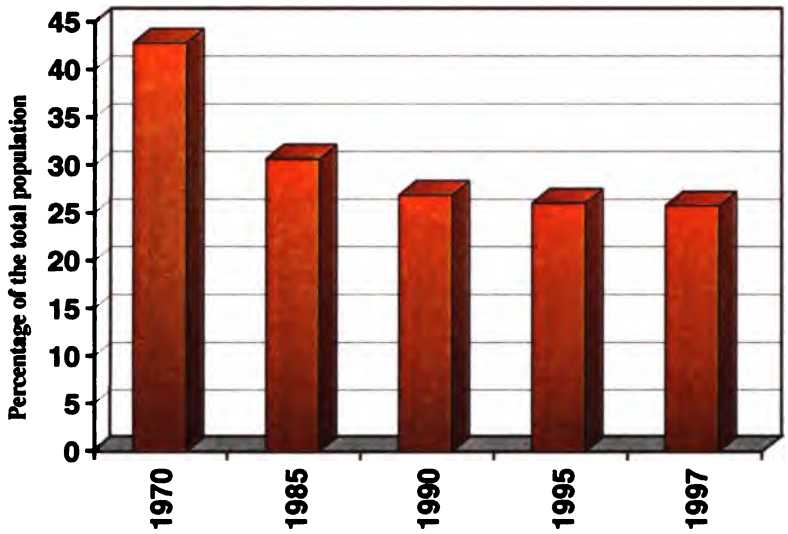
SOURCE: Prepared with data from CEPAL 1998

2.2.2 What we know about macro-social outcomes

Over the last 17 years the social order has undergone changes. We know that the trend continues to slowly reduce population (Figure 46). This trend has been visible since the 70's (2.5%), it accelerated in the 80's (1.9%), and showed even greater effect in the 90's (1.4%).

We also know that during the 80's, and throughout the 90's, LAC was able to stabilize its urban population at three-quarters of the population while the rural population was stabilized at one fourth (Figura 47).

Figure 47. Rural Population in LAC



Source: Prepared with data from CEPAL, 1998.

Between 1980 and 1997, there was a notable improvement in the social welfare indicators for LAC, except during the so-called "lost decade" of the 80's (Table 11). The available data all demonstrate this trend (**WB**, 1999a, **UNDP**, 1998a, **ECLAC**, 1998a).

Table 11. Social Indicators in LAC

Indicator	Year	Measure	Outcome
- Infant Mortality Rate (Live births)	1980/1997	Per 1000 children	Dropped from 60 to 32
- Infant Mortality Rate (children under 5)	1970/1997	Per 1000 children	Dropped from 123 to 41
- Population with access to potable water	1982/1996	Percentage	Rose from 73 to 75
- Population with adequate facilities for solid waste disposal	1982/1985	Percentage	Rose from 46 to 68
- Children under 1 year immunized against: - Measles - Tetanus	1980/1997	Percentage	 Rose from 42 to 93 Rose from 37 to 82
- Life Expectancy at birth	1980/1997	Years	Rose from 65 to 70
- Adult Mortality Rate: Men Women	1980/1997	Per each 1000 persons	 Dropped from 225 to 189 Dropped from 151 to 116
Public expenditure in education	1980/1996	Percentage of the GDP	Dropped from 3.8 to 3.7

Prepared whith data from the WB 1998/99, PNUD 1998a and CEPAL 1998

2.2.2.1 The great scourge is poverty

The region has been unable to resolve the poverty problem. According to ECLAC, 1998, the number of poor increased from 135.9 million in 1980 to 204 million in 1997 (Table 12). The population that increased the stocks of the poor and extreme poor during this period was made up of 68.1 million persons. However, 95 percent of all of these persons became poor during the 80's, since by 1990, this category already held 200,2 million. This is reflected in the increase in poor households, which grew from 35 percent in 1980 to 41 percent in 1990. This means that 4 of every 10 households were poor in that year.

Table 12. Poverty and Indigence inatin America(a)

Percentage of Households						
	Poor (b)			Extreme Poverty (c)		
Year	Total	Urban	Rural	Total	Urban	Rural
1980	35	25	54	15	9	28
1990	41	35	58	18	12	34
1994	38	32	56	16	11	34
1997	36	30	54	15	10	31
Population Size (in thousands)						
	Poor (d)			Extreme Poverty (e)		
Year	Total	Urban	Rural	Total	Urban	Rural
1980	135,900	62,900	73,000	62,400	22,500	39,900
1990	200,200	121,700	78,500	93,400	4,500	48,400
1994	201,500	125,900	75,600	91,600	44,300	47,400
1997	204,000	125,800	78,200	89,800	42,700	47,000

Source: ECLAC 1998
(a) Estimates corresponding to 19 countries in the Region.
(b) Percentage of households with income below the poverty level.
(c) Percentage of households with income below the extreme poverty level.
(d) Persons in poor households.
(e) Persons in households in a situation of extreme poverty.

During the 90's, poverty has shown a relative reduction. The efforts carried out and an economy that recovered its growth during the 90's, allowed this percentage to retract back almost to where it was in 1980 (36% versus 35%). The astounding growth in the poor during the 80's was halted by this economic recovery, which maintained the numbers of poor almost stable. Furthermore, indigence or extreme poverty has continued a trend similar to that followed by poverty, but it has been able to reduce the number of individuals affected. In 1980, there were 62.4 million persons in extreme poverty and in 1990, 93.4 million, however, by 1997, this number had declined to 89.8 million.

In absolute terms there is more poverty in the urban areas. Ninety-two percent of the 68.1 million poor persons added between 1980 and 1997, lived in the cities, and only 8 percent in the rural zones, which accentuated the in a significant manner the urbanization of poverty. The same is true with indigence, although to a lesser extent, since 74 percent of it appeared in the cities and 26 percent in the rural areas. Thus, if in 1980, 54 percent of all of the poor were located in the rural zones, by 1997 this had dropped to 38 percent. Furthermore, indigence that in 1980 was concentrated in the rural areas dropped from 63.9 percent to 52.3 percent in 1997.

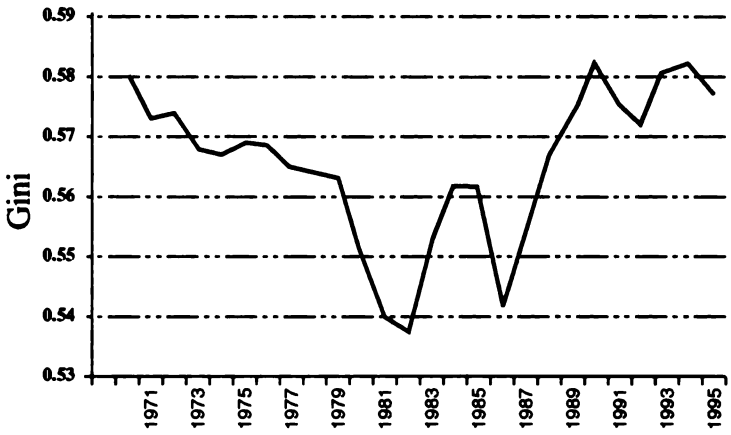
Poverty is the rule in the rural areas. Poverty is a principally urban phenomenon, since the city shelter two thirds of it; nevertheless, in the rural areas, of every 10 households, 5.4 are poor, while in the cities this number is 3. Similarly, the worst poverty, indigence, dwells in the rural areas, constituting 52 percent, while in the cities it is 48 percent. Finally, of every 10 households in the countryside, 3 are indigent households, while in the cities this implies only one household.

2.2.2.2 The region continues to record the greatest disparity in income distribution

LAC is the world's region where the greatest disparities in income distribution are recorded, i.e., where the richest individuals receive the largest proportion of income. Forty percent of the total

national income is received by the wealthiest 10 percent of the population (**BID**, 1998-1999b). On the other end of the income scale, the poorest 30 percent of the population receive only 7.5 percent of the total income.

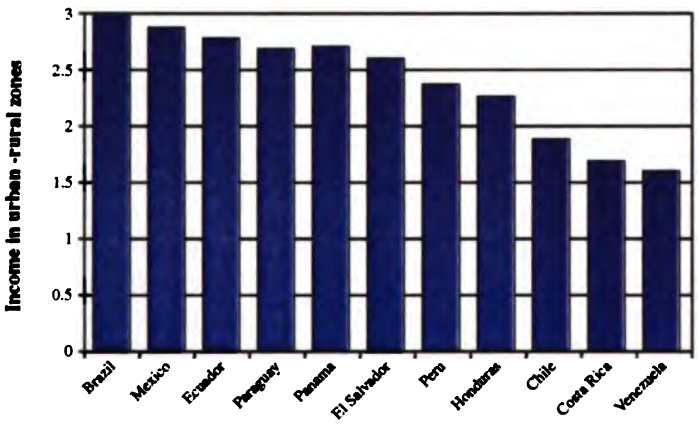
Figure 48. Income concentration and poverty in LAC 1970-1995



Source: Londoño & Székely (1997). BID 1997.

Notwithstanding the important transformations within the region during the last two decades, the information available suggests that this income concentration did not change during the 90's (Figure 48). After what was achieved during the 70's, where an improvement of five points on the Gini Index was observed, during the 90's, the Index returned to 58 points. The indexes of income concentration in the urban and rural zones present similar levels between them in almost all of the countries. These differences are between two and three points on the Gini Index (Figure 49).

Figure 49. Gaps in urban-rural income



Source: BID, Home's inquest, 1997.

In conclusion, everything seems to indicate that at the end of the 20th Century and after 17 years of economic reform, there have been a lot of changes. However, the global economic and social outcomes achieved, even by applying these reforms, are precarious at best in some countries, as well as for broad population sectors, and they are insufficient for the majority. Poverty and indigence, especially in the rural areas, represent the main enemy to be dealt with.

2.2.3 The "market" vision of agriculture and the rural milieu and recent changes

Over the last 17 years, the countries have re-elaborated the nature of the ties of agriculture and the rural milieu to the national and global economies from the point of view of a "development for all of the sectors with neither privileges nor penalties." In other words, the model of "development of industry and the cities with a subsidiary agriculture", as prevailed in the former model, has been left behind.

What changed for agriculture and the rural milieu, after the application of the stabilization and reform programs? Practically all of the internal operational logic and above all the nature of its relation to the rest of the economy and the globalized economy changed.

The application of the stabilization programs, of reforms and decentralization changed all of the systems of relative prices, of resource allocation, and of the terms for international, regional, and local insertion. In general, a new way of dealing with agriculture was introduced, by eliminating the anti-exporter and anti-agriculture bias, which had characterized the previous model and created a less restrictive and more propitious framework for growth.

An agriculture without over-protection, deregulated and transparent, open to external markets and ever more integrated, should theoretically promote an efficient allocation of human and productive resources, as well as important changes in their utilization, which under the principle of their scarcity would recover their true value. This would lead to a much better combination of factor use and advantage taken of the opportunities.

By eradicating the anti-agricultural and anti-exporter biases, agriculture and the rural milieu could be expected to provide an increased efficiency in production at both the primary and agri-industrial levels; with competitive prices in the internal and external markets, improved product quality; transparent market creation within the rural zones; favorable terms of exchange and a reduction in the excessive transfer of financial surpluses; greater capacity for savings and investment; increased generation of savings and exchange, food supply security and greater productive conservation of natural resources.

The achievement of the aforementioned advances would suppose an agri-industrial and commercial productive re-conversion; greater dynamism for certain products and the elimination or reduction of others, even to the on-going re-conversion of the farmers into entrepreneurs; a reduction in the use of marginal lands and "mobility" of the land as a resource; the appearance of positive externalities which would be the basis of this re-conversion and greater competitiveness. An affluence of credit and investments could also be expected; a new type of public and private institutionality; a renewed juridical and legal framework, and more and better informative "knowledge" with a broad and de-monopolized circulation.

On confronting this theoretical framework of expected effects with the recent trends in agriculture in the region, it turns out and we conclude that:

a) Through the beginning of the 90's (1993), no large-scale changes had yet occurred at the overall level of the countries within the region. However, starting in 1994, the situation begins to become more dynamic and the changes can be seen at different levels. Agricultural production is energized, the productive structure is visibly transformed, agri-industrialization develops, agricultural and agri-industrial exports become more dynamic and change their structure, and there are increases in the productivity of the land being tilled and of agricultural labor, as well as the in the use of the factors of production.

b) However, these changes, although recent and encouraging, are still insufficient in two senses. First, they are not sufficiently generalized. Second, due to their profundity and dynamism, the changes are not as encompassing in relation to those in countries in other parts of the world, which are competitors or represent potential markets for our countries.

c) Notwithstanding, the tremendous recent agri-export dynamism, the existing agricultural market opportunities are not fully utilized or could be taken advantage of better or more completely.

d) Most of the countries have not fully developed strategic support activities for agriculture in the

more extensive interpretation, such as research and technology transfer services, agricultural health and food safety, price and market information, training and education and extension, among others.

e) In several countries a broad-ranging and profound review and strengthening of public and private agricultural institutions are needed to prepare them for the new present and future circumstances.

2.2.3.1 The indicators of change in agriculture within the region

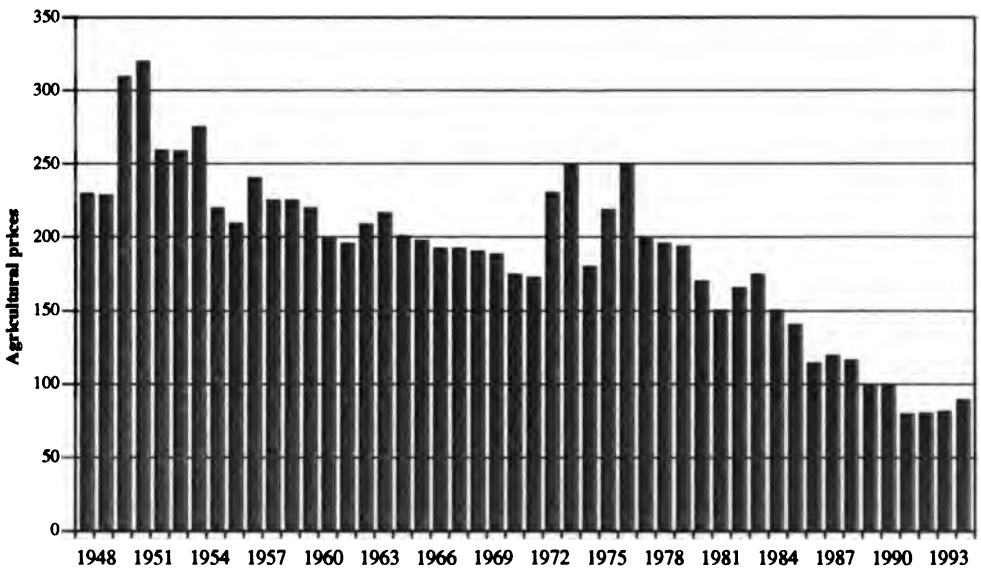
Upon making an analysis of the recent behavior of agriculture within the region, the fact that there have been drastic changes in the specific environment must be taken into account. Basically, the actors of today face open markets without subsidies, with international prices trending downwards and this has put pressure on profitability, all of which have required an increased competitive capacity.

Additionally, this is taking place in different markets, which are changing and are highly competitive, with demands for high quality and security. Similarly, it is important to note that some of the region's farmers were disconnected from the outside world for several decades, therefore they are undergoing a learning process, since they still do not have sufficient historical experience and adequate knowledge of markets, their dynamics and their conditions.

2.2.3.1.1 Prices drop, interest rates climb and profits get squeezed

One of the characteristics present in this stage is that the falling trend in international prices for agricultural products continues (Figure 50), combined with interest rate hikes and sharp pressures on dropping profitability for agriculture in the region. Throughout all of the 20th Century, real international prices in agriculture have continued to decline (**FAO**, 1999) and real prices for products such as wheat, corn, and rice during the 90's have been the lowest this century (**D.G. Johnson**, 1998, cited by **Valdez**, 1998). During the 90's, the international price index continued its downwards trend, notwithstanding the increase recorded in 1995-96. For 1997-98,

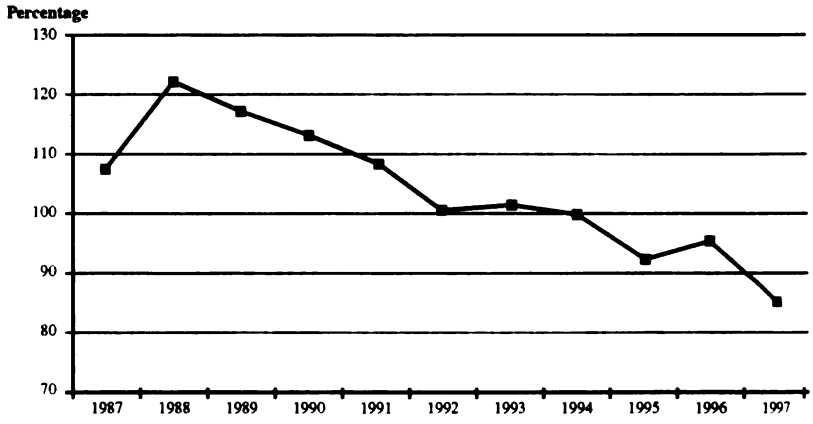
Figure 50. Agricultural price indexes (Constant dollar, 1990=100)



Prepared with data from the WB, 1993.

prices had returned to the lower levels of 1990-94, which were already quite low (Figure 51).

Figure 51. International price index for agricultural products* (1994=100)



* Calculated on the basis of rice , corn, wheat, sorghum, cotton fiber, sugar, and beef. To calculate the real dollar prices, they are weighted by the average production for the year 1995-1997 in the countries of Latin America
Source: Valdéz & Paz, 1998, BM y FAO.

The process of integrating the economies of the region into the world market has had important implications on internal price levels, insofar as the open market process has implied an alignment of these with regard to international price levels. During the 90's, there were substantial reductions in real prices paid to the growers (Table 13), as a result of the interaction of at least three important forces: overvalued exchange rates, the evolution of international prices, and changes in the levels of internal protection (**Valdez and Paz**, 1998). The nominal increases in prices for consumer directed foodstuffs for a good number of countries are lower than the general price index (Table 14).

Table 13. LAC:Index of real internal prices * (1994=100)

Country	Year							
	1990	1991	1992	1993	1994	1995	1996	1997
Argentina	148.3	118.8	89.8	103.1	100.0	102.8	120.3	103.2
Bolivia	102.7	85.7	95.6	95.1	100.0	92.8	S/I	S/I
Brazil	S/I	S/I	S/I	114.7	100.0	90.6	87.3	87.4
Chile	102.3	110.2	109.2	103.5	100.0	98.1	96.9	97.0
Colombia	126.9	119.7	111.1	102.6	100.0	95.4	90.9	90.8
Costa Rica	107.0	115.4	106.2	103.1	100.0	84.9	76.5	96.8
Ecuador	136.5	151.4	126.7	105.7	100.0	96.2	S/I	S/I
El Salvador	119.5	123.5	62.1	120.4	100.0	57.1	107.8	104.8
Guatemala	96.9	90.1	83.2	112.7	100.0	112.0	117.8	78.1
Hondura	82.1	80.5	57.8	84.2	100.0	75.1	92.7	86.7
Mexico	130.0	126.2	115.9	106.1	100.0	106.1	112.7	S/I
Nicaragua	S/I	73.9	85.7	106.3	100.0	112.2	134.0	116.2
Panama	103.2	103.1	101.6	99.4	100.0	97.8	101.7	132.2
Paraguay	114.9	114.1	111.8	109.0	100.0	88.4	S/I	S/I
Peru	127.7	121.4	106.3	119.7	100.0	110.0	103.3	94.9
Dom.Rep	100.7	107.9	94.3	97.0	100.0	89.4	92.4	106.0
Uruguay	157.2	130.4	126.6	108.7	100.0	101.0	72.4	66.7
Venezuela	122.8	120.3	107.1	93.8	100.0	88.3	S/I	S/I

* The prices of the major agricultural products for each country, in local currency, have been transformed to real prices using the local CPI. This index is calculated on the basis of the average production for the years 1992 to 1997.
Source: Valdéz and Paz, WB and FAO, 1998

Upon considering world supply and demand projections, the forecasts for the evolution of world agricultural prices indicate that for the period 1998-2007 (**WB**, 1996, **FAO**, **USDA**, 1998), an average annual reduction of - 0.4 percent can be expected. At the product level, the estimates indicate that foodstuff prices will not grow, beverage prices will decline and, in particular, cereals and raw materials will show an average annual rate of growth of around one percent. The result of this is that the dynamic market behavior will not increase agricultural prices in the near future. The only way to improve revenue will be, essentially, to intensify production, lowering costs, increasing quality,

Table 14. Countries in which the general consumer price index is greater or lesser than tha for foodstuffs (average 1975-1997)

Greater up to 20%	Greter than20% to 40%	Greter than 40%	Equal	Less
Chile	Colombia	Argentina	Costa Rica	Bahamas
Guatemala	Paraguay	Brazil	Ecuador	Barbados
Honduras		Panama	El Salvador	Bolivia
Jamaica		St. Lucia	Nicaragua	Mexico
Surinam			Dom.Rep.	Peru
Uruguay				Trinidad &Tobago
Venezuela				

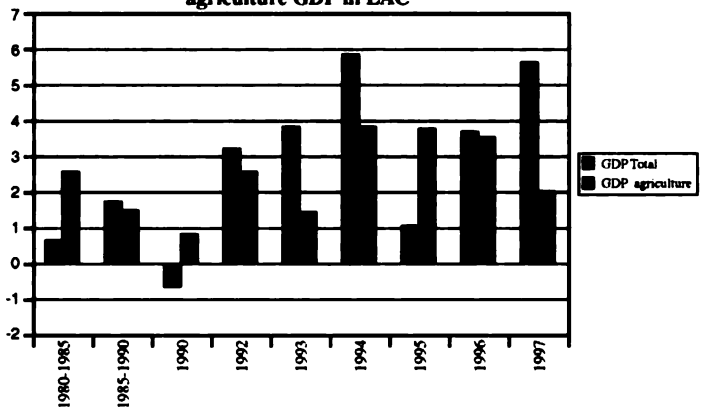
Source: Prepared with data from CEPAL, 1998.

differentiating products, and generating a new valuation for the transformed biomass of natural resources. This condition implies a strengthening of agricultural services, especially investment, but for that to occur, the downward spiral of low profitability, disinterest in investment, and high interest rates must be broken.

2.2.3.1.2 Agriculture has recovered its dynamism

Thus, the information available indicates that in contrast to the limited dynamic recovery experienced by national economies during the 90's, agriculture has recovered, after 1994, the high growth rates recorded during the 70's, i.e., it recovered the 3.5 percent yearly growth (Figure 52). This means that agriculture has surpassed the lower rates recorded in the first half of the 80's, 2.5 percent, and also the second half of that decade, which was worse at 1.5 percent. Furthermore, it has also surpassed the growth recorded between 1990 and 1993, which was only 2 percent per year.

Figure 52. Growth of the total GDP and the agriculture GDP in LAC



Souce: Prepared with data from CEPAL, 1998.

In this regard, an association exists between the growth of the overall economy and agriculture in two senses: one is the so-called *anti-cyclic character* of agriculture, which indicates that the fluctuations in agricultural production are not as pronounced as they are in the rest of the economy. This factor is based on the biological character of greater aging required by the products over time and the types of demand elasticities for foodstuffs. To wit, when the economy grows, agriculture does too, but at a slower rate, and when the former declines, agriculture does too, but again less emphatically. This situation can be seen clearly during the 90's (Table 15).

Table 15. Relationship between the dynamism of growth in the total economy and in agriculture (1990 - 1997)

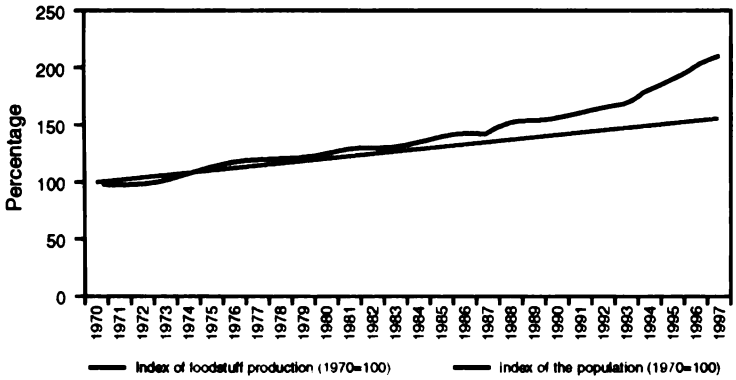
Total GDP >4% and Ag. GDP < 3%		Both GDP's >4% and 3% respectively	
Colombia	(4.3 & 1.2)	Argentina	(5.1 & 3.1)
El Salvador	(5.2 & 1.2)	Belize	(4.0 & 6.5)
Guatemala	(4.1 & 2.8)	Bolivia	(4.1 & 3.7)
Panama	(5.0 & 1.8)	Chile	(8.3 & 5.0)
St. Kitts	(4.5& 1.6)	Guyana	(7.1 &9.5)
		Peru	(5.3 & 4.8)
		Uruguay	(4.1 & 4.2)
		Dom.Rep.	(5.3 &4.0)
Both GDP <4% and <3%		**Total GDP <4% and dynamic Ag. GDP>3%**	
Barbados	(1.9 & 0.0)	Brazil	(3.4 & 3.3)
Costa Rica	(3.7& 2.6)	Ecuador	(3.2 & 3.0)
Dominica	(2.2 & -0.8)	Honduras	(3.7 & 3.5)
Grenade	(2.5 & -2.4)	Nicaragua	(2.4 & 4.5)
Antigua	(2.9 & 2.1)		
Haiti	(-2.4 & -4.5)		
Jamaica	(0.2 & 2.6)		
Mexico	(2.8 & 1.6)		
Paraguay	(2.9 & 2.7)		
St. Lucia	(1.5 & -5.6)		
St. Vincent	(2.4 & -6.9)		
Suriname	(-0.4 & -1)		
Trinidad & Tobago	(1.9& 1.5)		
Venezuela	(1.3 & 1.5)		

Source: Prepared with data from CEPAL, 1998.

The other sense is a complement of the preceding one, it is the association between global growth and growth in agriculture in contexts that eliminate the pro-urban and industrial bias in the policies.

More and more countries are finding that in the presence of the high growth rates of their economies, their agriculture is also expanding dynamically. These are the countries that have recorded rates over 4 percent per year in their general economy and 3 percent or more per year in their agriculture.

Figure 53. Food production in LAC (1970-1997)



Source: Prepared with data from CEPAL, 1998.

Table 16. Percentage increases in production, 1997 (Base 1989/91)

	Ag. & Livestock	Agricultural An. Husb.		Foodstuffs	Per capita foodstuffs
Guyana	93.4	13.1	101.5	93.9	82.2
Belice	68.0	79.6	23.6	68.0	40.6
Bahamas	43.6	20.3	68.6	93.6	27.3
Ecuador	47.8	50.4	54.4	54.6	33.0
Peru	38.0	42.8	33.3	42.6	26.1
Bolivia	36.7	51.7	21.9	37.9	16.7
St.Kitts	31.9	42.9	-9.6	32.2	58.1
Uruguay	28.3	52.9	23.7	35.0	29.7
Chile	27.3	20.8	40.8	28.4	15.0
Brazil	23.8	18.7	23.6	27.0	18.2
Costa Rica	23.7	26.0	22.6	29.1	9.7
Nicaragua	24.7	25.5	24.0	31.9	8.2
Argentina	20.2	37.9	20.0	22.7	11.9
LAC	19.2	18.4	21.6	22.1	8.7
Jamaica	18.1	25.1	11.1	18.0	11.1
Mexico	17.1	14.4	22.6	17.8	4.1
Guatemala	16.7	13.1	25.4	24.3	1.8
Trinidad y Tobago	14.0	6.7	11.1	15.0	8.8
Honduras	11.8	14.4	18.9	8.6	-11.4
Venezuela	10.0	10.6	6.2	11.7	-4.4
Dom. Rep.	6.0	-3.0	24.4	6.3	-6.7
Barbados	5.7	7.4	-5.1	5.7	3.7
Colombia	5.0	-6.4	18.8	11.1	-2.3
El Salvador	4.7	0.1	23.1	10.9	-5.8
Paraguay	4.1	4.2	13.2	19.4	-1.1
Antigua y Barbados	-2.2	-4.0	-1.0	-1.9	-6.3
Dominica	-1.8	-4.0	5.5	-2.5	-2.4
Grenada	-7.3	-0.8	8.7	-7.3	-9.3
Haiti	-9.8	-15.4	18.6	-9.4	-19.9
Panama	-2.2	-27.6	31.3	-2.4	-14.1
St. Lucia	-25.4	-28.9	4.4	-25.4	-32.1
St. Vicente	-17.3	-19.7	2.1	-17.8	-22.8
Suriname	-12.4	-2.3	-28.3	-12.4	-19.7

Source: Prepared with data from CEPAL, 1998.

This behavior strengthens the upward trend that was seen after the food crisis in the 70's. The indexes of farming and livestock production, agricultural production, of livestock production, total foodstuffs and per capita production are on a sustained rise (Figure 53 & Talbe 16). Between 1990 and 1997 these production areas grew throughout the region at the rate of 19.2 percent, 18.4 percent, 21.6 percent, 22.1 percent, and 8.7 percent, respectively. This dynamism showed its greatest growth after 1994.

Table 17. Increases in production in LAC 1980-1997 (thousands of tons)

Crop	1980	X 1995/1997	percentage increase
Cotton	4,807.0	3,719.0	-22.6
Rice	16,438.0	20,598.0	25.3
Banano y Plantain	21,514.0	30,091.0	39.9
Un-roasted coffee	2,970.0	3,390.0	14.1
Sugarcane	356,416.0	529,843.0	48.7
Beans	3,688.0	5,204.0	41.1
Sunflower	1,751.0	5,809.0	232.0
Corn	45,045.0	73,840.0	64.0
Cassava	29,847.0	32,176.0	7.8
soybeans	19,814.0	42,040.0	112.2
Sorghum	9,343.0	9,223.0	-1.3
Wheat	14,874.0	21,892.0	47.2

Source: Prepared with data from CEPAL, 1998.

At the level on the important agricultural products in the region, those that have grown dynamically and above the rate of population growth stand out, e.g., oilseeds, such as sunflower and soybeans, as well as corn, sugarcane, wheat, beans, bananas and plantains. On the other hand, other products grew at lesser rates, and below the population growth rate, such as rice, cassava, and coffee. Still others have declined in absolute terms, such as the case of cotton and sorghum (Table 17). The information also indicated that other products such as milk, meat, fruits, and horticultural produce have grown dynamically, at rates well above that of the population (**FAOSTAT**, 1999).

2.2.3.1.3 Changes are taking place in the "bread baskets", i.e., cropping patterns.

During the last 20 years, LAC has shown different dynamics for different products. This indicates displacements in some countries and reinforcements in others, with regard to products centered on cereal grains and traditional products, such as sugar, cotton, beans, cassava, and coffee. There were also changes in cropping patterns centered on agri-foodstuff complexes of livestock and oilseeds, as well as towards horticultural produce and fruit complexes and circuits destined to export and agri-industry (**ECLAC/IICA**, 1997, **Valdez and Paz**, 1998).

Table 18. LAC: Evolution of the concentration of production by countries (1980-1997)

Countries	[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]	
	1980 (%)	1997 (%)	1980 (%)	1997 (%)	1980 (%)	1997 (%)	1980 (%)	1997 (%)	1980 (%)	1997 (%)	1980 (%)	1997 (%)
Brazil	59.0	46.0	53.0	58.6	18.0	10.5	45.0	44.0	1.9	4.0	35.0	28.3
Argentina	1.6	6.0	4.0	5.7	52.0	61.0	14.0	19.4	32.4	23.2	10.0	34.0
Mexico	2.7	2.2	25.0	19.0	18.7	15.6	27.5	23.7	50.0	58.3	20.0	2.0
Colombia	11.0	8.9	2.3	2.7			1.9	1.3	4.6	3.1	7.3	3.5
sub-total	74.3	63.1	84.3	86.0	88.7	87.1	88.4	88.4	88.9	88.6	72.3	85.8
Peru	2.7	7.2										
Uruguay	1.8	5.0										
Ecuador	2.3	5.2										
Guyana	1.7	2.7										
Nicaragua	0.7	1.3	0.8	1.8								
Bolivia	0.6	1.3	0.1	0.2								
Honduras			1.0	1.6								
Guatemala			1.6	1.6								
Chile					6.5	6.7						
Paraguay					0.4	1.7	0.8	1.4				
TOTAL	84.1	85.8	87.8	91.2	95.6	95.5	89.2	89.8	88.9	88.6	72.3	85.8

Source: Prepared with figures from ECLAC, 1998

At the regional and national levels, specific trends can be seen that indicate a generalized specialization in production based on greater comparative advantages, taking advantage of both installed capacities as well as resource availability in each one of the countries (Tables 18 & 19).

2.2.3.1.4 Agri-industry continues to be dynamic

Agri-industry, with a relatively significant weight in manufactures taken as a whole, estimated at around 20 percent, as well as the agri-foodstuffs industry, which represents the largest part of agri-industry, continue to grow dynamically. Their growth is greater than that of agricultural production in general, and this growth has been occurring in a number of countries (**ECLAC**, 1998).

Table 19. LAC: Evolution of the concentration of production by countries (1980-1997) Continuation...

Countries	Banana y P.		Coffee		Sugarcane		Soybeans		Sunflower		Cassava	
	1980 (%)	1997 (%)	1980 (%)	1997 (%)	1980 (%)	1997 (%)	1980 (%)	1997 (%)	1980 (%)	1997 (%)	1980 (%)	1997 (%)
Brazil	20.8	18.8	35.7	35.3	41.7	60.9	76.5	58.7			78.6	75.7
Argentina					4.8	3.1	17.7	32.1	94.0	94.0		
Mexico	6.7	6.7	7.4	11.1	10.2	9.0	1.6	0.4				
Colombia	15.7	15.6	24.7	19.5	7.3	5.8					7.2	5.7
Ecuador	14.0	21.6	2.3	3.2	1.9	1.2						
Costa Rica	5.6	8.2	3.6	4.3								
Caribbean C.	8.2	5.7			6.5	3.1						
sub-total	71.0	76.6	73.4	73.4	72.4	83.1	95.8	91.2	94.0	94.0	85.8	81.4
Uruguay									1.5	2.0		
Bolivia	1.3	1.8			0.9	0.7	0.2	2.3	0.1	2.2		
Paraguay											6.8	9.8
TOTAL	72.3	78.4	73.4	73.4	73.3	83.8	96.0	93.5	95.6	98.2	92.6	91.2

Source: Prepared with figures from ECLAC, 1998

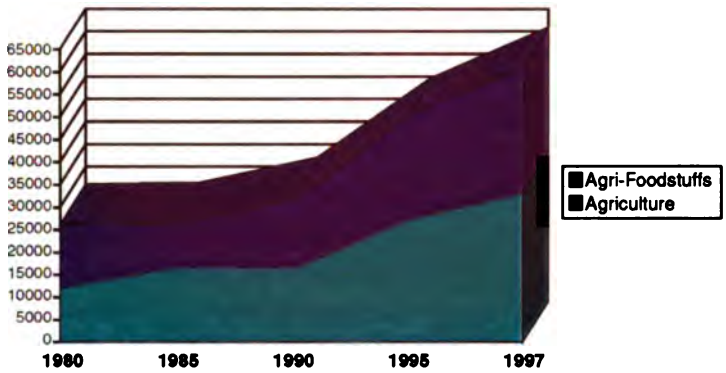
Although the index of agri-industrialization for the region's nations, which has been estimated at about 30 percent for the share of agri-industrial products in agri-foodstuff consumption, is considerably below that for the developed nations (over 70%), its dynamic trend is leading in the right direction.

In general, this has to do with the emergence of agri-enterprise in the nations in the region, which are oriented to exports and urban markets, highly integrated, creators of innovative and sophisticated products, with a modern focus and located in niches in dynamic markets.

2.2.3.1.5 Exports surpass US$30 billion.

Another relevant change is the activation of the region's agricultural foreign trade. Taken together, with agricultural exports, food, and tobacco industries, the region increased its exports from US$26 billion in 1980, to US$60 billion in 1997. This represents a 130 percent increase and an average growth rate of 5 percent per year over the 17 year period (Figure 54).

Figure 54. Evolution of exports by agriculture and the foodstuff industry in total exports from LAC



Source: Prepared with data from ECLAC, 1998.

The foregoing provides a greater tempo of growth (more than double) for exports than for production itself (Table 20). Furthermore, it also indicates that these increases are substantial and high during the last years of the 90's, since this dynamic export sector provides rates of 15 percent per year, in the face of 2 percent for the 80's. It also indicates that the dynamism is present both for agricultural exports and primary activities, such as those for exports by agri-industry and the agri-foodstuffs industry. This latter holds a special connotation insofar as the exports by "primary" agriculture constitute 50 percent of the exports of "extended" agriculture.

Table 20. LAC: Exports of products and raw materials by agriculture and the food, beverage and tobacco industry. 1980-1997

Exports	1980	1990	1993	1997
Agriculture	12128.0	12128.0	16735.0	32950.0
Food Industry	13948.0	13948.0	14531.0	27179.0
Total	26076.0	26076.0	31266.0	60129.0
Average annual rate of growth				
	Agriculture	Food Industry	Total	
1980/1987	6.0	4.0	5.0	
1980/1993	3.4	1.0	2.2	
1993/1997	15.3	14.5	15.0	

Source: Prepared with data from ECLAC, 1998.

A relevant aspect of this dynamism of the agricultural and livestock exports is the increase in America's share and especially that of LAC in world agricultural and livestock exports. In 1980, the share produced by the Americas was 33.3 percent of world exports, this climbed to 35.7 percent by 1997, and this gain is imputable to the countries of LAC, which increased their share by three percentage points in the world agricultural market (Table 21).

Table 21. Share in agricultural exports of America and LAC in world agricultural exports.

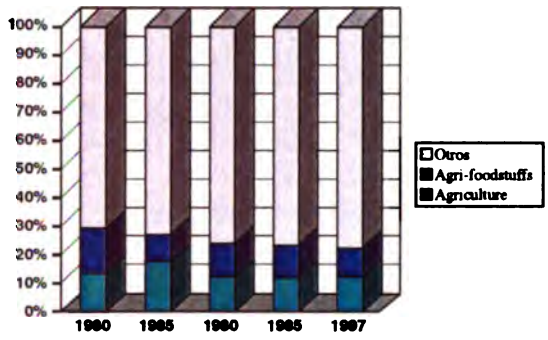
Region	1980		1997	
	Millions of US$		Millions of US$	%
World	234,731.0	100.0	524,188.0	100.0
LAC	34,604.0	11.7	76,877.0	14.7
America	98,082.0	33.3	187,290.0	35.7

Source: Prepared with data from WB, 1998-99.

Intra-regional trade exchanges show a much greater growth rate, on the order of 20 percent per year, which demonstrates the importance of open markets and integration in the Americas and is encompassed in the trend for all exports in LAC.

The fall in the share of agricultural and agri-foodstuff exports in total exports has decelerated. In fact, over the last 40 years, agricultural exports have lost their 50 percent share of all exports and currently occupy 23 percent. Notwithstanding, in the first half of these four decades, the loss was more pronounced, since in these 20 years the greatest reduction occurred, which was responsible for 22 of the 27 point reduction, while in the following 20 years, from 1980 to date, the fall was only five points (Figure 55).

Figure 55. Evolution of the relative share of Agriculture and the foodstuffs industry in total exports of LAC

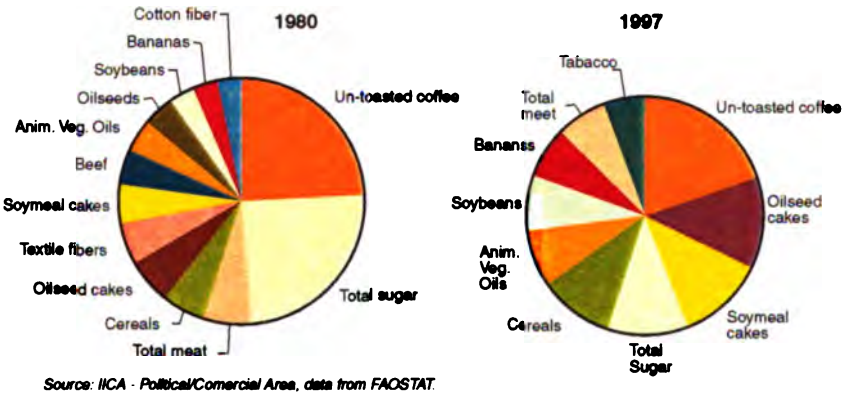


Source: Prepared with data from ECLAC, 1998.

2.2.3.1.6 The diversification in export structure deepens

Until the eighties, coffee and sugar exports represented almost one-half of all agricultural and foodstuff exports from the region. By 1997, these two products contributed only 28 percent thereof (Figures 56 & 57). On the other hand, fruits and horticultural produce, where tropical and temperate climate agriculture enjoys broad comparative advantages, contribute almost one-fifth of total agricultural exports, which have grown more than three-fold over the last 17 years. It an also be seen that oilseeds and derivatives have gained ground in the composition of exports, occupying almost 40 percent of this structure. Although their impact is less, meat products, dairy products, and even cereals and bananas have advanced their share in agricultural exports.

Figure 56. LAC: Percentage share of the main products in total agricultural exports.



Source: IICA - Political/Comercial Area, data from FAOSTAT.

Figure 57. Evolution of the concentration of total exports by agriculture in LAC

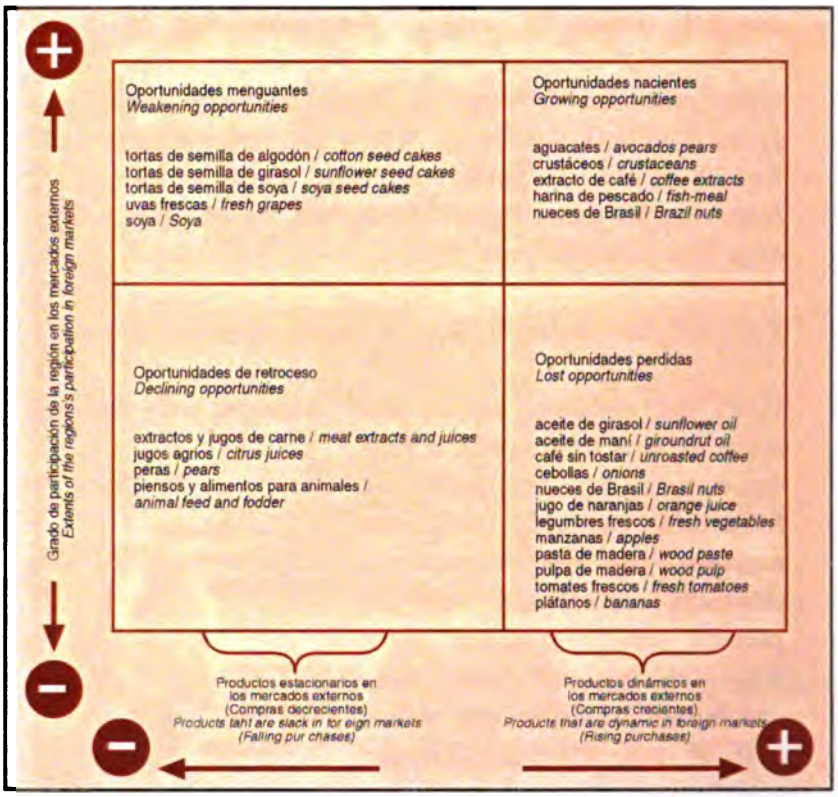
Source: Prepared with data from ECLAC, 1998.

The foregoing makes it clear that it has been the two agri-foodstuff systems of oilseeds and livestock and horticultural and fruit produce that are predominant in the agricultural export structure within the region.

This is related to the changes recorded in the productive structure, or the agricultural and livestock aspects analyzed previously.

A joint monograph (**ECLAC/IICA**, 1997) utilizes information that combines the status of the external markets with the dynamics achieved by agricultural and forestry exports from the region. From the demand point of view, it can be seen that the international insertion of the region's products has continued an evolution that is very cyclical between 1985 and 1995, alternating between good times and bad. For example, for 1995 (with regard to OECD), the best-positioned products, "nascent opportunities" (growth exports in dynamic external markets) are tropical products (such as avocados, crustaceans, coffee extracts, fishmeal and Brazil nuts). The missed chances, "lost opportunities" (falling exports in dynamic external markets) correspond to manufactured products, natural products with a high added value and quality, such as some fruits and produce, and some forestry products. Among these products are: sunflower oil, peanut oil, un-toasted coffee, onions, orange juice, fresh vegetables, apples, wood paste, wood pulp, fresh tomatoes and bananas (Table 22).

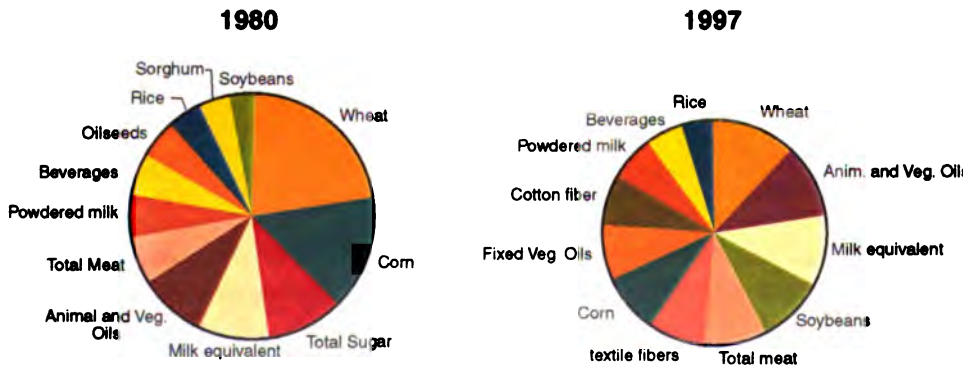
Table 22. Market opportunities for LAC



Fuente: IICA/CEPAL, 1997.

The "retracting opportunities" fall into a lower position (declining exports in stagnant external markets), at least in the OECD, soybeans, and other oilseeds destined to animal fodder, meat extracts and juices, bitter juices and pears. Finally, holding onto some internal drive and the decision to continue exporting, in spite of facing stagnant external markets "diminishing opportunities", we have oilseed cakes (of cottonseed, soybeans and sunflower seeds), soybeans, and some fruits that had been very dynamic in the recent past (for example fresh grapes). Although active agri-export dynamism is visible in the

Figure 58. LAC: Percentage share of the major products in total agricultural imports.



Source IICA-Political/Comercial Area data from FAOSTAT

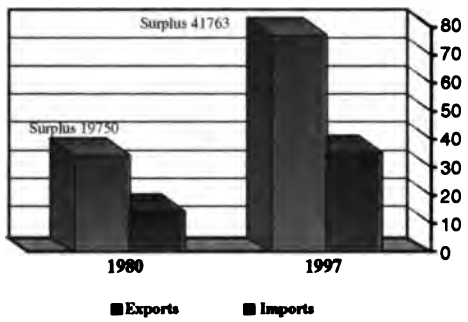
last five years, with annual rates of 16 percent, the current agri-export structure is being transformed towards horticultural and fruit produce and oilseed-livestock products, which will be relevant over the short-term. Care must be taken with the long-term sustainability of this type of international insertion in the face of rapidly changing and demanding markets, and confronted by the fact that the productive structures in agriculture have clear limits over the short term for re-conversion.

2.2.3.1.7 Agricultural imports show a significant dynamism

Foodstuff *imports* also increased in an active manner between 1980 and 1997, showing a 5.5 percent yearly rate in contrast to a 5 percent rate for *exports*. In 1980, imports constituted approximately US$14 billion; this climbed to US$35 billion per year. Furthermore, the structure of imports has also recorded significant changes centered on the reduction of imports with regard to wheat, corn, sorghum, and sugar. In contrast, there have been increases in imports of soybeans and slight increases for oils, milk, and their equivalents (Figure 58).

2.2.3.1.8 The positive balances in the agricultural balance redoubles in importance

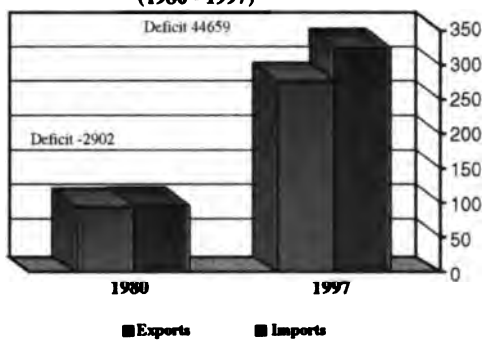
Figure 59. LAC: Net Trade Balance for agricultural goods (1980 - 1997)



Source: Prepared with data from the WB, 1998/99.

Another very significant fact is that the region continues to record important positive balances in the agricultural trade balance, at levels that have been increasing from US$20 billion in 1980 to US$42 billion in 1997 (Figure 59). For 1997, this positive balance represents more than 90 percent of the deficit recorded in the trade balance for total goods in the economy of the region. It also represents 130 percent of the deficit in the LAC trade balance for goods and services, or 65 percent of the deficit in its current account balance. Notwithstanding, these positive balances are declining in relative terms, as a consequence of a slightly greater dynamism for agricultural imports, which also indicates the enormous importance of their function as generators and savers of foreign exchange in favor of the economies of our countries (Figure 60).

Figure 60. LAC: Net Trade Balance for total goods (1980 - 1997)



Source: Prepared with date from the WB. 1998/99.

2.2.3.1.9 Factor productivity increases

Another one of the important trends observed, as could be expected, is an increased production arising from greater factor productivity, especially with regard to croplands and the agricultural labor force. Within the region, the rate of incorporation of new croplands into production (including arable lands, permanent crops, grasslands, and pastures) has been declining in an accelerated fashion since 1980, but especially during the 90's. In the five-year period 1965/1970, 26 million hectares were incorporated, but between 1990/1994, only 7 million were incorporated (**Ardila**, 1999).

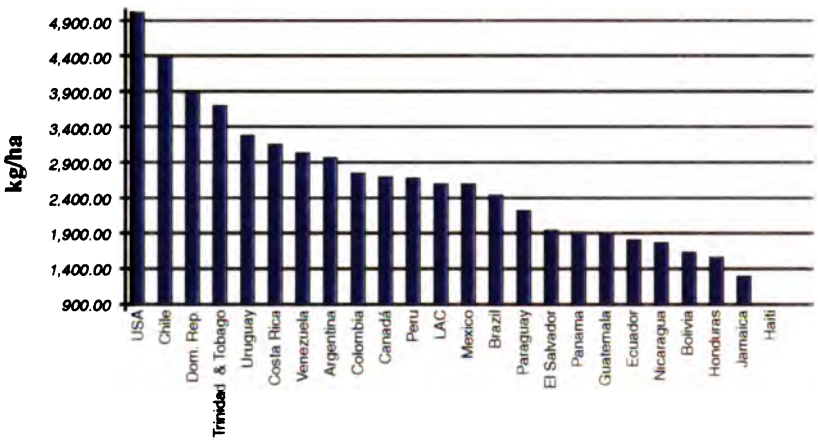
The rapid exhaustion of the potential agricultural and livestock frontier is a present and future variable, which requires increased yields and increased use of the more optimum and suitable areas for these activities. This is occurring in the case of land dedicated to cereal production, which between 1979/81 and 1995/97, has remained practically stable at 50 million hectares (**WB**, 1998/99). Yields grew from 1840 kg/ha to 2576 kg/ha over the same period, and the use of fertilizers increased from 79 kilograms per hectare to 93 (Table 23 & Figures 61 and 62). The foregoing falls within the logic of greater efficiency and competitiveness, which leads to a reduction of the use of marginal soils under cereal crop production, which in many cases involve fragile and delicate ecosystems that are easily deteriorated.

Table 23. America: Evolution of the Surface Area, Cereal Yields and Fertilizer Use.

	Surface Area ('000s of ha.)		Increase	Yield (kg./ha)		Increase	Fertilizer Consumption (100 g/ha.)		Increase
	1979-81	1995-97	(%)	1979-81	1995-97	(%)	1979-81	1995-97	(%)
Argentina	11,099.0	10,126.0	-8.8	2,183.0	2,957.0	35.5	46.0	254.0	452.2
Bolivia	559.0	726.0	29.9	1,183.0	1,664.0	40.7	23.0	41.0	78.3
Brazil	20,612.0	19,554.0	-5.1	1,496.0	2,442.0	63.2	915.0	898.0	-1.9
Canada	19,561.0	19,330.0	-1.2	2,173.0	2,712.0	24.8	416.0	545.0	31.0
Chile	820.0	621.0	-24.3	2,124.0	4,412.0	107.7	321.0	1,131.0	252.3
Colombia	1,361.0	1,239.0	-9.0	2,452.0	2,734.0	11.5	812.0	2,853.0	251.4
Costa Rica	136.0	70.0	-48.5	2,498.0	3,179.0	27.3	2,650.0	3,636.0	37.2
Dom. Rep.	149.0	140.0	-6.0	3,024.0	3,933.0	30.1	572.0	722.0	26.2
Ecuador	419.0	1,038.0	147.7	1,633.0	1,821.0	11.5	471.0	752.0	59.7
El Salvador	422.0	431.0	2.1	1,702.0	1,949.0	14.5	1,330.0	1,261.0	-5.2
Guatemala	716.0	629.0	-12.2	1,578.0	1,869.0	18.4	726.0	1,324.0	82.4
Haiti	416.0	418.0	0.5	1,009.0	923.0	-8.5	62.0	89.0	43.5
Honduras	421.0	492.0	16.9	1,170.0	1,567.0	33.9	163.0	380.0	133.1
Jamaica	4.0	3.0	-25.0	1,667.0	1,267.0	-24.0	923.0	1,547.0	67.6
Mexico	9,547.0	10,923.0	14.4	2,152.0	2,575.0	19.7	570.0	538.0	-5.6
Nicaragua	266.0	383.0	44.0	1,475.0	1,742.0	18.1	392.0	147.0	-62.5
Panama	166.0	169.0	1.8	1,524.0	1,914.0	25.6	692.0	720.0	4.0
Paraguay	304.0	596.0	96.1	1,511.0	2,241.0	48.3	44.0	120.0	172.7
Peru	732.0	874.0	19.4	1,944.0	2,686.0	38.3	381.0	453.0	18.9
Trinidad y Tobago	4.0	4.0	0.0	3,167.0	3,703.0	16.9	1,064.0	1,022.0	-3.9
USA	72,830.0	83,137.0	13.1	4,151.0	5,043.0	21.5	1,092.0	1,134.0	3.8
Uruguay	614.0	628.0	2.3	1,644.0	3,301.0	100.8	564.0	777.0	37.8
Venezuela	814.0	772.0	-5.2	1,904.0	3,068.0	61.1	711.0	1,024.0	44.0
LAC	49,979.0	50,234.0	0.5	1,840.0	2,576.0	40.0	786.0	931.0	18.4

Source: Prepared with figures from the WB, 1998-99 coming from FAO

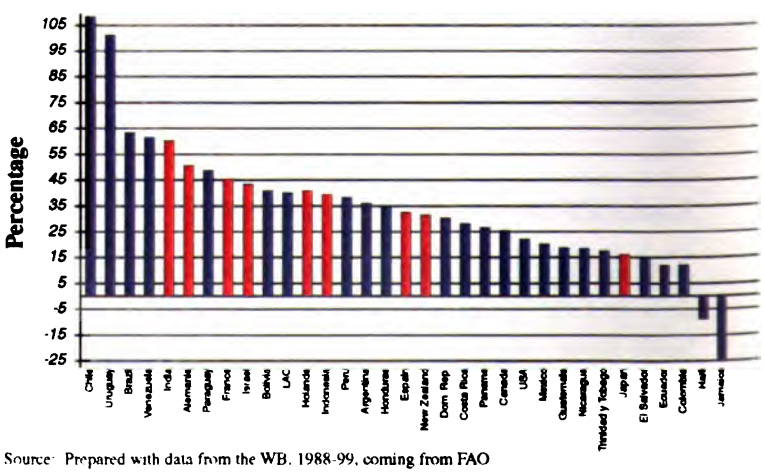
Figure 61. America: Cereal Yields by country



Source: Prepared with data from the WB, 1988-99, coming from FAO

The logic of greater productivity focused on the utilization of better soils, increased yields and the use of inputs, tends to gradually generalize throughout the period from 1980 to 1997 in a majority of crops: basic crops, horticultural produce, fruits, and other products (**Ardila**, 1999). It has taken place in a majority of the basic grains (rice, beans, corn, potatoes, cassava, and wheat, and to a lesser degree in sorghum); produce (tomatoes, garlic, carrots, lettuce, cabbage, and asparagus). This has been accompanied by large increases in the surface under cultivation, although also in yields; the fruits have increased basically by surface increases (pineapple, papaya, melon, banana, avocado, and citrus) and other products such as sunflower and soybeans that have seen both larger surface areas and higher yields.

Figure 62. Selected countries: Evolution of the yield in cereals between 1989-91 and 1995-97



Source: Prepared with data from the WB, 1988-99, coming from FAO

The foregoing, the same as with the cereal grains, has occurred with a significant increase in fertilizer use, which has climbed from 7.9 million tons in 1990 to 10 million tons in 1997. Similarly, there has been a sustained increase in the use of improved seeds and the surface area under irrigation, which climbed from 13.6 million hectares in 1980 to 17.8 million in 1996 (32% increase) (Table 24). With regard to the total land under exploitation, this climbed from 9.8 percent to 11.2 percent of the land under irrigation. Tractor usage also increased, going from 1.1 million in 1980 to 1.5 million tractors in 1997, which meant going from 25 tractors per thousand workers on the average in 1979/81 to an average of 34 in 1994/96 (**WB**, 1998-99). An aggregated balance would show that most of the countries have increased their production, yields, and use of fertilizer, tractors, and irrigation

Table 24. LAC: Area irrigated (thousans of hectares)

	1980	1990	1996	%96/80
Total	13,551.0	16,137.0	17,822.0	31.5
Mexico	4,980.0	5,600.0	6,100.0	22.5
Brasil	1,600.0	2,700.0	3,169.0	98.1
Peru	1,160.0	1,450.0	1,753.0	51.1
Chile	1,255.0	1,265.0	1,265.0	0.0
Argentina	1,580.0	1,680.0	1,700.0	7.6
Colombia	400.0	680.0	1,051.0	263.0
Dom. Rep.	165.0	225.0	259.0	57.0
Ecuador	500.0	290.0	240.0	-52.0
Subtotal	11,640.0	13,890.0	15,537.0	

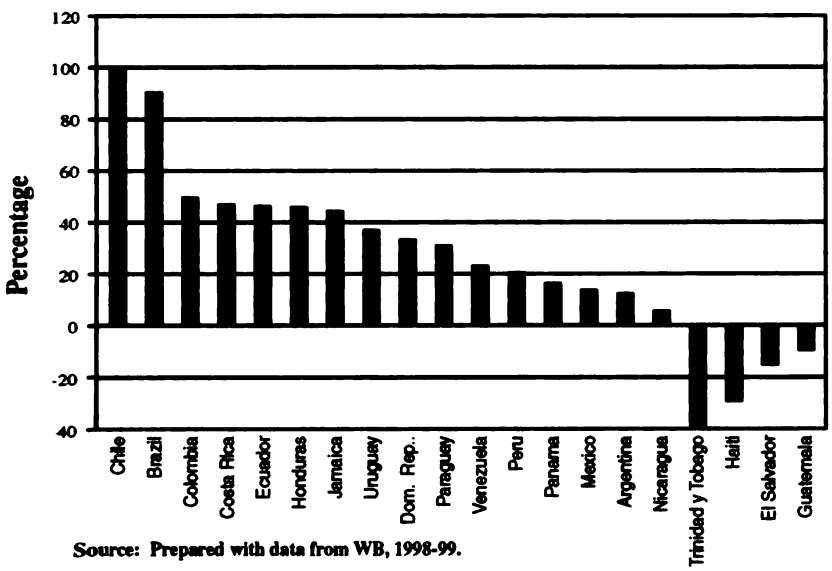
Source: Prepared with data from ECLAC, 1998.

Table 25. Evolution of productivity in manufacturing industry and agriculture

Countries	*Productivity / Industrial Worker* *Aver. 1980-84*	*Aver. 1990-94*	*Change %*	*Productivity/Farm Worker* *Change % Aver. 1979-81 / 1995-97*
[illegible]	33,694.0	37,480.0	11.2	13.4
Brazil	43,232.0	61,595.0	42.5	92.0
[illegible]	32,805.0	32,977.0	0.5	99.5
Colombia	15,096.0	17,061.0	13.0	50.1
[illegible]	7,185.0	7,184.0	0.0	46.5
Ecuador	12,197.0	9,747.0	-20.1	46.3
[illegible]	11,144.0	9,235.0	-17.1	-9.9
Honduras	7,458.0	7,427.0	-0.4	46.1
[illegible]	12,056.0	11,091.0	-8.0	45.1
Mexico	17,448.0	25,991.0	49.0	14.0
[illegible]	15,327.0	17,320.0	13.0	16.1
Uruguay	13,722.0	16,028.0	16.8	37.6
[illegible]	37,083.0	24,867.0	-32.9	22.0

Source: Prepared with data from the WB, 1998-99

Figure 63. Productivity increases in agriculture between 1979-81 and 1995-97



Source: Prepared with data from WB, 1998-99.

Furthermore, there has been a substantial increase in labor force productivity in agriculture in several countries (Figure 63). The increases in agricultural labor and arable land productivity seem to fall within a general trend that would express an increase in Total Factor Productivity (TFP), more dynamically in agriculture than in the rest of the economy for a number of countries (**ECLAC**, 1996). Using information available for 13 countries in LAC, we can see that the evolution of agricultural labor productivity is much greater than that of the industrial labor force (Table 25). Larson and Mundlak from the World Bank also hold this thesis, showing that growth in Total Factor Productivity in agriculture tends to be faster than in the manufacturing sector. The important implication here is that although the total product from agriculture usually does not increase as rapidly as the total manufacturing product, it is relevant for the economy's long term welfare and the establishment of a healthy inter-sectorial relationship between agriculture and the rest of the economy.

This increase in labor productivity depends principally on capital accumulation and Total Factor Productivity growth (**Timmer**, 1997).

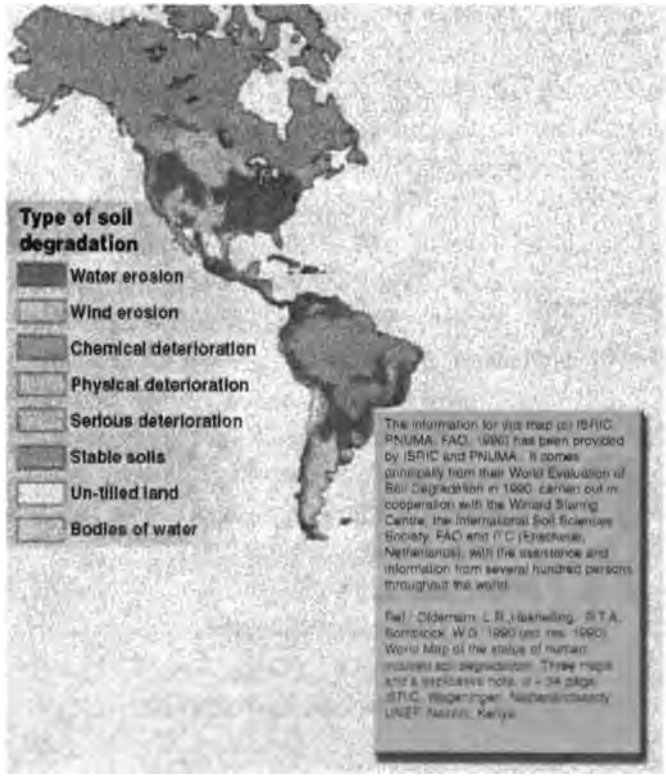
Notwithstanding these important advances in the productivity of the tilled soil and the agricultural labor force within the region, there are important laggards when comparing the countries with those from other regions (Figures 62 & 63). With few exceptions, such as Brazil and Chile, during the last 17 years, most of the countries have lagged, spreading even further the technological gap between the countries from other latitudes and those in the region. This reduces competitiveness in a context of ever-freer markets. With regard to the increases in agricultural labor productivity, although these have grown significantly, they are also far from earning the countries of the Americas a slot in the world standards.

For example, in 1997, among the 27 countries with the highest agricultural labor productivity in the world, only 5 are from the Americas. These are the United States (fifth place with a productivity per worker of almost US$35 thousand per year), Argentina (number 14 with US$14 thousand), Uruguay (number 19, with slightly over US$9 thousand), Chile (24th place with slightly over US$5 thousand), and Costa Rica (number 27, with US$4900) (Figure 4 from Anex).

In summary, although there have been important advances in labor productivity in most of the countries in the Americas, the fact that there are widening gaps in productivity in relation to other countries continues to be a motive for concern from the point of view of competitiveness, and in the context of a greater integration into the world economy. Within the region, these gaps are also widening with regard to technology, where clearly a majority of the countries of the Southern Region are advancing significantly in relation to a majority of the rest of the countries.

2.2.3.1.10 Natural resources are suffering pressures that are deteriorating them

Figure 64. Soil degradation due to activities.



Some analysts hold that the costs of the major advances recorded over the last 20 years in agricultural and agri-industrial activities have been high and are reflected in a degradation of natural resources (**Paulet**, 1999, **Gligo**, 1998). This progress has been based on the utilization of new technologies, such as improved seeds, fertilizers, irrigation systems, more conservationist cropping practices, such as minimum fieldwork, which have allowed significant advances in agricultural productivity while deteriorating the resources.

In general, the land dedicated to agriculture tends to diminish in relative terms, and there is also a reduction in its quality. Meteorological phenomena are becoming more frequent and massive, these in turn result in droughts and floods; the urban zones are expanding rapidly, at the cost of the best soils. On the other hand, since the

forests are a better carbon sink than croplands and pasturelands, the conversion of forestlands into agricultural land implies a net carbon loss (which is a heat absorbing gas) towards the atmosphere, thus accelerating global warming. There are predictions that by the year 2100, atmospheric warming will have raised sea level between 10 and 120 centimeters, leading to severe flooding and tremendous population displacements.

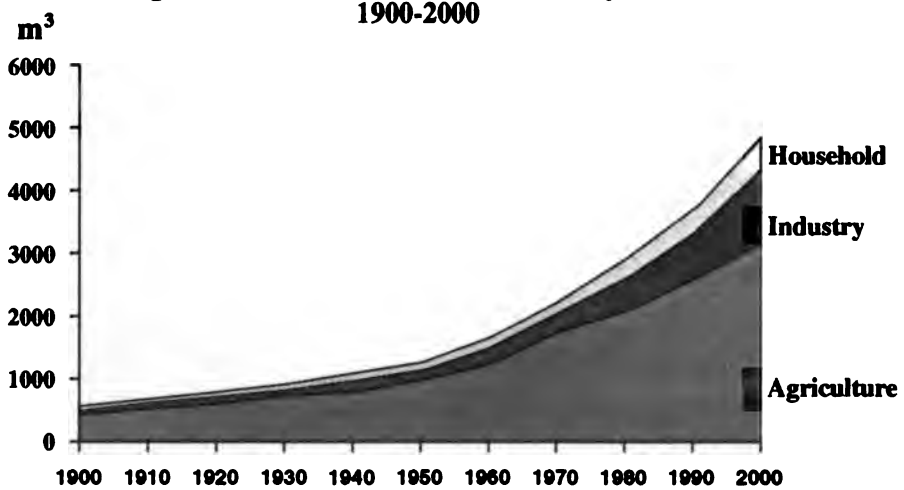
Erosion is the most common form of degradation, and in 84 percent of the affected areas, it constitutes the main cause. Average annual erosion is between 5 and 30 tons per hectare, depending on the severity of the cases. The regions with the worst erosion are Central America, South America and Asia (**Paulet**, 1999). Soil degradation from human activities has been the object of analysis, and according to the results (**FAO**, 1996), the world evaluation of anthropogenous soil degradation (GLASOD) has shown that 15 percent of the land surface of the whole world has suffered damage (13% are slight and moderate cases, and 2 percent are serious and severe). These cases are due particularly to erosion, nutrient depletion, salinization, and physical compaction (Figure 64).

There are different intensities, from moderate to serious, of water erosion in the Americas, especially in important zones in the eastern and western United States, in northwestern and southern Mexico, large parts of Central America, and the Andean nations, as well as in significant parts of Brazil, Uruguay, and Chile. There is also wind erosion in the center of the United States, in Peru, and large areas in Argentina. Furthermore, there is chemical deterioration in some regions of the United States, in the northeast of Mexico, Honduras, Nicaragua, and Costa Rica, and in important zones of the Andes and Brazil. Finally, in a majority of these regions, serious degradation in a relatively significant proportion can also be observed, particularly in the United States, parts of Mexico, Central America, the Andes, Brazil, and Chile.

2.2.3.1.11 Water for agriculture

In general terms, 65 percent of the available water is used in agriculture; 25 percent is used in industry and 10 percent is dedicated to household use (Figure 65). There is a clear competition for land use, as well as for surface and subterranean water, since its availability is declining in terms of cubic meters per inhabitant. For example, population growth and urban sprawl compete with agriculture for water use, since this must be destined to attend the growing demand of population centers (**Paulett**, 1999 and **Beechman**, 1998).

Figure 65. Global utilization of water by sectors 1900-2000



Source: World Bank, 1998-99.

The oceans contain 97 percent of the water, the polar icecaps contain two percent and the remaining one percent is divided in equal parts between available fresh water and unavailable water trapped in the subsoil; i.e., the available fresh water is about 0.5 percent of all of the world's water. As the population increases, in many parts of the world the gap between supply and demand for water increases, since the water table is dropping, rivers run dry, and the competition for the waning amounts of water increases. Water shortages threaten three fundamental aspects of human security: food production, health and water-based environments.

Approximately one thousand tons of water are required to produce one ton of cereals. This is a minimum amount, since this figure does not include the water wasted due to inefficient handling. Agriculture based on irrigation allows production of two or three crops per year on the same plot of land, which makes the irrigated areas extremely important for world food security. Irrigated lands, which constitute 19 percent of the world's cultivated lands produce 40 percent of the foodstuffs.

At present, a cultural change is occurring with regard to water, which is a result of the world concern expressed in the documents from the Earth Summit Eco-92, held in Rio de Janeiro, Brazil, in June 1992, in particular, Chapter 18 of Agenda 21 and the subsequent fora. There are different initiatives, some of which have achieved significant advances in LAC, oriented to a modification of the water management model, in order to integrate and decentralize it, making it administratively and financially autonomous. This model is not alien to existing management systems in the more advanced countries, but within the region, where water management is carried out at the sectorial level, this responsibility lies on the shoulders of different organisms.

The main priority for humanity, after access to food, is the availability of potable water. Contamination with fertilizers and pesticides, deforestation, sewerage, and dam and irrigation system construction can have severe effects on the morphology of the hydrographic basins, river system hydraulics, water quality, and coastal resources. Agriculture contributes to hydrological resource contamination and is, at the same time, a victim of this problem. It contributes to it in the measure that it releases contaminants and sediments into surface and subterranean waters. Improper cropping practices lead to a net loss of soils, and contribute to salinization and supersaturation by water in the irrigated lands. But it is also a victim, since it must use contaminated surface and

Table 26. Fresh water resources (thousands of m^3 per inhabitant)

Countries with:					
<= 15 m^3		*> 15 < 30 m^3*		*> 30 m^3*	
Guatemala	11	Colombia	27	Canada	96
Honduras	9	Costa Rica	27	Paraguay	62
USA	9	Ecuador	26	Venezuela	58
Trinidad y Tobago	4			Panama	53
Mexico	4			Brazil	42
El Salvador	3.2			Bolivia	39
Jamaica	3			Uruguay	38
Rep. Dom.	2.5			Nicaragua	37
Peru	1.6			Chile	32
Haiti	1.5			Argentina	10
World	8	LAC	27		

Source: World Bank, 1998-99.

subterranean waters, which affect crop quality and transmit diseases to the agricultural laborers and consumers.

The availability of water as a resource, as in a majority of the natural resources, varies significantly among the countries (Table 26). There are countries such as Canada, Paraguay, or Venezuela, which have sufficient fresh water per inhabitant, to countries with greater restrictions, such as Peru, Haiti, and the Dominican Republic, among others. In a similar fashion there are different situations with regard to potable water access according to urban or rural settlement. As can be seen, in a majority of the countries, high percentages of the urban population have access to potable water. This is not the case in the rural zones, which for many countries still have large numbers of the rural population without access to potable water (Table 27).

Water, especially that used to satisfy human and agricultural necessities, is becoming a strategic element that must be regulated with clear and sustainable bases from the point of view of access, financing, hygiene and conservation.

Table 27. Access to potable water (% of population)

	Urban	*Rural*
Argentina	*71*	*24*
Bolivia	*88*	*43*
Brazil	*80*	*28*
Canada	*100*	*100*
Chile	*99*	*47*
Colombia	*90*	*32*
Costa Rica	*100*	*99*
Dom. Rep.	*88*	*55*
Ecuador	*81*	*10*
El Salvador	*82*	*24*
Guatemala	*97*	*48*
Haiti	*38*	*39*
Honduras	*91*	*66*
Jamaica	*99*	*99*
Mexico	*95*	*60*
Nicaragua	*93*	*28*
Panama	*99*	*73*
Paraguay	*70*	*6*
Peru	*91*	*31*
Trinidad y Tobago	*100*	*88*
USA	*100*	*100*
Uruguay	*99*	*40*
Venezuela	*79*	*79*

Source: World Bank, 1998-99.

2.2.3.1.12 The extent of the effects caused by natural disasters

The 1998 season was witness to a heretofore-unseen concentration of violent meteorological events: a dozen tropical cyclones affected the populated zones of the Caribbean basin, both over the island territories and the Central American Isthmus. This same Isthmus had also seen other disasters that had prior effects on the region, such as droughts, forest fires, and floods, all derived from the presence of the ENSO, or the El Niño Southern Oscillation in the Pacific Ocean.

Hurricane Mitch was the most violent on record in the region. No other phenomenon has produced the quantity of rainfall in Central America that Mitch caused. Overflowing rivers and lakes caused flooding with fatal consequences in rural and urban areas throughout the countries in the region, but with particular impact in Honduras, Nicaragua, El Salvador, and Guatemala. The passage of Mitch through Central America generated a disaster of the greatest magnitude. Its catastrophic effects clearly demonstrated the Isthmus' risk in the face of multiple threats, given the processes of environmental degradation, accelerated urbanization, and poverty which increases the threat and augments the vulnerability of the population in the face of any natural phenomenon.

According to ECLAC's estimates (**ECLAC**, 1999), before the arrival of Mitch, the economic activity in the Central American Region was growing. There were expectations that the economy would achieve a growth rate close to 6 percent, thrust along by dynamic external demand, capital attraction, and a sustained effort in capital formation. Keeping in mind that the disaster occurred at the beginning of November, the effect on production of over one point in the rate of growth of the Gross

Domestic Product (GDP) reflects the magnitude of the shock. At the close of that year, the regional GDP had only reached 4.6 percent.

Taking the region as a whole, the total losses have been estimated at about US$6 billion, of which US$3.1 billion were capital stock and inventory awaiting production (direct damages). A slightly lower amount (US$2.9 billion) resulted from un-realized income, business interruption, services that could not be generated, taxes that would not be paid, reductions in exports, and others (indirect damages). Reposition of lost or damaged infrastructure and direct losses have been estimated at slightly less than US$5 billion, with direct implications for the balance of payments in an amount greater than US$1.6 billion.

Taken together, 1998's exports fell by more than US$600 million with respect to pre-Mitch projections (almost 13% of annual sales), and the losses for 1999 are estimated in even greater amounts (US$1.77 billion).

As a result of the effects of the international financial crisis and the adverse climatic conditions, agricultural GDP for the region grew by a mere 1.7 percent in 1998, and for 1999 the forecast holds a growth of only 0.1 percent, which is in very unfavorable contrast with the average of 3.2 percent for the 1994-1997 period. On the other hand, the environmental damage is significant, even though it is not fully reflected in the appraisals carried out. This is due in part to the fact that much of the environmental stock of the region had already been damaged by the inadequate use of resources and the fires that occurred in the dry seasons in recent years, which were particularly intense due to El Niño.

An important datum is the fact that the already severe effects of the rainfall were amplified by prior human activities, such as deforestation, especially on steeply sloping hillsides, inadequate land use, and population settlements on hillsides or on riverbanks and lakesides. The drainage characteristics that prevail on the Pacific slope and the degraded plant coverage also contributed to increasing the effects of the disaster.

The El Niño phenomenon in the Hemisphere

From mid-1987 through the latter part of 1998, severe droughts and floods attributable to the El Niño (or ENSO) phenomenon affected the Hemisphere, with direct impacts on the strategic activities of the urban and rural areas of different countries. In the Andean Region, in particular, this cycle of the phenomenon had a severe impact on vast areas of Chile and other coastal countries (**Kesteren and Otero**, 1998). Extremely serious conditions occurred on the Pacific Coast of Ecuador and along the northern coast of Peru. There were less serious impacts in Bolivia, Colombia, and Venezuela, and even positive effects in some agricultural regions of Bolivia, Venezuela, and Chile.

Agriculture was affected both in production and productivity, in export product availability and in the physical infrastructure. In the Amazonian regions of Peru, Ecuador, Colombia, and Venezuela, the increased flows of the rivers and their spillover affected broad zones in the tropical forests, and the altered climate impacted the planting and harvesting seasons as well as the availability of foodstuffs, especially for the indigenous communities. Different agricultural export items underwent large production shortfalls and reduced productivity, in both crops and livestock.

Individual quality of life was seriously diminished, particularly in the poorest areas, the outlying ones, and those at greatest risk (greater vulnerability) in the face of the meteorological phenomena. These populations suffered the loss or serious damage to their dwellings; floods swept away their crops or droughts did not allow them to develop, with the contingent loss of employment. Reduced employment brought with it serious repercussions in income, difficulties for crop concentration, transportation, and placement of the products on the market. In general, the impact was negative for the whole agricultural economy in the region.

The inhabitants displaced from the rural areas to the urban areas only made the underemployment conditions worse in the cities, and the drop in agricultural income and the increase in unemployment, increased the search for alternate and temporary resources for subsistence.

During the current year (1999), the counter-phenomenon of La Niña is expected to remain affecting the Continent, and produce an active hurricane season, both in the Caribbean basin and in the Atlantic and Gulf of Mexico, so that rainfall levels can be expected to be above the norm for the rainy season. The hurricane forecast anticipates the formation of 14 named storms, nine of which would reach hurricane category and four of which will be intense.

Were these forecasts to prove true, agricultural activities in the region will suffer the results, as has always happened, due to the highly vulnerable way they are carried out in many of our countries, especially among the smaller farmers. This vulnerability arises from the overexploitation of the natural resources that has occurred, especially the deterioration of the hydroagricultural watersheds, and the agricultural involvement of the hillsides. In the face of these realities which can be seen in a majority of the countries within the region, and which places them at great risk, it is not difficult to anticipate who will be the future victims of natural disasters and even those caused by the hand of man.

2.2.4 Observations on the effects of the general measures of the reforms and the differential and unequal agricultural outcomes.

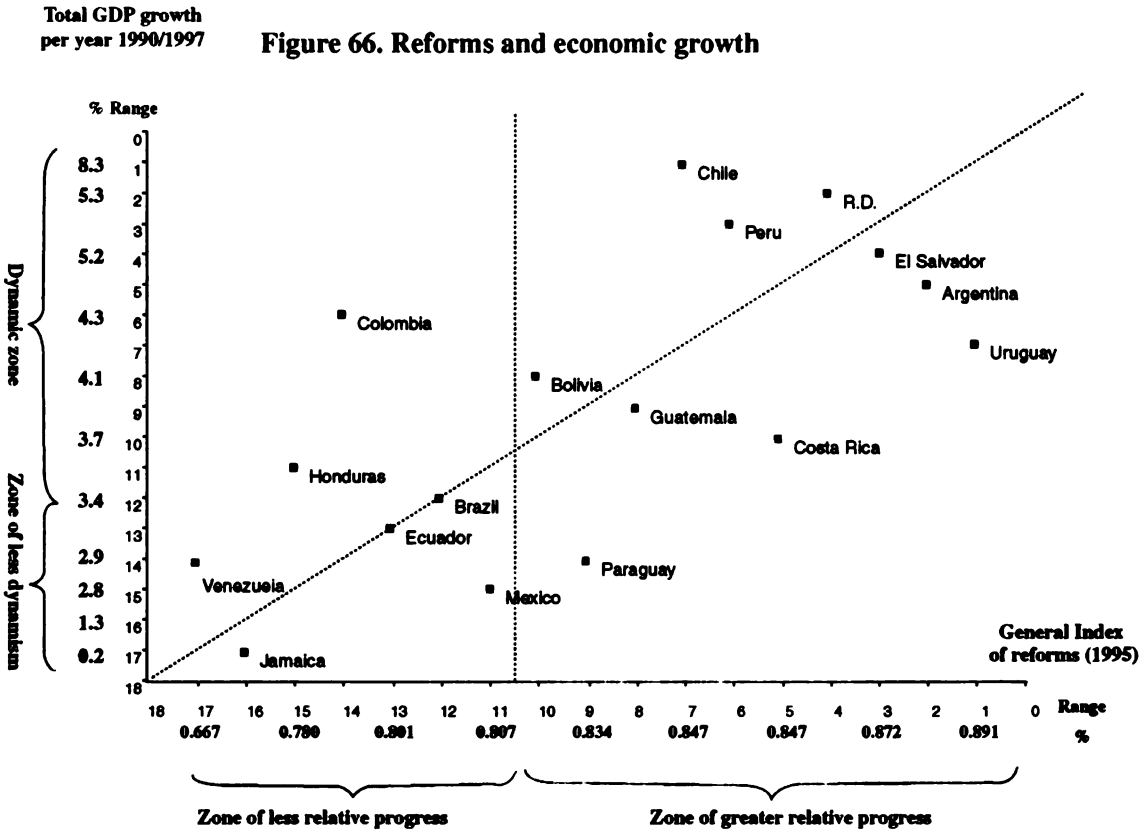
In the light of the results of the last 17 years, both for the economy in general and agriculture and the rural milieu in particular, we can draw two conclusions. On the one hand, although the forces of the new globalized economic growth model have had an influence in all of the countries, this has been differential with regard to its impact, intensity, dynamism, and scheduling. Thus, it has not been a linear process. As a consequence, the outcomes vary from country to country and from region to region. On the other hand, we conclude at the end of this century, the overall economic and social results obtained in agriculture and the rural milieu, even with the application of these economic reforms, in many countries are insufficient from the economic and social points of view.

2.2.4.1 Towards an aggregated vision of the principal changes

Upon analyzing some of the main variables for a set of countries, for which there is comparable information, we conclude that such differences are clearer and allow some observations that may contribute to the development of the analysis on a case by case basis of the different situations among the countries, and also to propose some useful recommendations for policy formulation.

The *first observation* refers to the existence of a significant association between the time and the depth of the reforms instrumented by the countries and the dynamism of economic growth (Figure 66). By analyzing the relationship between economic growth and the general index of the reforms, recently constructed by *Morley, Machado, and Pettinato* (**ECLAC**, 1999), for 17 countries in LAC, we find that *the greater the time and depth of the reforms, in general they correspond to a greater dynamism in the economy and vice-versa, the lesser the time and depth of the reforms, corresponds to a lesser dynamism.* Two groups are formed within this exercise, and the relationship is also present within the groups. A group of 12 countries which grows more dynamically and that in 1980

Figure 66. Reforms and economic growth



had already recorded the greatest progress with their reforms (five from the south, three from Central America, two Andean countries, one Caribbean, and to a lesser extent Mexico). There are two countries that belong to this group, but their reforms are more recent: El Salvador and the Dominican Republic. The other group consists of five countries, which have applied less time and depth to their reforms. They show less dynamic growth (one Central American, three Andean, and one Caribbean).

The *second observation* refers to the fact that there is a clear association between economic growth and agricultural growth, which suggests that: *the growth of agriculture is energized when the economy grows, especially when it takes place in contexts with less anti-export and anti-agriculture biases, and vice-versa, when agriculture grows the economy is energized, especially when agriculture bears a relevant weight within the economy.* For 31 countries in LAC, it was found that 14 countries fell in this situation (five from the south, three Andean, four Central American, and two from the Caribbean) (Figure 67). Inversely, an association was also found between lower rates of agricultural growth and lower economic growth rates In this case, 12 countries met these conditions

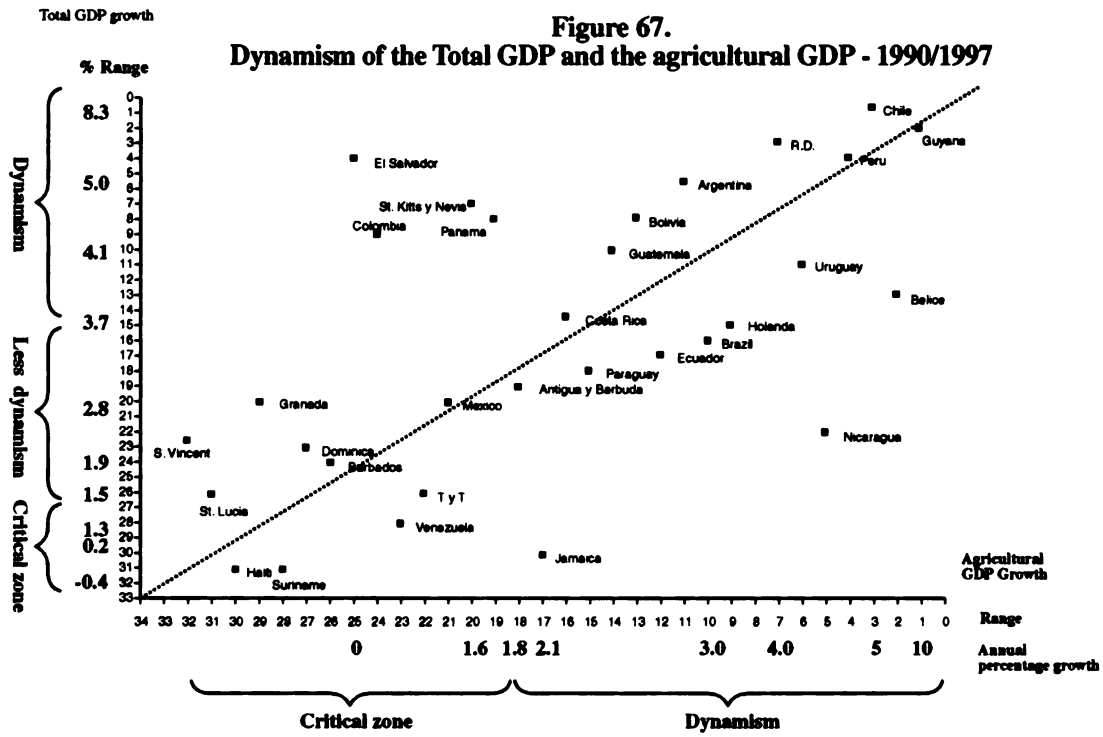


Figure 67.
Dynamism of the Total GDP and the agricultural GDP - 1990/1997

(10 Caribbean, one Andean, and one from the North). All of the countries in this second group are located in a critical agricultural growth zone. One group of four countries (2 Central American, one Caribbean, and one Andean) recorded good dynamism in their economy, but very low in agriculture.

The *third observation* refers to the relation between per capita income and agricultural share of the total GDP (Figure 68). This association indicates that: *the greater the per capita income in a country,*

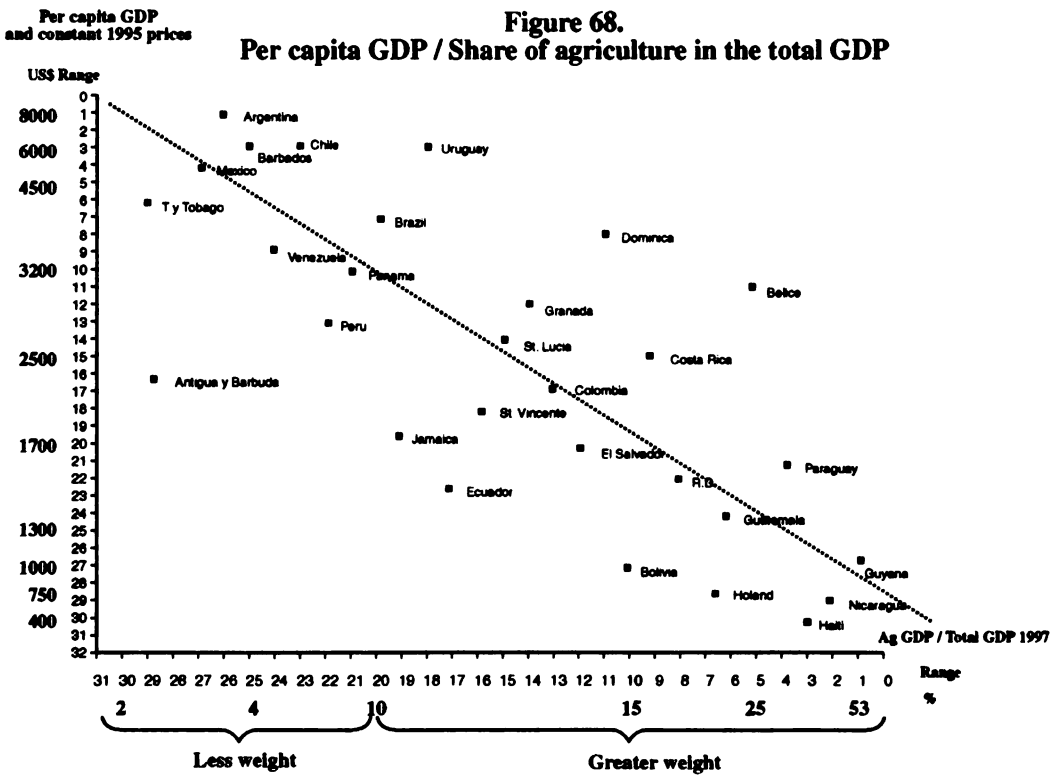


Figure 68.
Per capita GDP / Share of agriculture in the total GDP

the lesser the share of agriculture in the total GDP, and vice-versa, the lower the per capita income, the greater the share of agriculture in the total GDP. Among a total of 29 countries in LAC, 11 countries were found (3 Caribbean, 4 from the South, 2 Andean, one Central American, and one from the North) with the highest incomes and the lowest share of agriculture in the total GDP. There is a group of 8 countries where agriculture has the greatest weight in the GDP and registers the lowest per capita incomes (2 Caribbean, 3 Central American, one from the South, and one Andean). However, a group of 10 countries also stands out where the relation income/ agricultural weight is in transition (5 Caribbean, 3 Central American, and 2 Andean).

The *fourth observation* refers to the clear association that exists between the income levels and the urban/rural population (Figure 69). This association indicates that: *the greater the rural population, the lower the income, and vice-versa, the greater the urban population, the greater the income.* Three groups were found in a total of 28 countries. There are 10 countries that fall completely in line with this association of greater rural population, lower income (3 Central American and 7 Caribbean). The second group of 11 countries falls fully in line with this association, but in the other extreme, i.e., the greater the urban population, the greater the income (4 from the South, 3 Andean, 1 Central American, 2 Caribbean, and one from the North). Seven countries fall in an intermediate or transitory situation, but one that clearly forms a part of the association (2 Andean, 2 Caribbean, 2 Central American, and one from the South). An atypical case is Barbados, a country with a rural majority but with a per capita income among the highest in LAC.

Figure 69. Per Capital GDP / Urban Rural Population 1997

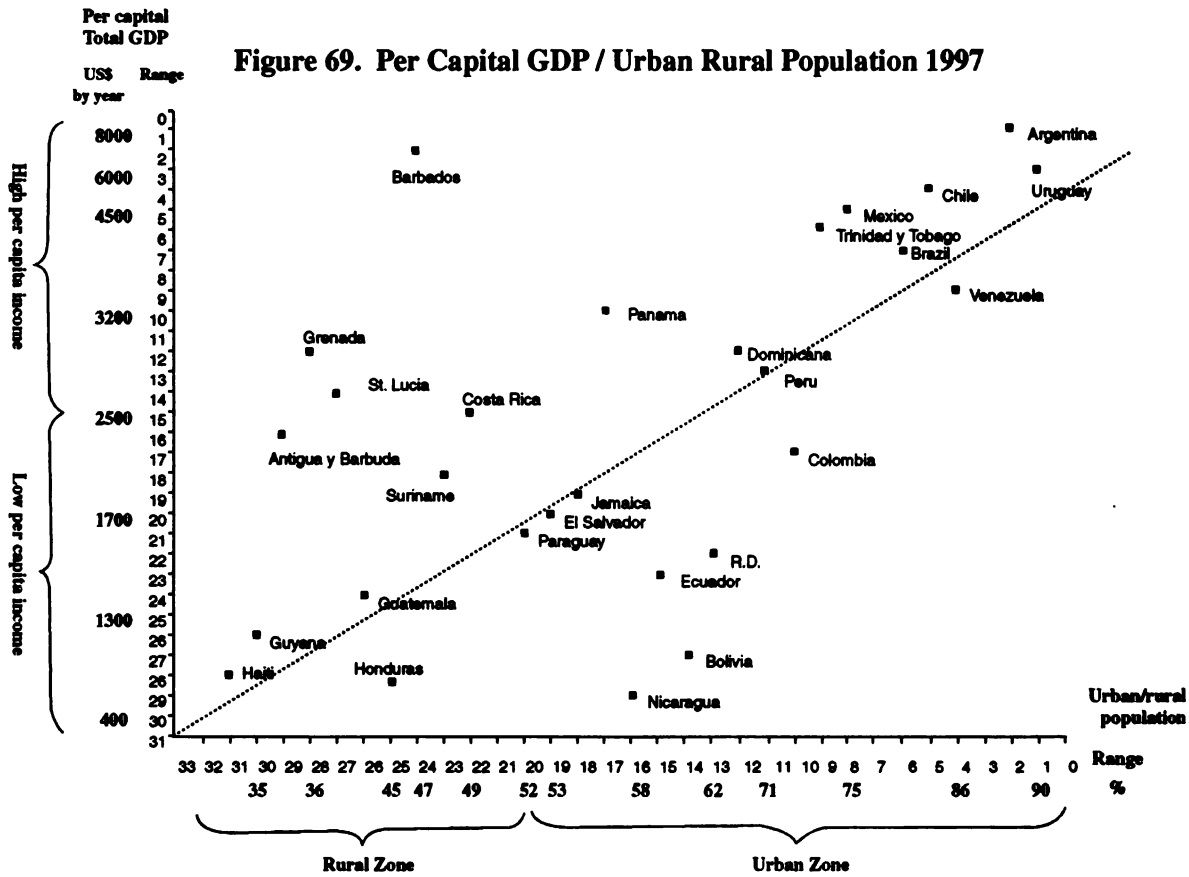
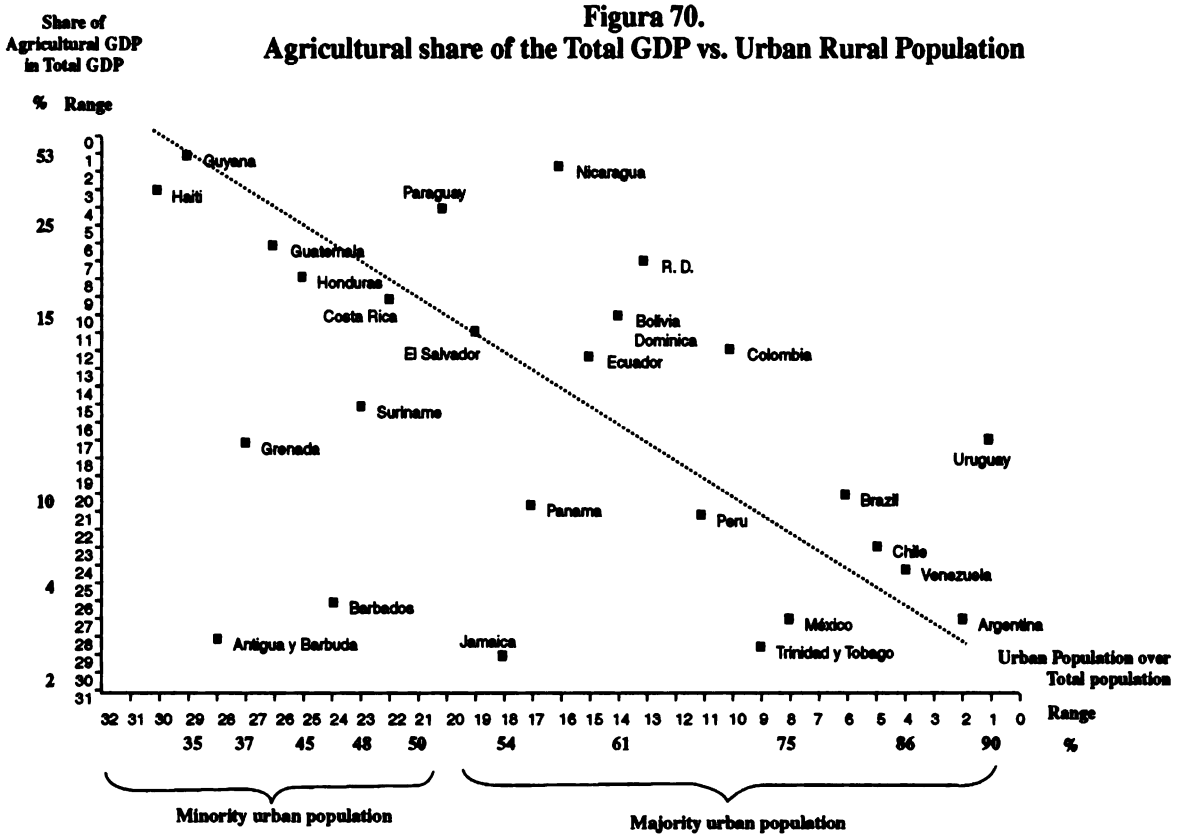


Figura 70.
Agricultural share of the Total GDP vs. Urban Rural Population



The *fifth observation* is with regard to the relationship between the two preceding associations, between the contribution of agriculture to the total GDP and the urban/rural population (Figure 70). This association shows that: *the greater the urban population the lower the weight of agriculture in the total GDP, and vice-versa, the greater the rural population, the greater the share of the total GDP.* From among the 27 countries four groups were identified, two of which are in alignment with this association and two that differ from it.

In the first case, on the one hand, there are 10 countries with an urban majority population and a low share in the overall GDP (4 from the South, 2 Caribbean, 2 Andean, one Central American, and one from the North), and on the other hand, there are six countries with a rural majority, where agriculture has a large share in the total GDP (one from the South, 3 Central American, and 2 Caribbean). In the second case, on one side we have seven countries that have an urban majority, but whose agriculture has as large share in the total GDP (3 Andean, 2 Caribbean, and 2 Central American), on the other there are four countries which have a rural majority population, but agriculture has little weight in the GDP (the 4 are Caribbean).

The *sixth observation* refers to the relationship between agricultural growth and its share in the total GDP (Figure 71). Although there is no association per se, the implications of the relationship between these two variables are extremely important, especially for a significant number of 13 countries (7 Caribbean, 2 Central American, one from the South, 2 Andean, and one from the North), where agriculture falls in the critical zone.

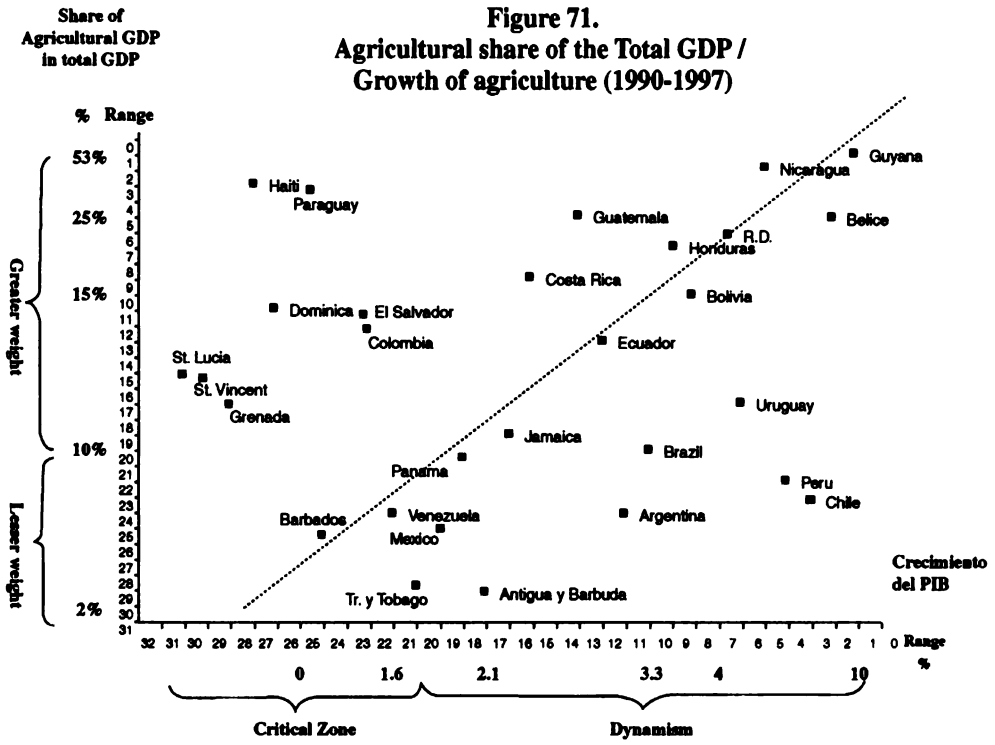


Figure 71.
Agricultural share of the Total GDP / Growth of agriculture (1990-1997)

For eight countries in this group (6 Caribbean, one Andean, and one Central American) the economic and social implications of the minimal growth in their agriculture is worrisome, since it is of import within their total GDP. In contrast, agriculture is growing dynamically in the other group of 16 countries (4 Caribbean, 5 Central American, 4 from the South, and 3 Andean). These 16 countries are positioning agriculture within their economies, and in nine of them, agriculture has an important share of their total GDP (5 Central American, 2 Caribbean, and 2 Andean).

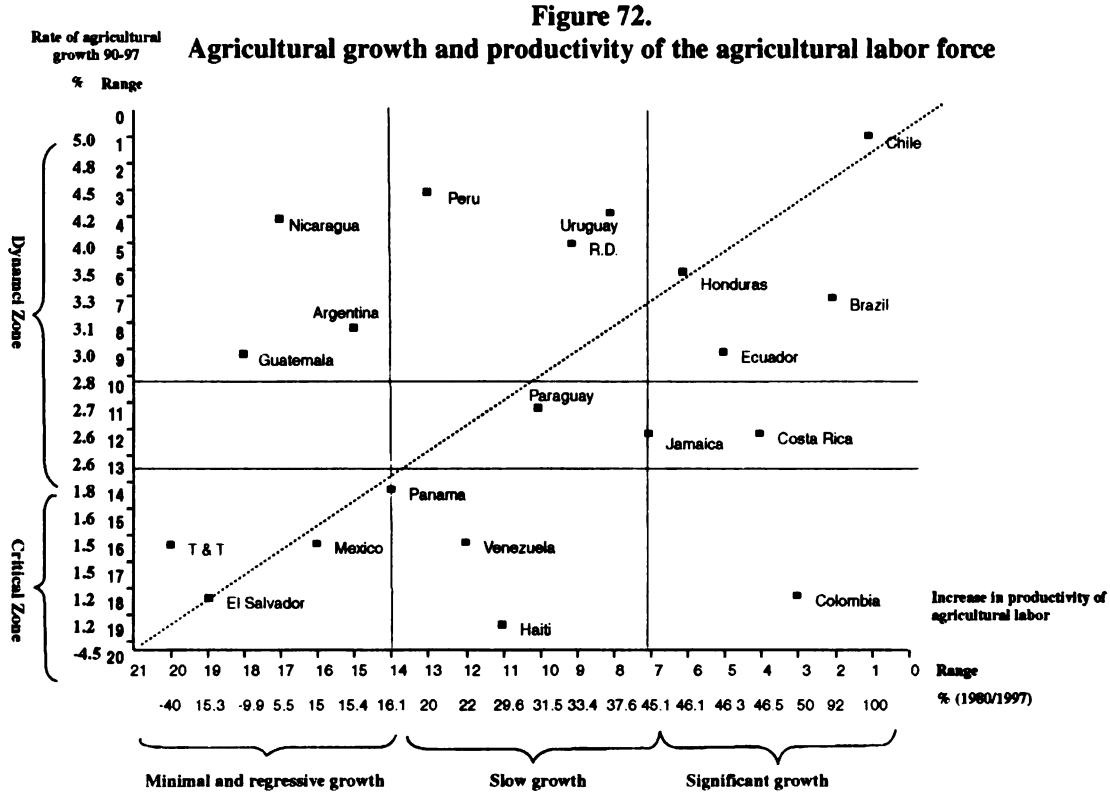
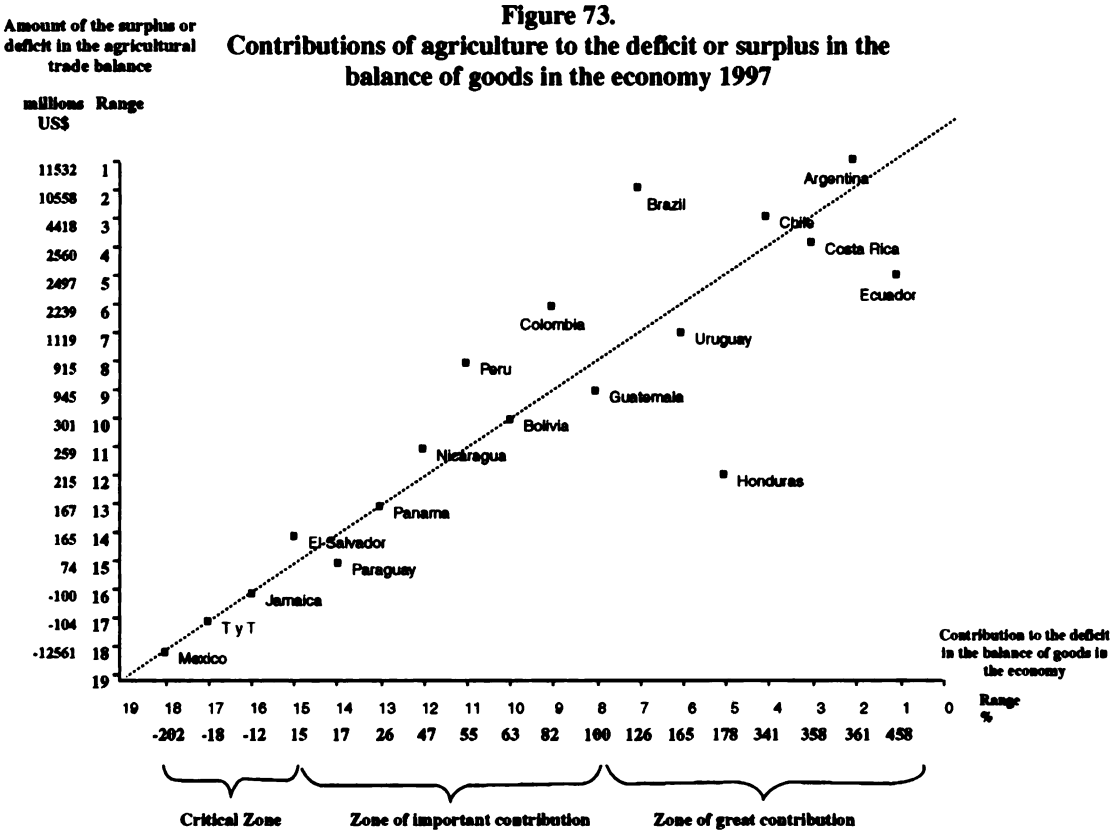


Figure 72.
Agricultural growth and productivity of the agricultural labor force

The *seventh observation* refers to the relationship that exists between agricultural growth and agricultural labor productivity (Figure 72). Although there is no very clear association, its implications in terms of agriculture income and greater competitiveness in open markets, are important and a necessary condition. In 20 countries for which the data were available, we can define three significant groups. The first comprises those that had a scant increase in their labor productivity and recorded low growth rates for agriculture, which are six (2 Caribbean, 2 Central American, one Andean, and one from the North).

The second group of nine countries consists of those that had a significant increase in their productivity and recorded dynamic agricultural growth (4 from the South, 2 Central American, 2 Caribbean, and one Andean). The third group is constituted by the four countries with slow or no growth in productivity, which nevertheless achieved dynamic rates of growth in agriculture (2

Figure 73.
Contributions of agriculture to the deficit or surplus in the balance of goods in the economy 1997

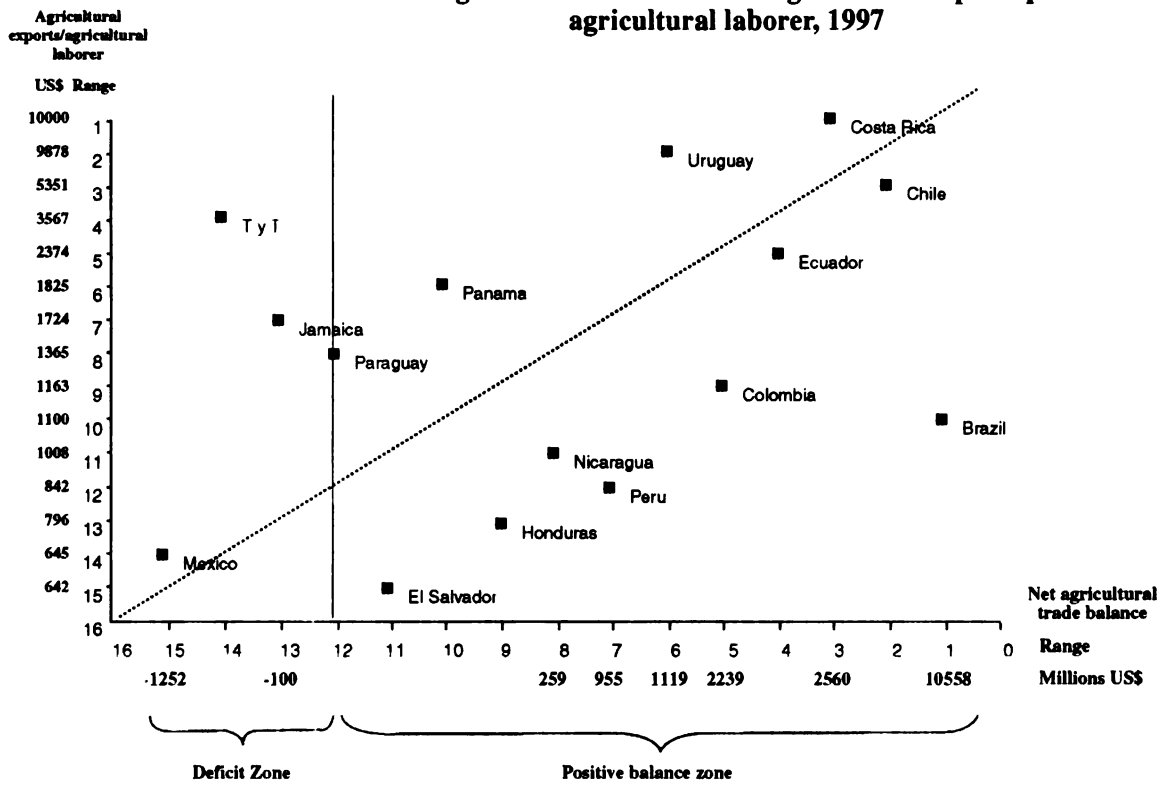


Central American, one from the South and one Andean). Colombia is an extreme case, recording significant increases in agricultural labor productivity, but obtaining low rates of growth in agriculture.

The *eighth observation* refers to the relationship between agricultural trade balances and the balance for goods within the economy as a whole (Figure 73). Beyond a direct association between one and the other, in general, in most of the countries agriculture is a net contributor of significant amounts of foreign exchange. In a sample of 18 countries, it was found that only three are not contributors, instead requiring exchange inputs (2 Caribbean and one from the North).

In eight of the countries, the positive agricultural trade balances show values that represent between

Figure 74.
Net Agricultural trade balance/agricultural exports per agricultural laborer, 1997



100 percent and 500 percent with regard to the total trade goods deficits (4 from the South, 3 Central American, and one Andean). The other seven contributors have positive amounts that represent between 85 percent and 15 percent of their total goods trade deficit (3 Andean, 3 Central American, and one from the South).

The *ninth observation* refers to the relationships among the agricultural trade balance, the agricultural export capacity per laborer and agricultural labor productivity (Figure 74). In general an important association can be seen among these variables indicating: *the greater the export capacity per laborer and the greater the productivity of agricultural labor, the greater the surplus in the agricultural trade balance, and therefore, the greater the contribution to the total trade balance; vice-versa, the lower the export capacity per worker and the lower the agricultural labor productivity, the lower the surplus or even the greater the deficit in the agricultural trade balance, and therefore the lower their contribution, or the greater their demand for exchange within the total trade balance.* There are eight countries that record higher levels of surplus in their agricultural trade balance and contribute to their respective total goods trade balance deficit. Six of them record the highest increase in agricultural labor productivity, and at the same time a fall in the group of countries that export more per agricultural laborer.

There are seven more countries within this association, but in an inverted sense, i.e., lowered export capacity, lower productivity increase, lower agricultural trade surplus, or even deficit, and therefore, lower contribution to the overall trade balance. Among these countries, the contribution to the overall trade deficit is lower, varying in a declining range from a 50 percent contribution to less that 200 percent of non-contribution. Five of them show minimal increases or reductions in agricultural

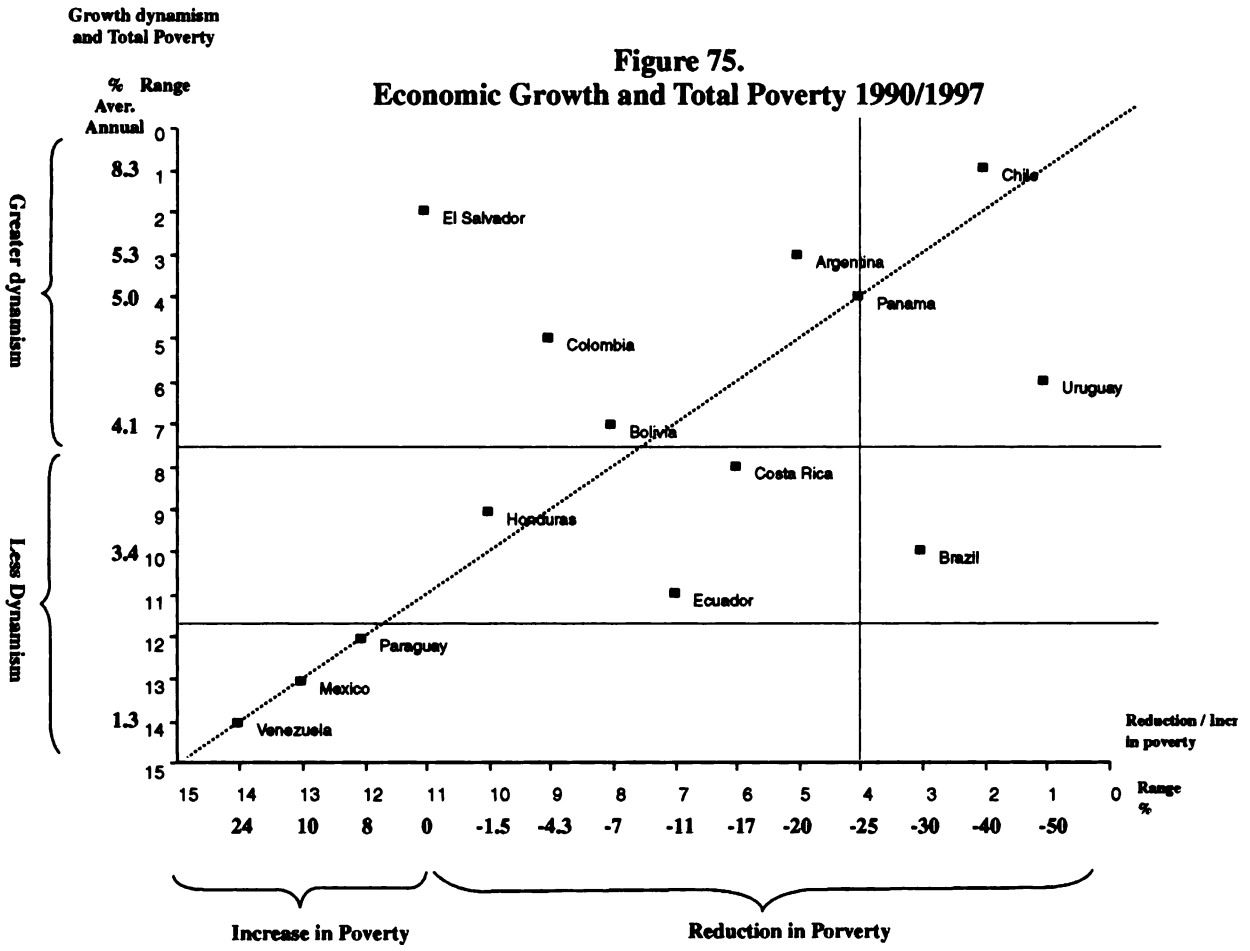


Figure 75.
Economic Growth and Total Poverty 1990/1997

labor productivity and offer the lowest agricultural export capacity per laborer.

The *tenth observation* refers to the association existing between economic growth and poverty (Figure 75). This association indicates that: *greater economic growth corresponds to a greater reduction in overall poverty levels, and vice-versa, lower growth rates, especially when they are equal to or less than the population growth rates, correspond to lessened poverty reduction or even to an increase thereof.* In a selection of 14 countries with information available, ten countries grew with greater dynamism and reduced poverty levels (4 from the South, 3 Central American, and 3 Andean). One atypical case among these countries is El Salvador, which showed significant economic dynamism, but maintained the same level of poverty.

Three countries fall in the other extreme of this association, i.e., the countries with slow growth and poverty increases (one from the South, one Andean, one from the North). Furthermore, the variations in poverty and rural indigence indicate that seven of the 14 countries for which information was available recorded significant reductions in both rural poverty and rural indigence. Additionally, six of these seven countries saw a greater reduction in rural indigence than rural poverty. In only two countries did rural poverty and rural indigence increase. These two countries are among the three where total poverty increased.

Two annotations are needed: first, the information in three of the 14 countries refers to urban poverty, although the rest refer to total poverty, and the periods are not exactly the same in all cases, although the majority refer to the lapse between 1990 and 1997. However, the foregoing preliminary conclusion leads to

a general idea about these trends. Second, this empirical observation does not necessarily obey a simple relationship between economic growth and poverty reduction, such as the "Kuznets Curve" (Kuznets, 1955), and even less the "trickle-down effect" theory, which would correct the income inequalities once accelerated economic growth had occurred (Arroyo, Escudero, 1996). In the first case, behind these reductions in poverty levels, in a majority of countries economic growth was combined with programs expressly designed to attack poverty. In this perspective, economic growth is a necessary but not a sufficient condition. In the second case, evidence shows, as we have already mentioned, that the unequal income distribution of the 90's, precisely in the context of greater growth, has returned to the prior levels of the 70's (BID, 1997).

Table 28. Rural population dynamics, productivity and agricultural growth

Country	Rural population growth	Farm workers growth	Farm Worker/Rural Population (%)		Farm worked productivity	Agricultural growth rate
	(%)	(%)	1980	1997	(%)	
Brazil	-10	33	32	46	92	3.3
Chile	-4	40	32	47	100	5
Colombia	50	11	32	24	50	1.2
Costa Rica	38	12	21	17.3	47	2.8
Dom. Rep.	10.7	2	25.3	23.9	33.4	4.5
Ecuador	14	26	25.3	28	46.3	3
El Salvador	7.7	75	26.3	42.6	-15.3	1.2
Guatemala	48.9	140	21.9	35	-9.9	2.8
Honduras	39	0	37.8	27.2	46.1	3.3
Jamaica	9	8	21.3	21.9	45	2.6
Mexico	0	0	51.7	50.6	15	1.8
Nicaragua	43	29	26.1	24.1	5.5	4.5
Panama	20	49	17.9	22.6	16	1.8
Paraguay	27.7	34	30.3	30.3	32	2.7
Peru	10	80	24.7	40.4	20	4.8
Trinidad &Tobago	-20	56	8.6	18.2	-15	1.5
Uruguay	-25	-18	48.1	57.2	38	4.2
Venezuela	0	-7	26.9	22.2	22	1.5

Prepared with data from ECLAC, 1998 & WB, 1998-99

Table 29. Relation between agricultural laborers and rural population in selected countries

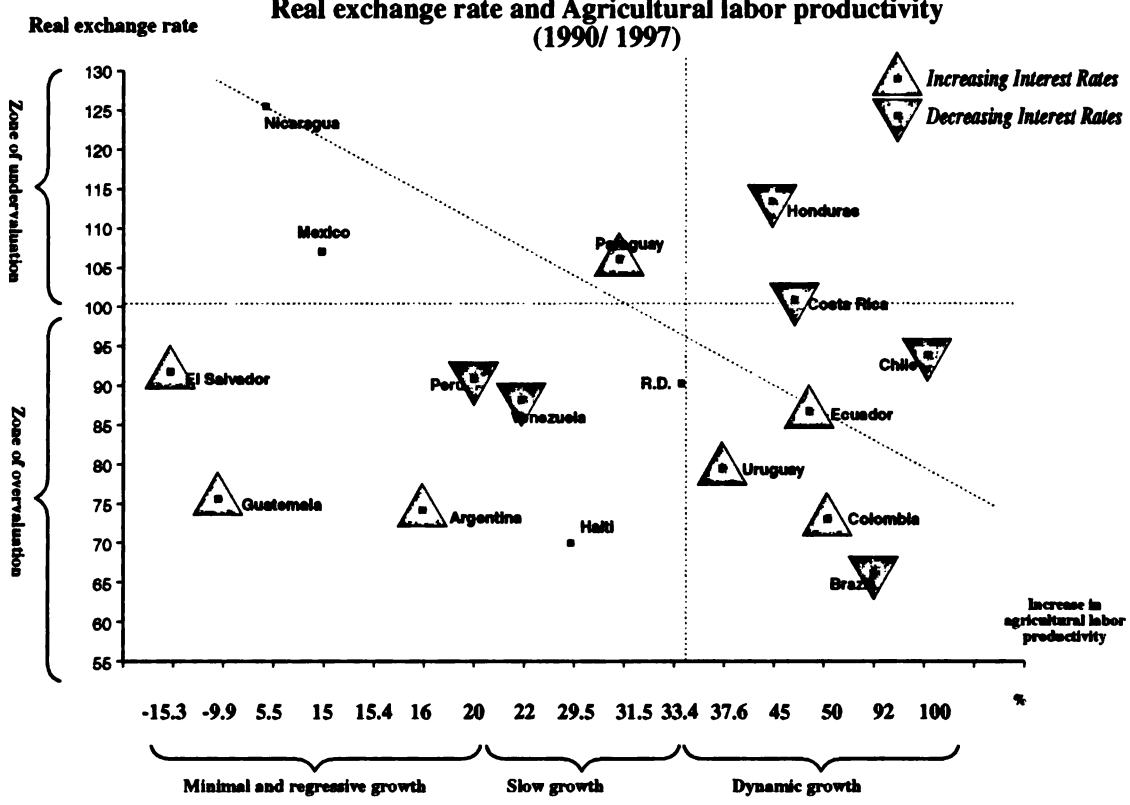
Countries	Total Population (Millions of pers.)		Rural Poblation (Millions of pers.)		Agricultural Labor Force (millions)		Increase	Workers/Rural Population (%)	
	1980	1997	1980	1997	1980	1997	(%)	1980	1997
Argentina	28.1	35.7	4.8	4.1		1.645			40.4
Brazil	121.7	163.7	39.8	36.0	12.600	16.696	33	31.7	46.4
Chile	11.1	14.6	2.3	2.2	0.739	1.036	40	32.0	47.0
Colombia	28.4	40.0	10.1	15.2	3.293	3.644	11	32.6	24.0
Costa Rica	2.3	3.5	1.3	1.8	0.275	0.309	12	21.0	17.3
Dom. Rep.	5.7	8.1	2.8	3.1	0.721	0.735	2	25.3	23.9
Ecuador	8.0	11.9	4.2	4.8	1.070	1.345	26	25.3	28.3
El Salvador	4.6	5.9	2.6	2.8	0.675	1.181	75	26.3	42.6
Guatemala	6.8	10.5	4.3	6.4	0.934	2.242	140	21.9	35.0
Honduras	3.6	6.0	2.3	3.2	0.884	0.882	0	37.8	27.2
Jamaica	2.1	2.6	1.1	1.2	0.238	0.256	8	21.3	21.9
Mexico	67.6	94.3	23.3	23.6	12.065	11.922	-1	51.7	50.6
Nicaragua	2.9	4.7	1.4	2.0	0.370	0.476	29	26.1	24.1
Panama	2.0	2.7	1.0	1.2	0.180	0.268	49	17.9	22.6
Paraguay	3.0	5.1	1.8	2.3	0.530	0.711	34	30.3	30.3
Perú	17.3	24.4	6.2	6.8	1.531	2.760	80	24.7	40.4
Trinidad & Tobago	1.1	1.3	0.5	0.4	0.041	0.064	56	8.6	18.2
USA	227.2	267.6	56.8	88.3		4.512		0.0	5.1
Uruguay	2.9	3.3	0.4	0.3	0.208	0.170	-18	48.1	57.2
Venezuela	15.1	22.8	3.2	3.2	0.858	0.710	-17	26.9	22.2

Source: Prepared with data from ECLAC, 1998.

The *eleventh observation* refers to the relationships among agricultural employment generation, agricultural growth, and agricultural labor productivity (Tables 28 & 29). Of the 18 countries with information, between 1980 and 1997, in nine of them the number of agricultural laborers grew more dynamically that the number of rural dwellers (3 from the South, 2 Andean, one Caribbean, and 3 Central American). Of these nine, five combined agricultural employment generation with high rates of growth in the agricultural sector and high rates of growth in agricultural labor productivity (the 3 from the South and the 2 Andean). In the other four countries, employment grew significantly, but in three of them with low rates of agricultural growth and reductions in labor productivity (one Caribbean and the 3 Central American). In the first group, the situation suggests employment generation on the basis of greater income, and in the second group, it suggests rather a "masquerade" of employment generation, under-employment or low-paying employment.

The other group of six countries (one Andean, 3 Central American, and 2 Caribbean) significantly increase the number of rural dwellers, but with little increase in agricultural employment, although four of them record a dynamic growth in agriculture and five of the six show significant increases in labor productivity. Another two countries maintain the same number of rural inhabitants and rural laborers, showing slight increases in productivity and low growth rates for agriculture (one Andean and one from the North). Finally, one country from the South shows a reduction in rural population and also, but to a lesser degree, in agricultural laborers, nevertheless, it registers significant increases in agricultural labor productivity.

FigurE 76.
Real exchange rate and Agricultural labor productivity
(1990/ 1997)



The *twelfth observation* refers to the relationship that exists between exchange rates and labor productivity in agriculture (Figure 76). The exchange rate is one of the variables that has great bearing on competitiveness and profitability, especially over the short term. In a selection of 17 countries, we found, in general terms that a majority of them (12 countries) have an overvalued exchange rate for the 1990-1997 period, (4 from the South, 4 Andean, 2 Central American, and 2 Caribbean). Furthermore, it can be seen that there is a trend in one half of them to compensate their currency overvaluation, which degrades competitiveness by making exports more expensive and cheapening imports, by increases in agricultural labor productivity. In addition, there are four countries that present an overvalued exchange rate, where three of them have slight increases in productivity, which might suggest that it is the exchange rate that is subsidizing the lack of dynamic growth of the former. A single country maintains an exchange rate in equilibrium, as well as showing important productivity increases. In a contrasting and worrisome situation, which indubitably must keep agricultural profit levels under pressure, there are another six countries (2 Central American, 2 Andean, one Caribbean, and one from the South). In these countries the overvalued exchange rate is combined with weak increases in agricultural productivity, or even with declining productivity.

We proceed to incorporate the interest rate variable to the two preceding variables, exchange rate and productivity, which have an important bearing on investment and capital increases, and therefore, on productivity. We can see that among the 13 countries with information, seven underwent a severe interest rate hike, in good measure to attract foreign capital and also to hold down internal inflation. On the other hand, in another six countries, these rates dropped during the period under consideration. Three of the six countries that are in the overvalued zone and in the critical productivity zone also present an upward trend in their interest rates. Definitely, in these countries agricultural profitability must be undergoing downward pressures. This situation is similar to that occurring in another three countries that are in the overvalued currency zone, and which, even with significant increases in productivity, have high interest rates. A final observation, is that within the group of eight countries in the high productivity zone, seven of them are important generators and savers of foreign exchange earnings and important contributors or compensators of the foreign trade deficit for goods and services in their countries.

2.2.4.2 Towards a grouping of the countries according to the position of their agricultural sector

There are characteristics and orientations that can be generalized among counties at the aggregate level. These include the macroeconomic environment and policies, as well as their general orientation to open markets and integration, and ultimately, their insertion in the globalized economy. However, as was mentioned previously, these are neither unique nor linear, nor do they have the same dynamism or incidence.

The Americas do not have a sole agriculture or rural milieu; rather, there are several agricultures and rural milieus requiring different treatments. Each region and each country is different from the others. In fact, within each country there are different types of agriculture. This is one of the basic conclusions confirmed in this monograph. There are different natural, productive and human resources. Their economies, agriculture and rural milieus have different structures. The history of the relationships with the rest of the economy is also different, as well as the macroeconomic contexts, which influence agriculture and the rural milieu in such a determined manner, which vary in their specific characteristics from one country to another. Therefore we should not wonder at the

fact that the forces of globalization and implementation of economic reforms have different degrees of development and different terms of application among the countries and influence agriculture and the rural milieu in each country and region differentially.
Taking into account the more general and common characteristics, but also the specifics and differences between countries, we reached an agglomeration of two sets of countries in LAC according to their agricultural and rural milieu characteristics. The decision was made to group them on the basis of their agricultural dynamism (greater than or less than 2% annual growth), and where the per capita foodstuff production is negative during the 90's. With these two criteria, 15 of the 31 countries with information fall in "Group A" (GA). This group includes: Argentina, Belize, Brazil, Bolivia, Costa Rica, Chile, Dominican Republic, Ecuador, Guatemala, Guyana, Honduras, Jamaica, Nicaragua, Peru, and Uruguay. The other group of 16 countries, known as "Group B" (GB), includes: Antigua and Barbuda, Barbados, Colombia, Dominica, El Salvador, Granada, Haiti, Mexico, Panama, Paraguay, St. Kitts and Nevis, St. Lucia, St. Vincent, Surinam, Trinidad and Tobago, and Venezuela.

In general terms, GA is characterized by including most of the countries that present dynamic growth in agriculture accompanied by dynamic economic growth. A majority of countries that have increased their per capita food production, agricultural productivity and yields also falls in this group. Finally, it includes a majority of those that have more advanced reforms, those that have reduced poverty, a majority of the foreign exchange contributors, and those that have greater exports per worker.

The other group of countries, GB, includes a majority of those that have lower growth rates in agriculture and those that have recorded lower economic growth rates. It includes a majority of those with reduced foodstuff production per capita, and a good part of those with minimal productivity and yield increases. Those that have more recent reforms and less encompassing ones are also well represented. This group includes part of those that have shown less poverty reduction or an increase thereof. Finally, it also includes part of those that have contributed less significantly to the trade deficit for total goods and those requiring exchange to defray their imports. Most of the countries that are net food importers fall in this group (**Arias and Bogantes**, 1999).

Not all of the characteristics present in one or the other group ass a whole are present in each of the constituent countries. There are countries with all of the group's characteristics and others that combine characteristics from both groups. The foregoing suggests that these are complex phenomena in evolution. Only a case by case analysis will provide a greater level of precision and exactitude.

2.2.5 Support services for agriculture and institutionality

Agricultural support services, which to a great extent depended on public expenditure, have been transformed over the last 17 years. In many cases, they have deteriorated, in others they are beginning to develop, but it is possible to conclude that their current performance in many countries is insufficient and will require a tremendous effort to be able to consolidate them to accompany agricultural development with a greater impact. At the general aggregate regional level there has been a dynamic drop and insufficient development and consolidation of public and private organisms in strategic areas. At the same time we detect interesting public and public/private experiences in several of the countries, with greater or lesser development and also more or less success, or failure, which may provide important lessons through knowledge and information exchange in this regard.

Outstanding strategic support services for agriculture include technological innovation, extension, agricultural health, food safety, information in general, and price and market information in particular, marketing, education and training, collaborative action, and negotiations in general.

2.2.5.1 Research and technology transfer activities supporting agriculture are in transformation, but they show a worrisome lag with regard to the dynamism of internal changes, especially those related to the world agri-foodstuff economy.

Table 30. Selected Countries: Technological Characteristics of Research and Development

Countries	R&D expenses	R&D's Scientist and Engineer	R&D's Technical	Hi Technology Exportations		World Economy size
	% PIB	By millions of people	By millions of people	1997		1997
	1985-95	1985-95	1985-95	Millions of US$	% manufactured exportations	Range
Argentina	0.4	671.0	149.0	1,355.0	15.0	17.0
Brazil	0.6	168.0	59.0	5,175.0	18.0	8.0
Canada	1.6	2,656.0	1,073.0	33,068.0	25.0	9.0
Chile	0.7		231.0	480.0	19.0	43.0
Costa Rica	0.2			95.0	14.0	87.0
Ecuador	0.1	169.0	215.0	53.0	12.0	72.0
Guatemala	1.1	99.0	107.0	94.0	13.0	75.0
Mexico	0.4	213.0	73.0	29,692.0	33.0	16.0
Peru	0.6	625.0	188.0	99.0	10.0	46.0
USA	2.5	3,732.0		197,657.0	44.0	1.0
Venezuela	0.5	208.0	32.0	249.0	10.0	41.0
France	2.4	2,584.0	2,874.0	68,655.0	31.0	4.0
Australia	1.7	3,166.0	792.0	6,415.0	39.0	14.0
Norway	1.7	1,814.0	2,200.0			20.0
Denmark	1.9	2,647.0	2,656.0	6,174.0	27.0	25.0
Germany	2.4	2,843.0	1,472.0	112,243.0	26.0	3.0
India	0.8	149.0	114.0	2,654.0	11.0	15.0
Israel	2.2			6,870.0	33.0	38.0
Japan	2.9	6,309.0	828.0	152,431.0	38.0	2.0
Spain	0.9	1,210.0	342.0	13,452.0	17.0	10.0
South Africa	0.7	938.0	286.0			31.0
Rep. of Corea	2.8	2,636.0	317.0	44,433.0	39.0	11.0
Singapore	1.1	2,728.0	353.0	74,585.0	71.0	36.0
Malaysia	0.4	87.0	88.0	39,490.0	67.0	37.0

Source Preprared with data from WB, 1998-99

In terms of research and technology transfer in general (Table 30), and for agriculture in particular, concern centers on the insufficient standards for investment and human capacities that the countries in the region show with regard to the rest of the world and our leading and competing countries. The reduction in expenses in agricultural research, of at least 1.1 percent per year recorded in LAC since the beginning of the 80's, occurred at a time when the rest of the world's countries were increasing their R & D expenditures, which served only to broaden the gap in technological capacities.

According to current income and economic development levels, the region should invest in agricultural research and technological development around 1 percent per year as a proportion of the agricultural GDP. However, according to IICA estimates for 1999 (**Ardila**, 1997), this figure will be close to 0.4 percent, below the 0.49 percent of 1981 and the 0.45 percent during the 1992/1993 period, showing a clear downward trend for the 90's.

This situation contrasts with the recent trend identified in other countries, especially among the developed countries and the region's competitors. These countries, faced by a reduced relative share of agriculture in total GDP and at higher per capita income levels, provide greater relative investments in agricultural research, reaching an average equivalent to 2.5 to 3 percent per year of the agricultural GDP.

The loss in levels of investment and the need to redirect activities in a changed agricultural situation, in particular due to the obsolescence of a great deal of the technology for basic foodstuff production, generates additional needs and pressures for substantial changes in management forms and research and extension organizations to satisfy new and growing technology demands.

In consequence, a new technological paradigm is being adopted, which closes one cycle of institutional life, that had allowed the birth and consolidation of a broad institutional infrastructure. It must now accelerate institutional transformation, under a new systems model of scientific and technological innovation, in the face of growing demands and with a vision of linkages and participation of all public and private actors (**Alarcón**, 1996, **Morales**, 1998).

This leads to a re-conversion of lines of work, reconstruction of capacities and development of new organizational and managerial models. Agricultural extension and rural extension in LAC is not exempt from review, re-invention and changes in institutionality. This was seen from the experience of several countries, as collected by IICA in a recent workshop (**IICA**, 1998) ,where the Latin American Agricultural Extension Association (ALEA, in Spanish) and a number of countries (Colombia, Chile, Argentina, Costa Rica, Mexico, and the Dominican Republic) shared their experiences.

From mechanical, chemical, and energy intensive processes to biotechnological and information processes. This is, in essence, the great technological change in the world's agriculture at the end of the 20th Century. From the technological standpoint, biotechnology is and will continue to be the pivot of the new technologies for agriculture. Although world markets for biotechnological products continue to be less than expected and less than investments since the 70's, for the next five to ten years an exponential growth in investment and return can be expected (**Salles-Filo**, 1998).

The impact of transgenic plants in agricultural development. Development trends in agriculture are being influenced by the rise of new biotechnologies, and these will continue to impact with ever-greater force. The marketing of products modified genetically with biotechnological techniques is not only facilitating production increases and productivity, but also modifying the characteristics of agricultural supply itself (**Alarcón and others**, 1999).

The significant impact in production and productivity of already developed commercial crops is leading to obvious benefits, although there are serious controversies on the presumed adverse effects from the direction taken by technological change on natural resources, the environment, trade, animal, plant, and human health.

The impact of some of these can be managed or minimized if international commitments are instrumented and made compatible and legally binding, such as those derived from the Convention on Biological Diversity and the World Trade Organization. Other impacts will be more difficult to control, such as that which may occur with the substitution of exportable tropical crops by substitutes produced in other climate zones, or due to the reduction in labor demand from the use of cultivars less demanding of pesticides or fertilizers.

The world and regional environment for new biotechnologies and their impact on agriculture. In several developed countries and some of the developing countries, agricultural production systems

with transgenic plants have begun to assume considerable importance (Table 31). In 1996, there were 2.8 million hectares planted commercially with transgenic plants; for 1997, this figure increased 4.5-fold to a total of 12.7 million hectares planted with transgenic stock. In 1998, 27.8 million hectares were planted with transgenic plants; the United States participated with 74 percent of this total. For this year, 1999, expectations are that there will be 60 million hectares planted in the commercial environment.

Table 31. Total world area cultivated with transgenic plants
(Millions of hectares and percentage share by crop)

Cultivo	1996		1997		1998	
	Has	%	Has	%	Has	%
Soybeans	0.5	19	5.1	40	14.5	51
Corn	0.27	10	3.2	25	8.3	30
Cotton	0.8	29	1.4	11	2.5	9
Canola	0.14	5	1.2	10	2.4	9
Tabacco	1	35	1.7	13	nd	nd
Potatoes	0.03	1	0.1	1	0.1	1
Total	2.8		12.7		27.8	100

Source: Adapted of ISAAA 1998.

Among the eight major crops or crop groups, canola, corn, cotton, potatoes, rice, soybeans, tomatoes, horticultural produce, and fruits, a total of 17 varieties have already been marketed. Another 35 varieties are in field tests and in the development phase. These data confirm that the fields have been planted commercially or are under research and development of new transgenic products, which have already been released or are close to being marketed over the short term.

Current research continues to increase the efficiency and reduce costs for the development of transgenic plants. The use of genetic markers for genetic improvement has increased its precision and reduced the time necessary for the development of new cultivars. A majority of this research is being carried out in the developed countries, naturally in those crops that are of economic interest to them. During the last two years, growth in the use of transgenic products in the industrialized countries was almost five times greater than that of the developing countries (13.9 versus 2.9 million hectares) (Table 32). This worldwide increase in the production and use of transgenic plants, allows us to estimate that in the coming 10 years, around 80 percent of the area planted commercially will be planted with transgenic crops.

Table 32. Distribution by countries of the area cultivated with transgenic plants in 1997 and 1998.

Country	(Millones de hectáreas)	
	Año 1997	Año 1998
USA	8.1	20.5
Argentina	1.4	4.3
Canada	1.3	2.8
Australia	0.05	0.1
Mexico	0.05	0.1
Spain	---	0.1
South Africa	---	0.1
China	1.8	

Source: Adapted of ISAAA 1998.

The countries in the region need to develop a capacity to safely utilize these products, if they are to avoid being left behind in technology and continuing to lose competitiveness in the face of others around the world. Logically, they must make a technical and objective evaluation of the possible risks to human health, the environment, and agricultural production, due to the introduction of these products derived from the new biotechnologies, especially in tropical ecosystems.

Research must be carried out to allow knowledge of the expression and stability of the incorporated genes at the ecosystem and micro-region levels, in botany and the geographic distribution of the species that are the centers of origin of the species cultivated. Technical bases must be established to allow studies of evaluation and handling of the risk, both for human health, the environment and agricultural production, when the introduction, production and marketing of transgenic plants are requested.

These strategies require infrastructure, trained personnel and field monitoring, to identify potential problems early on. The introduction of any new organism into a given ecosystem represents a potential risk, so that the release of genetically modified organisms (**GMO's**) into the environment requires careful supervision and follow-up. This is especially true if the introduction is to occur in the country that is the center of origin and diversity of many of the species cultivated, such as is the case in LAC.

The adoption and expansion of biotechnologies in LAC has been picking up in recent years. One of the points of reference used to measure the progress of biotechnological agriculture is the number of field tests in transgenic crops. This is estimated at around 870 for the last three years. However, with few exceptions, the transgenic crops destined to the agri-ecosystems in LAC have been developed in industrialized countries.

This is of concern but manageable, if at the same time the public sector is strengthened to promote technological change in those aspects of lesser interest to the private sector, and others that are strategic for the Region. This last aspect becomes more critical with the ongoing weakening of public institutions dedicated to scientific and technological development of agriculture, which as is natural, makes more vulnerable the capacity of the countries to generate added value from their autochthonous crops.

Even though several of the countries in the Region currently enjoy regulatory mechanisms in biosafety, the majority does not. What is more critical, they do not have a multi-interdisciplinary mass capable of analysis and risk management within a modern and effective methodological and regulatory framework for these new biotechnologies. Thus, they are unable to take advantage of the potential benefits while ensuring compliance with the necessary safety conditions to protect the environment, human health, agricultural production and an equitable distribution of their income for the welfare of their inhabitants.

Intellectual property rights and technological innovation. Intellectual Property Rights (IPR) have an impact on the direction of technical change in agriculture, the environment, natural resources, and biodiversity, access to genetic resources and agricultural commerce. These impacts have interactions among themselves; therefore policy design and action instruments for IPR in the area of technological innovation or agricultural commerce cannot be removed from the aforementioned aspects.

In the case of agriculture, where in the past, in spite of the efforts of the green revolution, the technology incorporated was not recognized, this is changing rapidly in recent years. Today it is generally recognized that applied knowledge and new ideas make up an important part of trade. This

new perception of agriculture, such as the contribution to economic growth through the export of diversified products, with high added value that protect the environment, among other things, leads to agricultural product trade incorporating greater proportions of innovations that make up a part of their value. For example, this is the case with flowers that last longer after being cut, cotton, corn, and wheat seeds resistant to insects and soybeans resistant to herbicides.

Agricultural marketing is catering ever more to a technology market. This is the case of trade in products that contain genetically modified organisms (GMO) through new biotechnologies.

During the second half of the 80's, several industrialized countries proposed solid arguments that showed that their exports to developing countries had declined, due to a lack of IPR protection. In the Uruguay Round of negotiations (General Agreement on Tariffs and Trade, GATT), for example, this was confirmed with statistical indicators that the "pirating" of works under copyright had increased. In effect, the degree of protection and compliance of IPR varied significantly from one country to another, in spite of the fact that different international agreements and norms already existed. This made it necessary to set new rules of the game on the international stage for the protection of intellectual properties.

Thus, in the Uruguay Round, the countries adopted the *Agreement on Aspects of Intellectual Property Rights Related to Trade (AIPRT),* in order for the member states of the World Trade Organization (WTO) to adapt their legislations to minimum protection standards. The developing countries, members of the WTO, must adopt it, adapt their legislations, and take the necessary steps to meet the minimum standards of protection set in the Agreement, and they have until the year 2000 to do so. The least developed countries have until 2005.

AIPRT sets minimum protection standards that must be met by all member countries in several different articles. One of them, highly significant for agriculture and to produce products based on conventional technologies and the newer biotechnologies, is the one referring to patentable material set in Article 27. Section 27.3 sets provisions that oblige WTO members to patent technological procedures and products; however, plants and animals are excluded, but not microorganisms, non-biological or microbiological procedures.

In the case of plants, there is a possibility of protecting vegetable varieties through *sui generis* systems such as the case of the DOV, or by means of patents or a combination of both. By not mentioning genes and vegetable cells or their derived products, these could be the object of patents, if they meet the conditions established in the laws, which are basically: universal novelty, inventive scope, and industrial application.

AIPRT instrumentation in the countries of Latin America and the Caribbean is not uniform. For example, with regard to Article 27 section 3.b, the countries of South America and Mexico enjoy legal frameworks that progress from explicit laws to provisions in the area of seed laws, which include the protection of cultivars. The countries of the Andean Region share a common regime of protection for vegetable derivatives.

Contrasting this situation, the countries of Central America have only proposed laws, with the exception of Panama which has promulgated a law and drafted a decree. In the Caribbean Region, there is also a vacuum of AIPRT instrumentation, with the exception of the Cuban case which has

certificates of invention and who are developing a DOV system, and Trinidad and Tobago, which is a member of the UPOV since 1998.
Another important aspect is the protection of products from the new agri-biotechnologies. Once they have been generated and proven, they are marketed internally and externally, and thus prove their worth for their creators. Due to the expectations for positioning in the markets and due to the large investments for their achievement, the creators of these innovations, especially in the developed countries, are interested in the patent system.

2.2.5.2 Animal and plant health activities and food safety require a greater and speedier development due to their importance in health in general and in the positioning of the products in international markets in particular.

The importance of agricultural and livestock health and the food safety is increasing as a result of country integration, increases in merchandise and human flows, due to urban development, and because of increasing quality of life (**WB**, 1999, **IICA**, 1998). This is a matter of public health and strategic international insertion of agriculture in the Americas that requires a "farm to table" approach, of combined action by the public and private sector and a preventive focus throughout the chain (**Mackenzie**, 1999).

In a majority of countries in the Americas, budgetary adjustments have been carried out and the staff has been downsized in public sector institutions, which to a greater or lesser extent have affected the official animal and plant health and food safety services. This situation has led to a greater involvement of farmers and agri-entrepreneurs, as well as professionals and institutions in the private sector, in the implementation of priority agricultural sanitation programs and actions in each country. Mechanisms have also been developed to finance the operation of official services through user charges for the provision of these services.

There are examples of successful cases in recent years, in countries where a more dynamic involvement by farmers and agri-entrepreneurs has been undertaken. These eradicated diseases and pests, and improved the inspection and export certification systems for agricultural and livestock products. Some examples of this are the eradication of hoof and mouth disease in Uruguay, Argentina, Paraguay, and southern Brazil, classical hog fever in northern Mexico, and fruit flies in Chile and Peru.

National agricultural health systems must fulfill the requirements for animal and plant health so that they are exempt from pathogenic agents or plagues. These systems must also be prepared to comply with ever stricter rules of sanitation and hygiene for agricultural and livestock products and foodstuffs for human consumption, for both domestic use and export (**Walker and Campos**, 1998).

The foodstuff export markets are even more demanding than domestic market regulations. Fresh foodstuff exports (such as fruits, vegetables, meat, and fish) represent an essential foundation for the Region's insertion strategies, given that these products have a greater demand elasticity for purchasers with higher incomes, and also because they have lower tariff barriers than traditional agricultural export products. However, fresh products are more likely to confront sanitary and phytosanitary barriers.

The Sanitary and Phytosanitary Measures Agreement (SPMA) of the World Trade Organization, which dates from 1994, establishes the foundations and guidelines to regulate this aspect of trade, as well as resolving conflicts on these regulations. There is evidence that this agreement facilitates trade, however, at the international level, important disagreements persist on the role that scientific criteria and consumer preferences must play in the regulation of risk. The controversies create uncertainty about the acceptability of the products and production methods in different potential markets (**WB**, 1999).

These disagreements could lead to a review of the SPMA. Even though the discussions with regard to the next round of negotiations in the WTO would involve aspects related to intellectual property, Genetically Modified Organisms and biotechnology (**Kaferstain**, 1999), the international controversies regarding sanitation, could lead to the incorporation of the SPMA in the discussions.

If the SPMA remains unaltered, there are three relevant aspects that the countries of the Region should take into consideration: i) the first is how to develop institutional capacities in the countries to participate effectively in the "three sisters" (*Codex Alimentarius*, International Office for Epizootiology, and the International Convention on Phytosanitary Protection), given that many nations do not have that capacity; ii) the second issue is the increasing use of standards for the food safety in the production process, and the difficulties of defining equivalencies among nations in this field; and iii) the third issue is to consider whether a national system that regulates the food safety is becoming a requirement to participate in international trade. The question is whether the countries of the Region should adopt the criterion of equivalent systems in general, or adopt equivalent results for specific products, given the high cost of the first option.

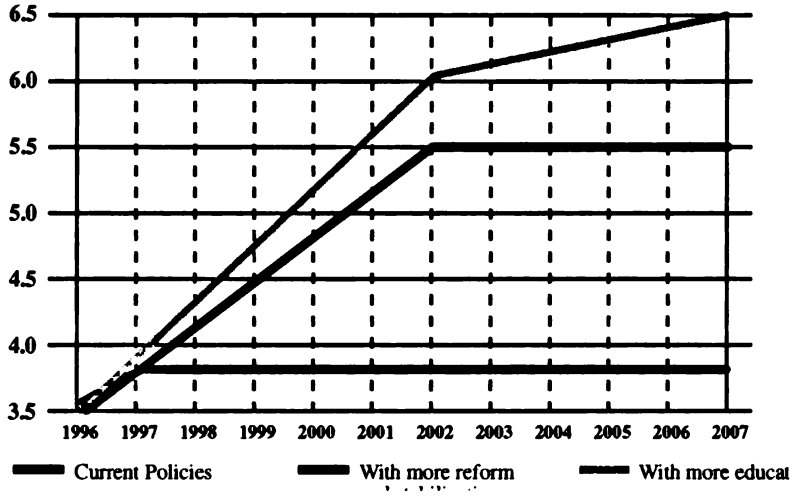
Advances should be made regarding coordinated action between international and regional institutions and mechanisms operating in the region, such as NAPPO, OIRSA, CPPC, the General Secretariat of the Andean Community and COSAVE, FAO, PAHO, OIE, PANVET and IICA. Parallel to these, advances should also be made in the establishment of a mechanism for the interchange of experience and information between the countries to learn about the interesting actions that are taking place (**IICA**, 1999).

2.2.5.3 The agricultural education and training institutes should raise their standards, applicability and curricula and accelerate their transformation in the face of the new requirements.

Several analyses have shown that education is one of the most important variables determining income levels, productivity, and quality of life. Reality itself has taken care to confirm this. Both aggregate and micro level studies insist that this is the key variable for reaching a globalized world. In fact, education represents the foundation of knowledge, and the society of the future will build on it. Today's economy is actually founded on it.

Increasing the level of economic growth in LAC from 3.5 percent per year, attained in the 90's, to reach 5.5 percent, can be achieved with greater quality and depth of economic reforms. However, achieving levels of 7 per cent, as recorded by the Asian countries, or the historical levels above 6 per cent achieved by the region in the 70's, will require a full application of the key variable. The educational level of the labor force is the key variable to achieve higher sustained growth at levels

Figure 77. Growth scenarios for Latin America
(percentages)



of 7 or more percent. Educational levels are a significant determinant of growth and productivity (**IDB**, 1997). In the 90's, the growth rate of the educational level of LAC's labor force has been 0.9 percent per year and currently is 5.3 years. This growth rate is quite inferior to the one that existed in the 60's (1.6 per cent) and to the one registered permanently by rapid growth economies. For example, Korea, Taiwan, Singapore, and Hong Kong have educational growth rates of 3 per cent over three decades. The outcome is that LAC's labor force is currently two years behind in education with respect to world standards, given the development levels in the Region (**Londoño**, 1996, quoted by **IDB**, 1997).

Raising the average schooling of the labor force by one year (above their current trends) during the next ten years, would correspond to approximately half of the permanent effect of all the structural reforms that have taken place until now in the economic field, or the un-exploited potential of these same reforms (**IDB**, 1997) (Figure 77). The effort is great, taking into consideration that LAC is carrying problems from the 19th Century into the 21st Century. This is the case of the relationship between income and educational level, in which broad sections are increasingly farther apart from the scale of higher incomes and higher levels of quality education (**Gómez**, 1998).

The efforts to raise the educational level are part of the solution to increase the levels of economic growth and productivity. However, the quality, curricula, and applicability must be improved at all levels of schooling and training, formal and informal. A profound review and definitive institutional changes are required. In the field of agricultural education and training, the demands for quality and applicability outlined at the middle and highest levels of the agricultural education system are different from those that existed 17 years ago.

The fact that educational needs evolve at a faster rate than the traditional capacity for adaptation of the educational and training centers, explains why agricultural education and training are constantly under review at all levels and practically in every country of the region. Around 500 university level educational centers for agricultural sciences function in LAC; the number of middle level schools and training centers is much greater. We can infer that the investment in this aspect is tremendous (**Sariego**, 1998).

With an analysis the current educational reality, we can conclude that it is undergoing a crisis related to multiple aspects. These include: their products; curricula; teaching systems; resources; the condition and capacity of their teaching staff, researchers and students; extension activities and research outcomes; to the market they serve or should serve; and to their financing and administrative

measures. In other words, middle level and higher level agricultural education has social applicability and quality problems which have a growing negative and strategic impact as the globalization processes advance (**Viñas**, 1996).

On the other hand, the lack of strategies and national policies is frequently evident in agricultural training in general. In practice, training is organized in such a way as to take greater account of the capacities and interests of the supplier than the needs of the actors within the agri-productive and commercial chain. The fact that the training measures are frequently deficient and show weaknesses regarding planning, performance and evaluation, can be added to the foregoing.

We can also see that training is generally set within the traditional concepts of the agricultural sector, which do not take into consideration critical areas such as agri-entrepreneurial and environmental management; direction and technological innovation; product diversification; international trade; price and market information management; agricultura health; food safety and quality; environmental management and conservation; gender and equity, among others. On the other hand, studies carried out in several countries of Central and South America have shown a disperse and unfocused offer that does not comply with demand, non-utilization of new technological resources available, redundancy and duplication of activities, partial obsolescence, and lack of applicability of the training contents offered.

To summarize, the products and services offered by middle and upper level educational centers and by training centers should respond more efficiently and opportunely to the dynamics of the new topical and competitive requirements. These new requirements arise from technological progress, from free markets, from the increasingly protagonist role of the private sector and the new role of the State, civil society, and integration.

2.2.5.4 Communications and information in general, and price and market information in particular, require articulation and development, especially for access to them

There are estimates that over the last 30 years, developed countries have produced more knowledge than in the preceding millennia. It is also theorized that the information available doubles every five years and that this lapse tends to shorten (**Solera**, 1999). Globalization has made us depend more on the world of information and has linked us more to it. In the same way, companies, industries, and service offices have had to connect to wide networks, so they can communicate among themselves and with those to whom they provide services. Thus, Information Technology (IT) has acquired a relevant role in public institutions, private organizations, and civil society.

IT includes all the tools destined for data processing and information management, from software and hardware to the human resources related to them. Knowledge about IT and the know-how to use it and profit from it is transcendental for economic and world development. IT supports the search for solutions for numerous and varied problems, and facilitates the decision-making processes in the public, private, and academic sectors, within a framework of more ample communication.

For corporations, the application of IT represents one of the means with the greatest potential to develop business strategies. For smaller enterprises, it constitutes the opportunity of projecting themselves beyond the frontiers with greater possibilities for growth. For the public sector, it means having more influence on the general guidance of its strategic activities.

Information and communications are ever more necessary inputs for strategic business activities, for competitiveness, for achieving market position, for taking advantage of opportunities, and in the general development of extended agriculture and the rural milieu. As information becomes universally more available each day, it must be screened and systematized, and it must also be made available for the farmers, especially those furthest from its sources.

Most of the small businesses linked to agriculture and the rural milieu have to overcome the primary obstacles, that is, those that hinder wider access and use of IT. Among these obstacles we find a lack of knowledge of the available options regarding information and communications, the equipment and the training needed to use it, and a perception of the benefits derived from those instruments (**IDB**, 1997).

Current availability of information and communications technology (ICT) is deficient in LAC. There is limited access to even basic telephone services, with an average of nine telephone lines for each 100 inhabitants, while in industrialized countries, there are 55 or 60 telephone lines for each 100 inhabitants. Only 7 percent of the populace has access to newspapers, less than 0.1 percent has access to Internet, 3 percent has access to cable television, and 0.1 percent has access to a facsimile. Only 2.6 percent has access to cellular telephones, and 3 percent has access to computers. Radio and television are the most widespread communications media, 40 percent and 26 per cent of the populace, respectively, have access to them.

In 1997, the president of the Federal Reserve Board of the United States stated that the increased growth in that country could be attributed to an augmented productivity enabled by a better use of information technology. This can be observed in all industrialized countries. LAC cannot miss the opportunities granted by ICT to increase its potential for economic growth, and, at the same time, improve the quality of life for all of its inhabitants (**Initiative 2000, IDB**, 1997).

For information to be truly useful, it must be generated, systematized, and accessed. These three basic aspects will provide a majority of countries with much hard work. Over the last 17 years, the generation of statistical and documentary information has undergone reductions in many countries. Furthermore, that which exists is also scattered, and, from the point of view of the region in general, there is a visible lack of coordination among the institutions that generate, protect, systematize, and disseminate information. Information, especially documentary information, is extensive and substantive, but it requires a treatment of articulation and modernization on the part of the specialized centers (**IICA**, 1999).

The efforts being carried out at the national sectorial level to generate, systematize, and disseminate information should be reinforced, in particular to support the farmers in decision-making, in the search for opportunities, and in the analysis of current and prospective prices and markets. The information management effort is so vast, that a coordinated effort going beyond the national scope should be considered. An information exchange among countries would cooperate significantly with this effort. Likewise, a coordinated effort among international organisms, whether they belong to the sector or not, could contribute to the solution of this important aspect of the present era. The establishment of rural information centers, investment in equipment, and a full use of Internet and other information networks are urgent in most countries of the region.

A specific strategy, which would lead to an increase in growth, productivity, and significant amounts of income, is a strong push for the involvement of ICT within the educational and training field.

2.2.5.5 Coordination and collaboration advance rapidly, but require increased public and private capacities that are generalized throughout the agri-foodstuff chains

With the advance of trade in general, market dynamism and demand itself as a driving factor for production, there has been a development of the capacities for negotiation and coordination and collaboration. These increased capacities are the core of the process for reaching integration agreements, open markets and market regulation, which range from the scope of the agri-industrial chains to bilateral and multilateral international agreements. The dynamism of international trade in agricultural products and services and those from the rural milieu has been accompanied by very significant processes of open markets and negotiation/implementation of agreements among countries and by important internal economic reforms in those countries (**Caro**, 1998).

The signing ceremony that gave closure to the negotiations of the Uruguay Round in 1994, and the creation of the World Trade Organization in 1995, were landmarks in the history of world trade (**WTO**, 1998). Among other things, because they constituted the largest trade negotiation that had ever existed, due to the breadth of topics and the number of countries participating (a total of 125). Furthermore, it introduced important general and specific regulations for an ever-freer trade, by having integrated agriculture into its reforms and regulations and by having adopted reforms for commercial policies in effect on the world stage. For the first time in many decades, the internal, multilateral and regional aspects of agricultural policy have been mobilized in the same direction (**Josling**, 1998).

The flourish of bilateral and multilateral agreements of a regional nature (particularly preferential agreements, free trade zones, customs unions, common markets, and economic unions) in recent years is one of the events that signals the advance of trade negotiations. Between 1995 and 1997, 16 new regional trade agreements have been formalized with the WTO, which means we have moved from an average of two trade agreements per year during the last 50 years, to eight agreements per year recently (**Sharon**, 1998). America and its constituent countries are fully immersed in this movement, which started with the decision to establish the Free Trade Area of the Americas (FTAA), and continued with the creation of many bilateral and sub-regional agreements between countries.

The WTO incorporated the GATT agreements, but it is more than this, since it covers merchandise trade, and also services and intellectual property. Currently, the WTO member countries, and practically all of the countries in the Americas take part. A new round of negotiations is being prepared, and it will commence in coming weeks. The preparatory processes will be completed in a meeting in Seattle, in the United States. In this meeting the countries will define their objectives, the topics for the agenda, the goals to be achieved, the methodology to be followed, and the calendar for negotiations. Beyond the mandatory topics, the "incorporated program", the Agricultural Agreement, and Intellectual Property especially stand out, as they are already complex in and of themselves. Furthermore, a possibility exists to incorporate other matters that have been under discussion in recent years, such as the so-called non-trade concerns, agricultural multi-functionality, trade and the environment, and transgenic plants, among others (**Osorio**, 1998).

All of the foregoing represents a great challenge and substantive commitments for the countries and for the public and private actors in agriculture and the rural milieu. This must be accompanied by the best abilities possible for both negotiation and implementation of agreements. Among other things, the systemic character of the negotiations and of the agreements requires strategy definition for greater or lesser participation and also requires broad and flexible positions to achieve the best results over the coming years.

The LAC countries specifically, and in contrast with the Uruguay Round negotiations, are better prepared for the coming negotiations. In particular, the Ministries of Agriculture of several countries have gotten more involved, which opens up the possibilities of facing these processes in a better fashion and with the expected outcomes providing more benefits for the countries (**Quirós**, 1999). Nevertheless, it is important to concentrate on training efforts in general and negotiating skills in particular, the links among countries to broaden dialogs, specialized studies, and information.

The preliminary results of a recent Inter-American Consultation on institutional participation in agricultural negotiations, carried out by IICA (**Quirós and Trejos**, 1999), which garnered information from 21 countries in the Americas, indicated the following:

With regard to participation:

i) The Ministries of Trade are responsible for the agricultural negotiations in the WTO and FTAA in 57 percent and 48 percent of the cases, respectively. In 24 percent of the countries, the Ministries of Foreign Affairs were in charge of negotiations in the case of the WTO. In some countries, the Trade portfolio shares responsibilities with the Ministry of Agriculture and Animal Husbandry (MAG) and with Foreign Affairs.

ii) In contrast to what occurred in the Uruguay Round of the GATT, currently the MAGs are participating in the FTAA negotiations, and their participation is foreseen in the next Round of the WTO. In this latter forum, MAGs have a direct participation in 86 percent of the countries consulted, and are in charge of the negotiations in 14 percent of the cases. They take on a consultant role for the negotiating team in 71 percent of the countries. Participation is even greater in FTAA, where the MAGs play a role in 95 percent of the countries, 29 percent directly in charge of the negotiations and in 67 percent of the cases, in an advisory role.

iii) The greater relevance of Agriculture's participation in the FTAA case can be seen in the fact that they hold chief negotiator positions in six of the 21 delegations consulted, whereas they hold only three for the WTO negotiations.

iv) In 90 percent of the countries consulted, the institutional organization is similar in the WTO and FTAA cases, and therefore MAG participation is, in a majority of cases, equivalent. In 71 percent of the cases, the ministry responsible for negotiating in the country's name is the same, for both FTAA and WTO.

v) In the WTO, besides the Ministries of Trade, Foreign Affairs, and Agriculture, other ministries such as Treasury, Health, Economic Development, and the Environment also play a supportive role.

With regard to the conformation of the negotiating stances in agriculture and related matters:

vi) In less than one-half of the countries consulted, the role of the MAG was identified as "in charge of defining the negotiating position and communicating it". The principal forms of involvement of the MAGs in establishing negotiating positions, for both FTAA and WTO, is through "participation in specific commissions" where these are defined, providing support by means of the "provision of key information for decision-making" and serving as a "communications channel for private sector positions". In addition to these two important forms of involvement they also "carry out studies of competitiveness" and "provide training". And last in order of importance, the function of "issuing an opinion" when requested appears.

vii) The private sector participates in the establishment of negotiating positions through consultation mechanisms that exist in all but one of the countries surveyed. These consultation mechanisms are organized preferentially by "product groups" in 57 percent of the cases. In another 43 percent of the countries the organization occurs by "specific items" and by "special topics for negotiation". The organization of consultations by "commercial areas" is cited by 29 percent of the countries.

viii) The largest quota for participation by private actors is held by "high level organizations" and the "organizations according to product line", which are consulted in 90 percent of the countries. Consultations with organized actors by "agri-foodstuff chains" and by "important firms" appear in 67 percent and 52 percent of the countries consulted.

ix) Notwithstanding the fact that the greatest majority of the countries in the Americas participate in some trade integration regime, only 62 percent of the countries consulted indicate that there are mechanisms for establishing sub-regional positions integrated groups.

With regard to the internal organization of the MAGs for their participation in agricultural negotiations:

x) In 95 percent of the countries consulted, within the internal organization of the MAG there is a unit responsible for participating in the negotiations. In 24 percent of the cases, the unit in charge of these topics is the Trade Policy Unit or that for agricultural marketing. In second place, the Vice-Minister of Agriculture is cited as the one in charge, together with the Units in charge of Agricultural Policy and the Sectorial Planning Units, each with 19 percent of the answers received.

xi) There are other units that participate in the negotiation process, but the most important is the Plant and Animal Health Unit, cited in 17 of the 21 countries. In descending order of importance, other units stand out, including Planning, Economic Studies, Livestock, and Agricultural Markets, all of which have been mentioned by at least one fourth of the countries.

xii) The technical teams from the MAGs (with the exception of the United States and Canada, which did not provide information on this particular aspect) that are involved in the negotiations vary in composition and number of specialists. The upper range of 10 to 12 specialists stands out

(usually from the larger countries), to minimal offices, which are made up of three or less officials. The average number in the teams assigned to participate in the negotiations is 6.5 technicians.

With regards to training and material resource requirements:

xiii) In 81 percent of the cases, a need for training was expressed. The main specific topics identified in approximately 50 percent of the cases: knowledge of "negotiating skills" and "topics specific to the agreements" (agriculture and related areas), such as subsidies and ant-dumping measures, mechanisms for notification, safeguard measures, homologation of hygienic measures, resolution of differences, internal support administration and calculations for damage determination.

xiv) Other training topics indicated as less urgent are: market analysis and trade flows (33% of the responses), trade policy and international theory and practice, studies of competitiveness, quantitative methods and legal aspects of the agreements.

xv) The only resources available that were considered "adequate" at the inter-American level were "information on internal productive aspects for the main product traded" and the "information on the status of the negotiations".

xvi) The rest of the material resources which were questioned and which received a result of "slight deficiency" in descending order are: "connection to Internet and other networks", "mechanisms for the follow-up to notifications within the WTO framework", "statistical information on external agricultural trade flows", "national certification systems on technical norms with international recognition", "computer equipment with the capacity to store and process statistical information", and "resources for travel to overseas meetings".

xvii) In the general classification, only one resource was considered "seriously deficient" at the inter-American level, and which is of fundamental importance to protect national interests in the implementation stage of the agreements under negotiation: an "internal organization to support the utilization of mechanisms for conflict resolution".

2.2.5.6 Agriculture and rural milieu support services in the context of their decentralization show scant development in many regions

One of the most visible characteristics of recent regional development in several countries has been the differentiation of the regions within the national framework. There are regions that have linked themselves to a greater or lesser extent to the dynamics of international integration, and there are regions that have not done so, even in the countries showing the greatest changes in the last 17 years. The regional imbalances among the countries constitute a characteristic that has been present for several decades, but with recent transformations, these imbalances have sharpened. A large part of the regional dynamics, especially those associated with the presence of activities in agriculture and the regional milieu, have centered on the comparative advantages and investment opportunities.

The linkages of the countries to the international economy on the basis of natural resources is one of the main causes that has generated accelerated development or the lack thereof in the different regions. Even countries that have registered accelerated transformations, such as Chile or Brazil, present regional imbalances with regard to the dynamics of their transformations.

We cannot draw general conclusions of the regional dynamics among the countries, because they offer differing situations. There is a tremendous diversity of situations in the dynamics of the countries seen overall, which is associated to agriculture and the rural milieu. These go from those that have increased the proportion of agricultural laborers with respect to the rural population by proportions that climb from one third to close to one-half or more, such as Chile, Brazil, El Salvador, Peru, among others. (See the table that refers to rural population dynamics, page ____.) There are situations at the other extreme as well, i.e., where the proportion of agricultural laborers has dropped with respect to the rural populace, such as Costa Rica, Honduras, and Venezuela, among others. Similarly, there are countries that have increased their rural population and rural labor force in absolute terms, and others with population and labor force reductions. Furthermore, there are combinations between increases and reductions in the rural population and increases and reductions in agricultural laborers among the countries.

Just as there are differences among the countries, there are also differences among the regions of each country. The combinations of the different variables in rural population and agricultural labor dynamics occur with very varied characteristics in each. In addition, in many cases, we find very different situations among the regions in terms of the different sources of income and their combinations. There are regions where non-agricultural rural income plays a preponderant role for the families, and vice-versa, there are those where agricultural income constitutes a majority of all income.

What does seem to be constant is that rural non-agricultural income tends to become continuously more important in total family income. This characteristic, in fact, constitutes apart of an income generation strategy based on diverse activities inside and outside of agriculture and inside or outside of the rural milieu. Similarly, in many regions there are combinations of rural income and even agricultural income with urban income and vice-versa, i.e., urban income from people settled in the cities that ever more "complements" total income from rural or even agricultural income.

These phenomena tend to become more complex with the dynamic of change, since these differences are not only between countries and among regions, but also occur among different family social and productive units in the same region. This heterogeneous character of the situations is not recent, but is showing an accelerating trend, especially in the regions that are more influenced by changes and integration.

Different research papers on the cases in different countries of LAC have been presented in recent years (for example **De Janvry**, 1999, **Valdez and López**, 1998), and which reach important conclusions from different viewpoints with regard to the heterogeneity and differentiation that is occurring in the regions of several countries. It is very clear that within the regions there is a broad range of differential situations caused by multiple factors, such as access to natural and productive resources (technology, technical assistance, credit and other services), regional economic structure and the degree of linkages of the units to the markets, institutional lacunae, market failures, ethnicity and culture, educational levels, family size, and multi-source income, among others.

It is also clear that the effects of the reforms, the policies and the influences of the forces for change and trade integration are differential and bear different signs for the different levels that coexist in the regional environments of agriculture and the rural milieu.

Finally, agriculture and the rural milieu of the Americas in general acquire their maximum expression at the regional and local levels. Here is where its essential foundation is encountered for what we call agriculture and the rural milieu at the conceptual level. These important activities are centered in the territorial aspect and the geographical dimension (**Sepúlveda**, 1999).

Therefore, agricultural and rural milieu support services are usually located within these heterogeneous realities and it is there that, under the push for decentralization being carried out by the countries, actions take place and where the basis for relationships with the State, civil society, and the markets are articulated. Specific access to agricultural and rural milieu support services in these realities acquires the same characteristic that distinguishes access to the set of natural, productive, trade and institutional resources within the regions and the territories.

Thus, an approach to agriculture and rurality from a territorial perspective and their multiple interrelations (**Solís**, 1999), rural-urban, rural-rural, agriculture-rural milieu, industry-agriculture, agriculture-environment, State-markets, democracy-governance and the causal relations among all of these come together in the territory and regional spaces.

In many countries the rural-urban exodus has been essentially depleted. Regional and local dynamics become interesting alternatives to initiate and base policies and processes for multi-solutions of the problems of rural poverty, increased competitiveness, and income generation and distribution. The push found in the agricultural and rural milieu support services constitutes an important factor for promoting regional dynamism. Together with other non-agricultural activities it may bring about different solutions in the face of multi-dimensional problems.

CHAPTER III

Towards a Probable Agenda for the 21st Century

3.1 Summary and preliminary conclusions

The general conclusion we can draw from all these experiences and reflections is that in the past, now, and in the future, agriculture and the rural milieu are key for the countries and their populations, as well as for opening markets and integration. Furthermore, these elements are an important route to consolidating the market position of the economies, understanding this as a greater penetration of international and national markets. Additionally, they constitute a non-unique and non-sufficient way to a solution raising income, employment, and the quality of life for society as a whole, and in particular, to contribute with certain capacities and limits, to the solution of rural poverty.

Here follows a set of specific conclusions that can be drawn from the general balance on the status and evolution of agriculture and the rural milieu in the Americas. Since this balance is drawn from on-going processes, which are not linear in their progress nor in their effects, and also due to the fact that the balance refers to the Region as a whole, it is therefore an aggregate view, and not a country by country analysis. The conclusions must be taken as preliminary and in any case, as guides for reflection.

3.1.1 On the importance of agriculture and the rural milieu in America

1. Agriculture and the rural milieu in the Americas have historically been important for the economy and society as a whole. They continue to be so in the present, but on a still more relevant plane, due to their independent and "multi-sectorial" character, and for their many-sided contributions. To wit, they have provided important contributions in the economic, macroeconomic, environmental, and governance spheres, which have contributed to the growth, development, welfare, and quality of life of all the inhabitants, both in the rural milieu and the cities of the hemisphere. As a consequence, currently and in the future, agriculture and the rural milieu are and will be a strategic matter for all of the countries in the Americas.

2. The indicators of the importance of agriculture and the rural milieu summarize and indicate the positioning that they have achieved in the economic and social reality of America and its regions and the world in general. For each region of the Americas, they are both important and worthy of this recognition.

3.1.2 On the "paradox of agriculture and the rural milieu" and the points of view

3. Faced by this reality, the idea that agriculture and the rural milieu are unimportant is erroneous. The "paradox of agriculture and the rural milieu" is real, because in spite of their importance, this importance is not recognized. The effects of a distorted conceptualization are broad ranging and constitute one of the major obstacles to achieving sustainable development in agriculture and the rural milieu. This distortion between reality and conceptualization has a negative effect, which predisposes an attitude that influences all of the value processes, i.e., policy definition, investment, production decisions, valuation of products, services, and assets, among others.

4. In a similar manner, from an urban viewpoint, a partialized perspective of agriculture and the rural milieu predominates, which is static and "sectorialist". There is also a "ruralistic" view that is widely disseminated among the actors in the rural areas. It holds a partial, static, and

"sectorialist" perspective, not only of the urban aspects, industry, and cities, but also towards the rural reality, agriculture, the countryside, and rural aspects, which suffers essentially the same faults as the former.

5. These conceptualizations, whose bases are historical, are found today at a crossroads: either they consolidate with the advantage of "immaterial aspects" over the "material aspects" of the knowledge and information economy and society, or they collapse from the weight of the consequences arising from this new epoch.

3.1.3 A vision of the future of agriculture and the rural milieu

6. The futuristic scenario for the next two decades can be characterized by being fundamentally inclusive and sustainable. It is supported by the interdependence on a technologically developed and socially less unjust and more democratic globalized economy. In particular it indicates and requires a necessary correspondence between growth and social development as a condition for competitiveness and growth, on the one hand, and between governance and sustainability to achieve viability and efficacy, on the other.

7. With regard to agriculture and the rural milieu, this scenario looks on them as a set of regionally localized activities that are interdependent with the rest of the economy, and as a strategic matter for the development of a globalized society and economy. In general, this set of conditions allows sustainable development, in harmony with nature and economic integration, technological transformation, and especially with human capitalization and rural development.

8. In the future of the Americas, activities in agriculture and the rural milieu will have three essential characteristics: they will be prosperous, their positioning in the countries of the hemisphere and the world will be consolidated, and they will be considered a strategic matter in global development.

9. The achievement of this scenario, starting with current reality, will require renewed focus, thought, and actions in the operation and direction of agriculture and the rural milieu, under a systemic and holistic focus. This focus will allow a better comprehension of the nature of the phenomena and their multiple interdependencies.

10. To build a global, integral, and integrating vision, that looks to the future, we must start with the knowledge of the main motive forces behind the changes that influence their present and future behavior to a great extent. These motive forces for change, and the transformations that the economy is registering in agriculture and the rural milieu starting with the changes begun in the eighties through the present, have and will continue to have transcendental and durable effects on our economies over the coming decades.

3.1.4 On the relationships of agriculture and the rural milieu with the rest of the economy and society

11. Agriculture and the rural milieu in the Americas constitute a strategic matter, and not just because of their economic importance, their contributions, and their penetration in the world agri-foodstuffs market. They also constitute the vital medium for millions of individuals that work

and live there. However, for a majority of the countries, particularly in LAC, the rural milieu and its agriculture suffer a chronic and majority inequality of access to resources, means, and income that determines a heterogeneous structural situation, which is one of impoverishment of broad sectors of rural society of considerable magnitude.

12. The origin of this situation must be found in the rural development style implemented during the 20th Century. During the import substitution model, in general it was supposed that development could be achieved behind the back of agriculture and the rural milieu, without negative consequences for those subjected to this situation and society as a whole. It was also assumed that their role was fundamentally to support economic growth and industrial and urban development on the basis of the depredation of natural, productive, and human resources.

13. However, these assumptions did not consider that: i) it wasn't viable to promote programs and projects for agri-foodstuff development and rural development and attack poverty in a penalizing macroeconomic environment, since the results indicate that they almost always ended in failure; ii) lowered sustained growth of agriculture and the rural milieu, and for many countries of their overall economy, would result if the powerful urban bias and differential protection policies were not eliminated; iii) without true "empowerment" and appropriation of the programs, projects, and actions, the beneficiaries would be left without effective participation and co-responsibility, and without a transparent relationship among the public and private actors giving rise to non-viable and non-sustainable project implementation; iv) program, project, and activity failures would be marked by the lack of congruence, efficacy, and efficiency between vision, policies, instruments, institutions and actors; v) the complexity and number of institutions, policies, and programs involved contributed to the untenability and high cost of the intervention model, as well as to the "disconnection" of the actors from the processes for innovation and marketing on the one hand, and from differentiation, heterogeneity and impoverishment in broad sectors, on the other.

14. Starting with the crisis in 1982, the countries reoriented their economies towards full international integration, and rooted their strategies in an "outwards looking" growth model in the context of globalization. The main ingredients of the economic order defined by this development model are: economic integration and openness, deregulation, and liberalization of the economy, downsizing of the State, privatization of public enterprise, the search for macroeconomic equilibrium and economic stabilization, as well as the alignment of macroeconomic and sectorial policies of the countries participating in integration processes.

15. The new situation for agriculture and the rural milieu also represented a reorientation of the nature of their ties with the rest of the economy over more rational bases, without distortions in the economy or penalizing any sector. Two things became clear with this change in position: first, overcoming the condition of structural heterogeneity and impoverishment of broad sectors of the rural population remained a pending assignment. Second, the great challenge was to take advantage of the opportunities offered by open markets and integration into international markets, given the comparative advantages based on the extensive and abundant natural and human resources belonging to the Americas and their regions. In both cases it was a necessary condition, although not a sufficient one, to significantly alter the terms of the subsidiary relationship between agriculture and the rural milieu and the rest of the economy.

16. However, it was also clear that an efficient allocation of the resources must be promoted, and market logic was allowed to act as one of the major forces that would take charge of carrying out this reassignment. In the meantime, the State would accompany the process, guaranteeing macroeconomic stability, the liberalization and deregulation of the economy by driving significant economic reforms and by promoting decentralization, providing oversight for the social welfare and the management of social policy and instruments, among others, education and health.

3.1.5 On changes in general

17. In the light of economic results in general, and of agriculture and the rural milieu in particular, we conclude that although the forces of the new globalized economic growth model have had an impact in all of the countries, these impacts have had a differential intensity, dynamism, and timing. In consequence, it has not been a linear process. Therefore, the results vary from country to country and region to region. This is true at the level of the economy in general and for agriculture and the rural milieu in particular, especially since these have such a deeply heterogeneous and unequal character. In this sense, the reforms have acted on historical trends from the past, and on heterogeneous economic and social structures that came into being over the last several decades.

18. Everything seems to indicate that at the close of the 20th Century, and after 17 years of economic reforms, many things have changed in the aggregate economic and social realms of LAC. However, the global economic results achieved to date, even with the application of these reforms, are at best precarious in some countries, as well as for broad population sectors. Furthermore, they continue to be insufficient for the majority. On the one hand, poverty and indigence, especially in the rural areas, and on the other, the competitiveness of the system, continue to represent the great challenges and goals to be achieved in a sustainable manner and on a basis of harmony among productive, natural, and human resources.

19. It remains clear that a pivotal element of the development strategy implemented by the countries of the Americas has been an economic, trade, technological and financial integration of the economies, agricultures, and rural milieus of the region, towards a globalized international economy and market in general.

20. Although the macroeconomic accounts have been held in relative equilibrium, the rhythms of recuperation of growth in general are far from those recorded in the 70's, as well as those recorded by competitor regions from other latitudes of the developing world, and lag far behind the ability to support a process of development with equity in the region.

21. This greater international integration has advantages, but also high costs on the side of the trade imbalances, the unfavorable terms in the relationship between exchange prices and capital movements. Also, and above all, these exist due to the short term strategy of this integration, based to a great extent on natural resources and on comparative advantages on the one hand and insufficient productive and competitive advances with regard to the rest of the countries on the other.

22. Although the social welfare indicators also register significant increases, poverty and indigence in general and in the rural areas in particular, where they are a governing factor, have not been resolved within the Region, in spite of the fact that their rapid spread during the 80's has been arrested during the 90's. Furthermore, unequal income distribution has returned to occupy its former high levels, after a notable reduction in the 70's.

3.1.6 On the changes in agriculture and the rural milieu

23. More specifically with regard to agriculture and the rural milieu in the Region, we can conclude that through the beginning of the 90's (1993), there had been no significant manifestation of great change. However, starting in 1994, the situation began to become more dynamic and changes can be observed at different levels. Agricultural production becomes more dynamic; the productive structure is visibly transformed on the basis of the utilization of natural advantages, of a greater productive diversification, especially in the oilseed-livestock and horticultural-fruit systems; agri-industrialization develops; agricultural and agri-industrial exports are more dynamic and alter their structure to correspond to the productive structure, and finally, the productivity of croplands and the agricultural labor force increases, as does the use of productive factors.

24. However, although these changes are recent and encouraging, they are still insufficient in two senses. First, they are neither sufficiently developed nor generalized. Second, the depth and dynamism of the changes are not as strong as those in countries from other areas of the world, which are competitors and/or represent potentially exploitable markets for our countries. With regard to the development of the changes, greater advances can be expected in coming years, due to the relatively recent implementation of the reforms in many countries. With regard to the non-generalization of these changes, two trends are seen: the first, at the level of zones and regions within the countries, many of them have remained marginal to these substantive changes, causing or deepening regional imbalances that already existed or that are being generated. The second is that within the interior of the most transformed zones there are also differences between units or groups of productive units.

25. Notwithstanding recent agri-export dynamism, the nature of international insertion is similar to that of the economy in general described above, and it also turns out that international agricultural market opportunities are not being taken advantage of, or could be utilized more and in better ways.

26. The conditions under which a majority of farmers operates have changed drastically. Basically, today's actors must confront open markets without greater subsidies for them and with international prices trending downwards, which has put pressure on profitability. All of these factors require an increase in competitive capacity. Additionally, it is also occurring in different, varying, and highly competitive marketing conditions, with elevated demands for quality and security. Similarly, a majority of the Region's farmers have been disconnected from the outside world for several decades. Thus, they are undergoing a learning process, since they do not yet have sufficient historical experience and adequate knowledge about the markets, their dynamics, and their conditions.

27. It would seem that natural resources and the environment in general have felt the deterioration caused by the pressures for competitiveness and those of a strategy for international insertion based on these resources. We must comprehend and understand the full dimension of the association between natural disasters, which are becoming an ever more permanent variable of ever more severe consequences, and the deteriorated state of the natural resources and our inability to prevent their consequences.

28. A set of relations and interactions can be observed among a group of important variables. There is a significant association between the duration and the depth of the reforms applied in the countries and the dynamism of growth in general. There is also an association between this latter and dynamism in agriculture. In equal measure we can see a clear association between per capita income levels in the countries, the urban/rural character of the population, and the share of the agricultural GDP within the total GDP. An interesting association can also be seen between general economic growth and poverty, where we draw the conclusion that economic growth, although a necessary variable, is not sufficient. With regard to the relationship between growth and agricultural productivity, it can be seen that the implications of each of the variables are essential in terms of employment and agricultural income and in terms of competitiveness in contexts of freer economies.

29. Similarly, an important association can be observed between foreign exchange contributed by agriculture to cover deficit balances in the general trade balance for goods in the economy, the agri-export capacity per laborer and productivity and physical yields and the labor force. Likewise, there is an association between the generation of agricultural employment, agricultural growth, and agricultural productivity, which indicates that agriculture generates employment and greater income over solid bases. Finally, a basic association can be seen between the exchange rate, the interest rates, and agricultural productivity. This allows us to conclude that the macroeconomic environment is highly determinant of the levels of profitability in agriculture, basically by managing the exchange rate, interest rates, and the relationship between the relative prices and the economy in general.

30. Taking into account the more general and common characteristics, but also the specifics and differences among the countries, we reached a characterization of the variables in which the countries can be agglomerated according to their agricultural and rural milieu characteristics. Of the set of variables analyzed for 31 countries with information, 15 were identified that in general terms include most of the countries that present dynamic growth in agriculture accompanied by dynamic economic growth. A majority of countries that have increased their per capita food production, agricultural productivity, and yields also falls in this group. Finally, it includes a majority of those that have more advanced reforms, those that have reduced poverty, a majority of the foreign exchange contributors, and those that have greater exports per worker.

31. On the other hand, there are 16 countries including a majority of those that have lower growth rates in agriculture and those that have recorded lower economic growth rates. This group includes a majority of those with reduced foodstuff production per capita, and a good part of those with minimal productivity and yield increases. Those that have more recent reforms and less encompassing ones are also well represented. This group includes a part of those that have

shown less poverty reduction or an increase thereof. Finally, there is a part of those that have contributed less significantly to reducing the trade deficit for total goods and those requiring foreign exchange to defray their imports. Most of the countries that are net food importers fall in this group.

32. Not all of the characteristics present in one or the other group as a whole are present in each of the constituent countries. There are countries with all of the group's characteristics and others that combine characteristics from both groups. The foregoing suggests that these are complex phenomena in evolution. Only a case by case analysis will provide a greater level of precision and exactitude.

33. There are characteristics and orientations that at the aggregate level can be generalized among the countries, such as the macroeconomic environment and policies, as well as the general orientation to freer markets and integration, and in the final instance, their insertion into the globalized economy. However, as was mentioned above, the processes are neither unique nor linear, nor do they have either the same dynamics or the same incidence.

34. We also conclude that in America there is no single agriculture or rural milieu, they are several and require different treatments. Each region and each country is different from the others. They have differing natural, productive, and human resources. Similarly, the structure of their economies, their agricultures, and their rural milieus are different. Their history of relations with the rest of the economy is also different, as are also their macroeconomic contexts, which have such a determining influence on agriculture and the rural milieu. They are different in their specific characteristics. Therefore, we should not be surprised that the forces of globalization and implementation of economic reform have different degrees of development and differing schedules for its application among the countries. Neither should we be surprised that they have varied influences on agriculture and the rural milieu in each country, region, zone, and type of agriculture and rural milieu.

3.1.7 On the strategic supports for agriculture and the rural milieu

35. Most of the countries have not fully developed strategic support activities for agriculture in the more extensive interpretation, such as research and technology transfer services, which show low investment levels as a proportion of the agricultural GDP, foodstuff health and safety, which increase in strategic and public importance, but which are still at an incipient level of development; collaboration and coordination and negotiations in general, which form the core of the steps to reach integration and specific agreements among the actors in the agri-industrial chains; communications and information in general, and price and market information in particular, which have become another of the determining elements of competitiveness; training, education, and extension, which are positioned as growth vectors, competitiveness, income and technology adoption and management abilities in general, and natural resource and environmental management in particular.

36. Several countries have demonstrated review and re-adaptation processes for public and private agricultural institutions, at the central, regional, and local levels, but it seems that these are still initial attempts that are not generalized. An inarticulate or missing vision "beyond the sector" becomes an obstacle that still cannot be completely removed.

37. Finally, we can conclude that in an open and competitive economy it is of particular concern to observe broadening productive, technological, computational, educational, managerial, institutional, and social gaps inside the countries in the Region, and for all of them in relation to the countries and regions that are our competitors and trade partners.

3.1.8 On competitiveness, poverty, and rural development

38. Agriculture and the rural milieu have very clear capacities and limits to contribute to raising the competitiveness of the system and to contribute to solving rural poverty. The solutions to overcoming the critical points allowing increased competitiveness in agriculture and the rural milieu, and those to overcome rural poverty will not be found uniquely and exclusively in agriculture and the rural milieu. Although they have a strategic role to play, and both are intimately related to each other, as part of the same phenomenon, the solutions encompass scopes and actions that are multi-sectorial and different, where protagonists different from agriculture and the rural milieu must participate, including actors from other activities and the rest of the economy.

39. Therefore, the causes that generate a determined level of competitiveness and of poverty are multi-sectorial and multidimensional. Each specific reality will allow a joint observation of the factors that intervene, their interrelations and their weight.

3.1.9 On the present and the immediate future

40. The international crisis occurring after June 1997 had negative consequences that were serious and broad ranging. It was the first great crisis of the globalized economy. The effects caused by this global financial crisis have led many countries to deepen their application of stabilization measures. According to different estimates and projections, it had and will continue to have adverse consequences for our countries, which will be graver still if we do not make an even more significant effort towards transformation and development. Some of these consequences are deceleration in economic growth, production, and world and regional trade in particular; as well as a reduction in both demand, particularly for raw materials, with special impact on agriculture for export, and external capital flows and capital availability for the region. In 1998, and especially 1999 the countries of the region have undergone very difficult years, which could cancel out some of the advances achieved during the previous 17 years, and could cause a deterioration of the main economic and social indicators. Recovery from the effects of this crisis is expected to begin in the year 2000 or 2001, which would lead us to believe that for the next two years the situation will be fraught with difficulties. However, it will also open an opportunity to make a halt on the road and reflect on the path so far, the route we are headed down, and the future foreseen on the near horizon.

41. By visualizing the results already obtained, and above all by confronting them with the vision of the future for the next two decades developed in Section 3 of Chapter I, we can conclude that great challenges await the countries of the Region at the beginning of the 21st Century. They will require starting with a broad-based reflection seeking to disarm the threats, deepen some measures, reorient others, and define strategies with a long-term vision. All of this will

strengthen the weaknesses, empower the strengths and take advantage in the best way possible of the opportunities to benefit everyone.

3.2 Opportunities and challenges

The opportunities and challenges at the beginning of the 21st Century are greater than they were just a few years ago.

3.2.1 On the importance of agriculture and the rural milieu, positioning strategies, a vision of the future, and a renewed outlook

Agriculture and the rural milieu in the Americas has a tremendous potential to become a worthy way of life for those dedicated to it, and for society as a whole, consolidating what it already is, i.e., a large-scale contributor to economic and social development in the Americas. As a consequence, for our future, it makes sense to view it as a strategic matter confronting the great challenges and formidable tasks.

America holds in its agriculture and rural areas, strategic components for economic and social development of the hemisphere, as well as its positioning in the globalized world economy. This is so, thanks to the capacities developed and the capital constituted by accumulated experience, infrastructure, and our natural, financial, and human resources.

The great challenge would seem to consist of maintaining, increasing, and consolidating the positioning of agriculture and the rural milieu of the Americas on the world stage, in a context of hypercompetitiveness and accelerated changes in human, institutional, commercial, and technological dimensions and knowledge in general, as well as duplicating the contributions they make to the economy and society, at the same time that they contribute to resolving poverty and indigence in the rural milieu. The specific challenges will be:

- Development of a great effort by all of society to collectively construct a vision of a shared, global, integral and integrating future, which would accelerate the necessary transformations in agriculture and the rural milieu, so that they can "get into alignment" with a changing and demanding reality, but also so that all of society will understand how important they are for present society and for the societies of the future.

- Definition and implementation of a strategy for positioning agriculture and the rural milieu, which is directly oriented to eliminating the "paradox of agriculture and the rural milieu", and to be disseminated and assimilated among all of the sectors of society. It must be coherent, functional, and based on facts.

- Construction of a new holistic and systemic focus, which would allow acknowledgement of a much more interdependent, multi-disciplinary and dynamic reality, and as a consequence, allow the formulation and implementation of a strategy in accordance with these new realities.

- Assimilation and support for the future, starting in the present, and built on the basis of the motive forces for change, of which seven seem to be the most important: i) a macroeconomic

framework that is both propitious and stable for growth, ii) open markets and economic integration, iii) the technology revolution and increasing productivity, iv) education, training, and information, v) transformations in the consumption structure and preferences, vi) a predominance of conditions of animal, plant, and human quality, hygiene, healthiness, and conservation of the environment, and vii) democratization and decentralization.

3.2.2 On the reforms, the macroeconomic context, and the changes in agriculture and the rural milieu

- Deepening of economic reforms and their quality, as well as the incorporation of social reforms and the achievement of greater equity in the face of the need to increase growth, achieve higher levels of competitiveness and of making a decisive attack on poverty and indigence on real and sustainable bases.

- Consolidation of a macroeconomic environment which would definitely and integrally promote competitiveness, profitability, investment, productive re-conversion, and exports.

- More dynamic progress towards changes and transformations, both permanent and generalized, in the productive, commercial, and institutional realms, and above all in terms of the regional balances between countries.

- Reorientation of the nature of the insertion into world trade, with a long-term vision and a re-evaluation of the products and services of agriculture and the rural milieu and the maximum impulse for the industrialization of agriculture and the rural milieu and agri-industrialization.

- Implementation of a support strategy that will lessen the effects of the world financial crisis, particularly for the most vulnerable populations, and that will explain for the masses where it came from, its effects and its duration.

3.2.3 On natural resources, the environment, and environmental services

- Productive conservation of natural resources and a prospective and rational utilization of biodiversity and reorientation of the insertion strategies into the international economy, based on an "extensive" exploitation of natural resources.

- More effective action and prevention in the face of the persistence of natural disasters and climate change, since the current challenges are greater, more persistent and massive in their effects.

- Definition of a strategy to promote prospection of biodiversity, i.e., its commercial utilization, as well as those environmental services such as pollution reduction, air and water quality, agri-tourism, and "scenic beauty".

3.2.4 On the institutions and strategic services for agriculture and the rural milieu

- Review of public and private institutions at the central, regional and local levels, to accelerate and deepen their adaptation, articulation, strengthening, and coordinated actions with a focus on "from the farm to the consumer's table". This should be with a view that combines what is

urgent over the short-term with what is important over the long-term, with greater future and strategic vision, especially one that incorporates the international component in a manner consequent with the strategic definition of global insertion for our economies.

- Development of strategic support activities for extended agriculture, on the basis of their institutional suitability and under public and private combinations, such as research and technology transfer services, in particular raising the levels of investment and human capacities; foodstuff heatlh and safety, increasing the public and private institutional capacities; collaboration and coordination and negotiations in general, implementation of agreements and follow-up and evaluation among the actors of the agri-industrial chains; communications and information in general and on prices and markets in particular, as well as a capacity for prospective analysis in general, and of markets in particular; training, education, and extension on the basis of a greater investment and oriented to competitiveness, an increase in income, technological adoption, and the development of managerial capacities in general, and for natural resources and the environment in particular.

- Definition of a specific strategy for greater participation in the international and regional organizations specialized in relevant matters and greater articulation and coordination among them.

3.2.5 On poverty, competitiveness, and rural development

- Definition of an explicit and differentiated strategy for the attack on rural poverty and indigence based on a drive for growth and from an interdisciplinary, multi-sectorial view towards a multiple solution. We consider it convenient to emphasize four simultaneous and complementary elements: i) the elevation of educational and health levels together with a channeling of the rural-rural exodus, i.e., from agriculture to the rural zones and vice-versa, without transferring poverty from one zone to the other; ii) promote rural non-agricultural activities and income as a powerful and sustainable "route" to creating a regional dynamism; iii) strengthening the agricultural "route" to development, on the basis of competitiveness and the utilization of comparative advantages and the development of dynamic competitive advantages at the international level, without harm to natural, productive, or human resources; and iv) the application of social programs and guarantees to the vulnerable sectors which will increase their capacities and also avoid the great costs of the macroeconomic imbalances and programs for monetary and financial stabilization, provoked more and more by the global financial crisis. These general elements must be designed taking into consideration each situation in particular, in each country, region, and zone, and for the different actors.

- Definition of a strategy to develop competitiveness, also with a multi-sectorial and systematic approach, throughout the chain "from the farm to the consumer's table". It must be centered on the development of dynamic competitive advantages at international levels and not just competitive advantages. The foregoing must emphasize the elevation of managerial and technical capacities, an increase in total factor productivity, an institutionality clearly centered on efficiency, adaptation of legislation, and transparency of the public/private relationship. It must be congruent with the macroeconomic framework and fall within an environment of non-penalization. It must be in harmony with the environment and its sustainability; rooted in an inter-sectorially

interdependent agriculture, established regionally and locally. Finally, it must be based on processes for income distribution that guarantee coherence and overall development of competitiveness.

3.2.6 On sectorial policies

- Definition of inter-sectorial policies taking advantage of the margins established in international agreements and in congruence with the general strategies and policies on the basis of heterogeneous situations differentiated in the different agricultures and rural milieus of each region and country.

- Evaluation of the actual and required public and private institutional capacities for the implementation of policies that are differentiated on the basis of limited resources, institutional re-adaptation, and decentralization processes.

- Consolidation of a policy for collaboration and cooperation and public and private relationships with wide-ranging protagonism by private actors based on their co-responsible participation with true appropriation in the design, implementation, follow-up and evaluation of the programs, projects, and the actions.

3.2.7 On public and private investment

- Definition of a public and private financing policy oriented to an increase of the capacities that reduce productive, technological, computational, educational, managerial, institutional and social gaps with respect to the countries and regions of other latitudes that are our competitors or trade partners, and focusing on: i) development of social, educational, productive, and trade infrastructure in the rural milieu, ii) strategic support services for extended agriculture and the rural milieu; iii) promotion of credit, financing, and transaction cost reduction within the regional scope; iv) strengthening of institutional decentralization and modernization at the central, regional, and above all local levels; v) strengthening of the public institutional capacities for insertion, negotiation, and fulfillment of international agreements; vi) productive conservation of natural resources and prevention of natural disasters; and vii) support for the development of the capacities of vulnerable and strategic populations, such as rural women, children and youths.

3.3 A corollary to the foregoing, there are four great challenges to begin our reflection:

- The first, to characterize or typify the balances or imbalances recorded between the innovation in thought, diagnosis, policies and institutions. On the one hand, in order to find key elements and main bottlenecks that would allow us to confront a redefinition of a strategy for the development of agriculture and the rural milieu in each country. On the other hand, take advantage of the wealth of the significant advances that the countries have achieved in several fields, and place them at the mutual disposition of all.

- The second challenge consists of defining a strategy and the key components, setting priorities and redefining public and private functions, ever more strategic the former and ever more protagonic the latter, in emerging topics, such as, among others: i) The new rurality,

policies and the attack on rural poverty; ii) Trade negotiations, the implementation of agreements and export promotion; iii) Agricultural hygiene, foodstuff safety and quality; iv) Technological innovation, intellectual property and the management of natural resources and the environment; v) Credit, financing and rural infrastructure; vi) Information and communications of agri-foodstuff and regional-rural development; vii) Human resource development and curricula in educational centers and training; and viii) Institutional modernization and public - private relationships.

- The third challenge consists of designing and implementing a strategy for aligning all of the institutions at the central, state, and local-municipal levels, a majority of which are public, that act directly and indirectly on agriculture in it broadest sense. This would promote their articulation among themselves and their interdependence with private institutions and civil society. None of those international and regional, technical and financial organisms and institutions that are linked to extended agriculture and the rural milieu in their different dimensions must be allowed to escape this process of alignment and articulation.

- The fourth challenge consists of generating a broad consensus of the need to re-dimension agriculture and the rural milieu in the face of the new reality and its complexities. It involves the collective construction of a new approach that would allow establishing a regional consensus, which will enable an improvement in the orientations of rural and agri-foodstuff policy, looking to its current positioning and that which will serve for the coming years.

APPENDIX

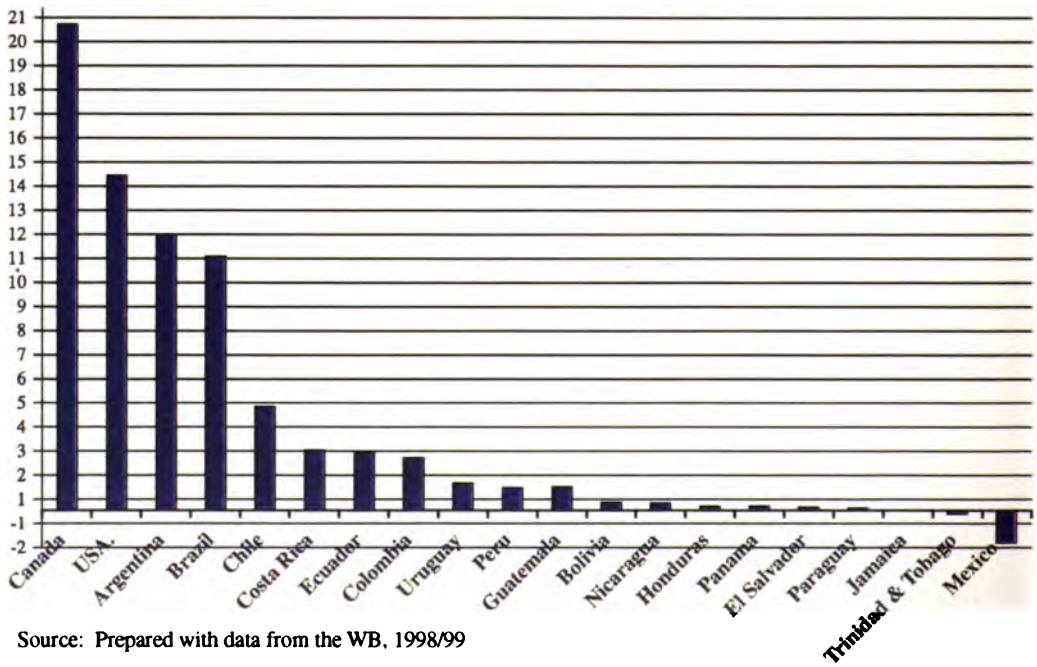
FIGURES Y CUADROS ANEXOS

Table 1. Net Trade Balance for Agricultural Goods Selected Countries, 1980-1997.

Countries	Exports		Imports		Balance	
	1980	1997	1980	1997	1980	1997
Canada	13,252	33,913	5,194	13,652	8,058	20,261
USA	48,964	76,500	27,531	62,649	21,433	13,851
Argentina	5,694	13,656	1,054	2,124	4,640	11,532
Brazil	10,066	18,367	2,744	7,809	7,322	10,558
Chile	1,146	5,867	871	1,449	275	4,418
Costa Rica	671	3,162	175	602	496	2,560
Ecuador	843	3,038	221	541	622	2,497
Colombia	3,038	4,238	699	1,999	2,339	2,239
Uruguay	646	1,682	198	483	448	1,199
Peru	653	2,324	591	1,369	62	955
Guatemala	1,025	1,523	156	578	869	945
Bolivia	114	488	131	187	-17	301
Nicaragua	343	480	141	221	202	259
Honduras	553	702	111	487	442	215
Panama	237	496	159	329	78	167
El Salvador	425	757	195	592	230	165
Paraguay	273	970	74	896	199	74
Jamaica	132	441	247	541	-115	-100
Trinidad & Tobago	82	229	413	333	-331	-104
Mexico	2,162	7,692	3,722	8,948	-1,560	-1,256

Source : Prepared with data from the WB, 1998-99

Figure 1. Net Trade Balance For Agricultural goods selected Countries, 1997



Source: Prepared with data from the WB, 1998/99

Table 2. Agricultural Export per Worker Selected Countries, 1980-1997[1]

Countries	US$ Exported /Worker	
	1980	1997
USA	--	16,956
Costa Rica	2,445	10,022
Uruguay	3,108	9,877
Chile	1,551	5,351
Trinidad & Tobago	2,012	3,567
Ecuador	789	2,374
Panama	1,320	1,825
Jamaica	555	1,724
Paraguay	515	1,365
Dom.Rep.	713	1,241
Colombia	922	1,163
Brazil	798	1,100
Nicaragua	931	1,008
Peru	427	842
Honduras	735	796
Mexico	179	645
El Salvador	630	642

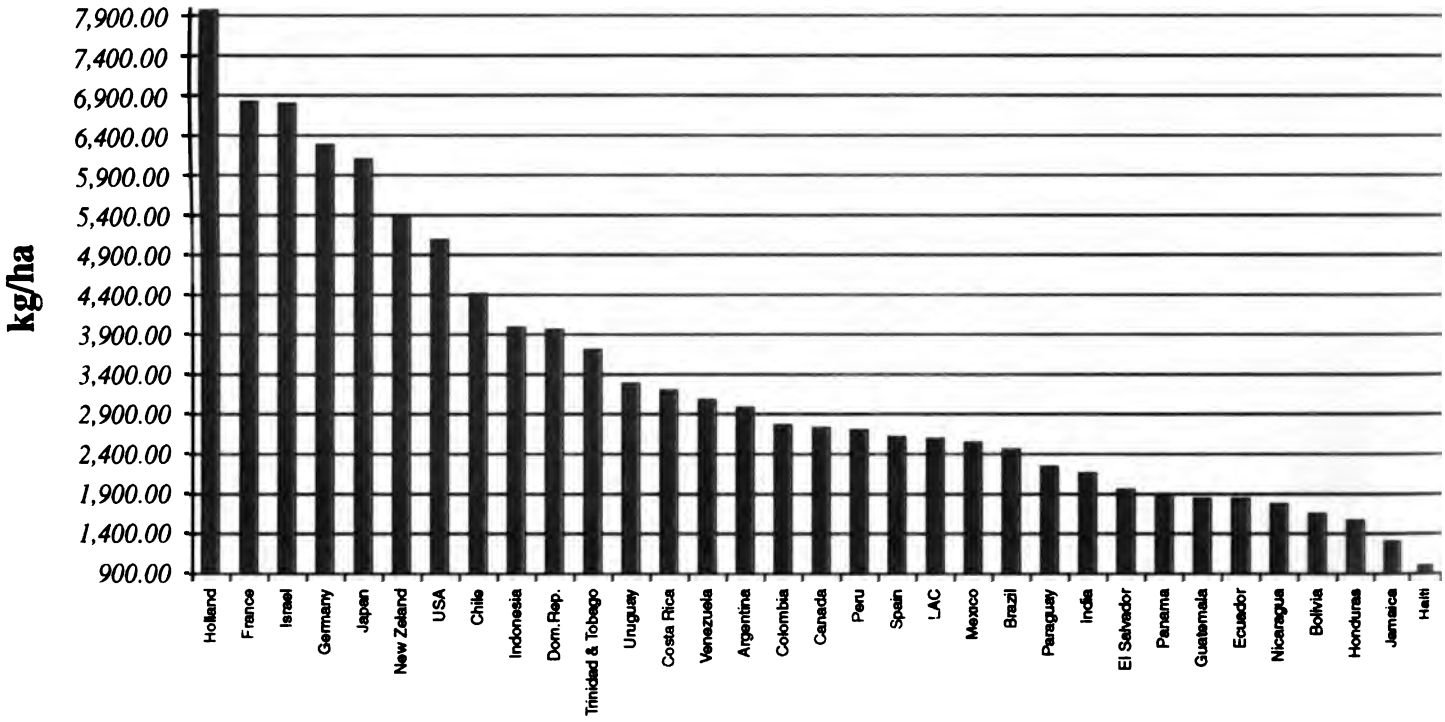
1. Includes foodstuffs and live animals, fats and vegetable oil, beverages , and tobacco
Source : Prepared with figures from the WB, 1998-99.

Table 3. America : Evolution of the surface area, Yields, and fertilizer use for Cereals.

Country	Surface (000's of has.)		Increase	Yield (ton/ha.)		Increase	Fertilizer Consumption (100 g./ha.)		Increase
	1979-81	1995-97	(%)	1979-81	1995-97	(%)	1979-81	1995-97	(%)
Argentina	11,099.0	10,126.0	-8.8	2,183.0	2,957.0	35.5	46.0	254.0	452.2
Bolivia	559.0	726.0	29.9	1,183.0	1,664.0	40.7	23.0	41.0	78.3
Brazil	20,612.0	19,554.0	-5.1	1,496.0	2,442.0	63.2	915.0	898.0	-1.9
Canada	19,561.0	19,330.0	-1.2	2,173.0	2,712.0	24.8	416.0	545.0	31.0
Chile	820.0	621.0	-24.3	2,124.0	4,412.0	107.7	321.0	1,131.0	252.3
Colombia	1,361.0	1,239.0	-9.0	2,452.0	2,734.0	11.5	812.0	2,853.0	251.4
Costa Rica	136.0	70.0	-48.5	2,498.0	3,179.0	27.3	2,650.0	3,636.0	37.2
Dom.Rep.	149.0	140.0	-6.0	3,024.0	3,933.0	30.1	572.0	722.0	26.2
Ecuador	419.0	1,038.0	147.7	1,633.0	1,821.0	11.5	471.0	752.0	59.7
El Salvador	422.0	431.0	2.1	1,702.0	1,949.0	14.5	1,330.0	1,261.0	-5.2
Guatemala	716.0	629.0	-12.2	1,578.0	1,869.0	18.4	726.0	1,324.0	82.4
Haiti	416.0	418.0	0.5	1,009.0	923.0	-8.5	62.0	89.0	43.5
Honduras	421.0	492.0	16.9	1,170.0	1,567.0	33.9	163.0	380.0	133.1
Jamaica	4.0	3.0	-25.0	1,667.0	1,267.0	-24.0	923.0	1,547.0	67.6
Mexico	9,547.0	10,923.0	14.4	2,152.0	2,575.0	19.7	570.0	538.0	-5.6
Nicaragua	266.0	383.0	44.0	1,475.0	1,742.0	18.1	392.0	147.0	-62.5
Panama	166.0	169.0	1.8	1,524.0	1,914.0	25.6	692.0	720.0	4.0
Paraguay	304.0	596.0	96.1	1,511.0	2,241.0	48.3	44.0	120.0	172.7
Peru	732.0	874.0	19.4	1,944.0	2,688.0	38.3	381.0	453.0	18.9
Trinidad & Tobago	4.0	4.0	0.0	3,167.0	3,703.0	16.9	1,064.0	1,022.0	-3.9
USA	72,630.0	63,137.0	-13.1	4,151.0	5,043.0	21.5	1,092.0	1,134.0	3.8
Uruguay	614.0	628.0	2.3	1,644.0	3,301.0	100.8	564.0	777.0	37.8
Venezuela	814.0	772.0	-5.2	1,904.0	3,068.0	61.1	711.0	1,024.0	44.0
LAC	49,979.0	50,234.0	0.5	1,840.0	2,576.0	40.0	786.0	931.0	18.4

Source: Prepared with figures from the WB, 1998-99.

Figure 2. Cereal Yields by Country (1995-1997)



Source : prepared with figure from the WB, 1998-99, provided by FAO.

Table 4. LAC: Production, Surface area, and Yields for Major Crops

Products	Production (000's of tons)				Surface Area (000's has.)				Yield (ton/ha)			
	1980	1990	1995	1997	1980	1990	1995	1997	1980	1990	1995	1997
Cotton	4,807	4,812	4,150	2,943	5,606	3,714	2,794	2,127	0.857	1.296	1.485	1.384
Rice	16,438	15,414	21,113	20,240	8,205	6,175	6,860	6,120	2.003	2.496	3.078	3.307
Coffee	2,970	3,869	3,170	3,311	5,874	6,451	5,641	5,730	0.506	0.600	0.562	0.578
Sugarcane	356,416	487,557	502,056	552,931	6,275	7,852	8,074	8,929	56.799	62.093	62.182	61.925
Beans	3,688	4,603	5,260	5,122	7,356	8,141	8,319	7,806	0.501	0.565	0.632	0.656
Sunflower	1,751	4,032	6,042	5,572	2,012	2,752	3,190	3,226	0.870	1.465	1.894	1.727
Corn	45,045	49,672	73,728	78,018	24,905	24,917	28,714	29,174	1.809	1.993	2.568	2.674
Cassava	29,647	32,200	32,672	32,153	2,663	2,736	2,697	2,705	11.208	11.769	12.114	11.887
Soybeans	19,814	33,657	41,368	45,216	11,622	18,027	19,069	19,916	1.705	1.867	2.169	2.270
Sorghum	9,343	10,063	7,884	10,767	3,896	3,597	2,887	3,617	2.398	2.798	2.731	2.977
Wheat	14,874	20,845	16,837	23,352	9.985	10,747	7,852	9,199	1.490	1.940	2.144	2.539
Bananas & Platains	21,514	26,520	28,995	30,686								

Source: Prepared with figures from the WB, 1998-

Figure 3. LAC: Evolution of Production, Surface Area, and Yields 1980=100

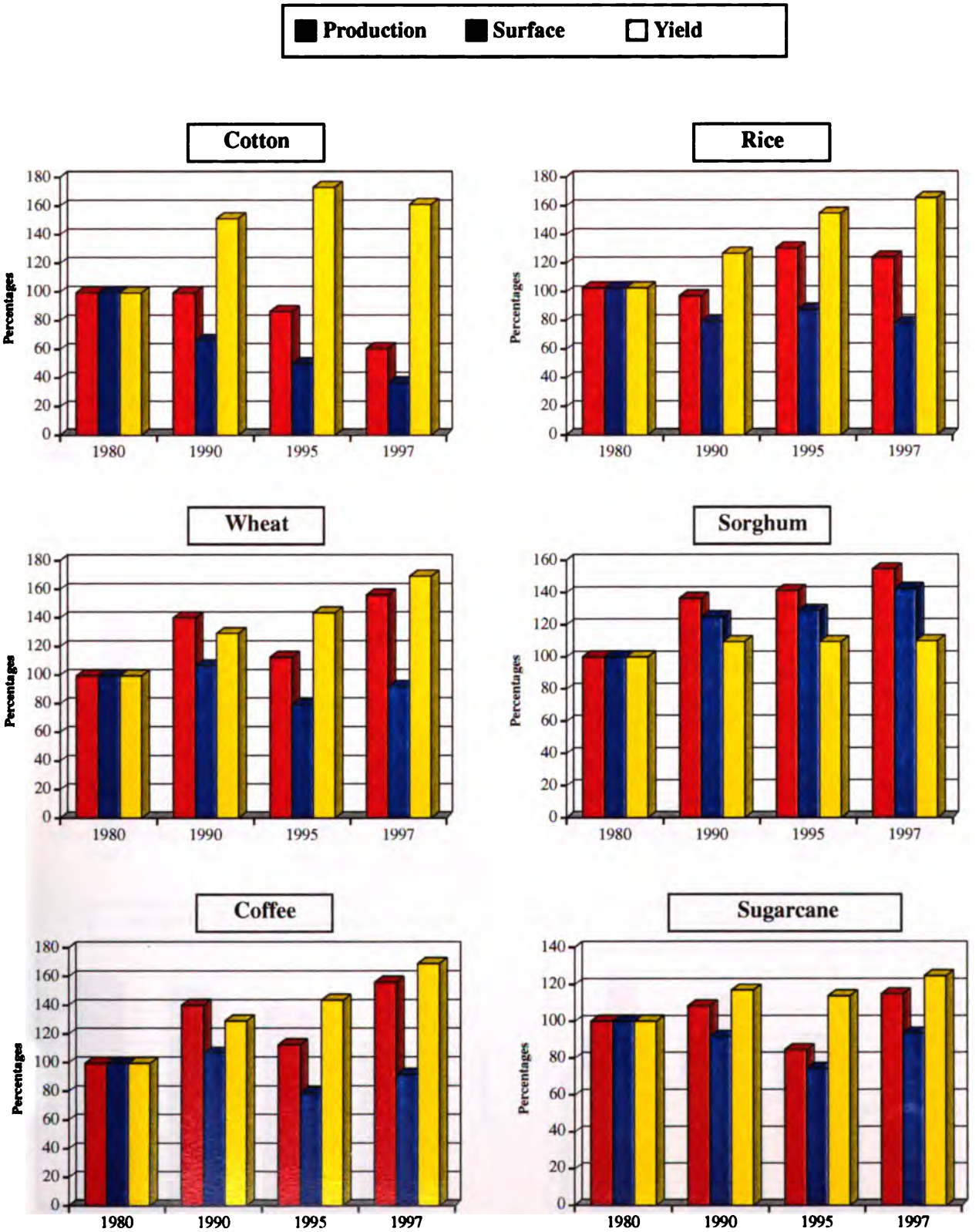
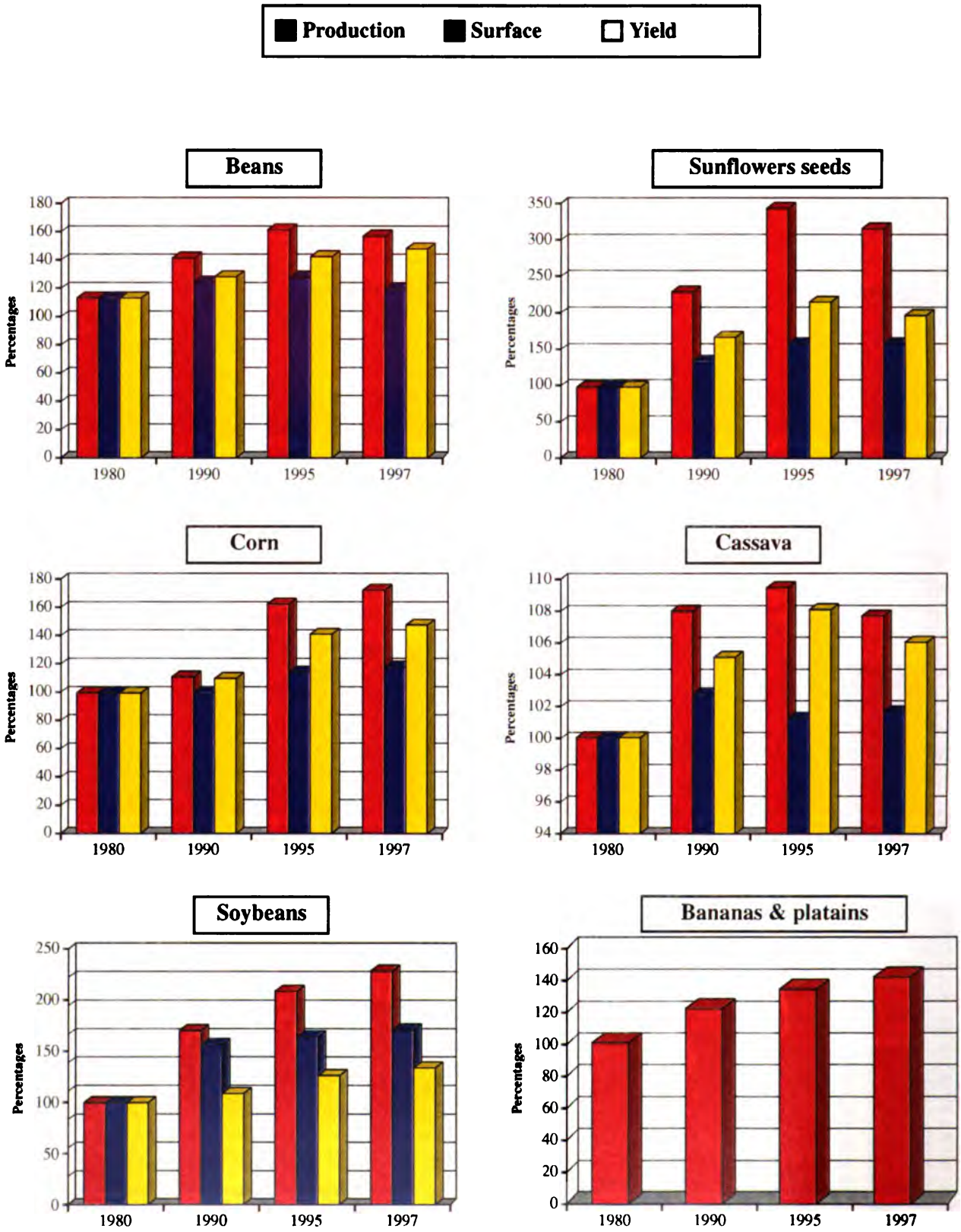


Figure 3. LAC: Evolution of Production, Surface Area, and Yields 1980=100



Source: Prepared with data from ECLAC, 1998

Table 5. Number of Workers per Irrigated Hectare (1996)

Countries	Persons/ha
Argentina	1.0
Brazil	5.3
Chile	0.8
Colombia	3.5
Costa Rica	2.4
Dom.Rep.	2.8
Ecuador	5.6
El Salvador	9.8
Guatemala	17.9
Haiti	
Honduras	11.9
Jamaica	7.8
Mexico	2.0
Nicaragua	5.4
Panama	8.4
Paraguay	10.6
Peru	1.6
Trinidad & Tobago	2.9
Uruguay	1.2
Venezuela	3.8

Source: Prepared with data from ECLAC, 1998 and WB 1998-99.

Table 6. LAC: Evolution of the Tractor Fleet, Irrigated Land, and Fertilizer Consumption.

Country	Tractors (000's units in service)		Increase	Irrigated Land (000's has.)		Increase	Fertilizer Consumption (000's ton/ha.)		Increase
	1980	1996	(%)	1980	1996	(%)	1980	1996	(%)
Antigua & Barbuda	0.2	0.2	2.6						
Argentina	166.0	280.0	68.7	1,580.0	1,700.0	7.6	115.6	840.0	626.6
Bahamas	0.1	0.1	18.1				1.2	0.4	-66.7
Barbados	0.5	0.6	24.5	1.0	1.0	0.0	5.8	3.2	-44.8
Belize	0.8	1.2	45.7	1.0	3.0	200.0	1.9	4.2	121.1
Bolivia	4.0	5.6	40.0	140.0	75.0	-46.4	3.0	9.1	203.3
Brazil	545.2	735.0	34.8	1,600.0	3,169.0	98.1	4,200.5	4,846.5	15.4
Chile	34.4	43.2	25.6	1,255.0	1,265.0	0.8	132.7	422.0	218.0
Colombia	28.4	21.0	-26.1	400.0	1,051.0	162.8	312.3	573.0	83.5
Costa Rica	6.0	6.5	8.3	61.0	126.0	106.6	73.5	59.7	-18.8
Dominica	0.1	0.1	1.1				3.0	2.7	-10.0
Ecuador	6.2	8.9	43.5	500.0	240.0	-52.0	72.6	94.4	30.0
El Salvador	3.3	3.4	3.0	110.0	120.0	9.1	60.4	88.0	45.7
Granada	0.0	0.0	20.0						
Guatemala	4.0	4.3	7.5	87.0	125.0	43.7	85.5	172.0	101.2
Guyana	3.5	3.6	2.9	125.0	130.0	4.0	5.9	15.0	154.2
Haiti	0.2	0.2	31.4	70.0	90.0	28.6	0.4	5.0	1,150.0
Honduras	3.3	4.9	48.5	72.0	74.0	2.8	28.5	78.0	173.7
Jamaica	2.8	3.1	10.7	33.0	33.0	0.0	17.5	25.0	42.9
Mexico	115.1	172.0	49.4	4,980.0	6,100.0	22.5	1,237.9	1,325.0	7.0
Nicaragua	2.2	2.7	22.7	80.0	88.0	10.0	54.2	39.0	-28.0
Panama	5.5	5.0	-9.1	28.0	32.0	14.3	30.6	38.0	24.2
Paraguay	7.3	16.5	126.0	60.0	67.0	11.7	6.3	33.0	423.8
Peru	11.9	13.2	10.9	1,160.0	1,753.0	51.1	118.1	165.0	39.7
Dom.Rep.	2.2	2.4	9.1	165.0	259.0	57.0	51.6	102.0	97.7
St. Lucia				1.0	3.0	200.0	0.9	7.0	677.8
St. Kitts & Nevis	0.2	0.2	-3.2				2.1	1.1	-47.6
St. Vincent & Granadines	0.1	0.1	6.7	1.0	1.0	0.0	3.9	3.0	-23.1
Surinam	1.1	1.3	18.2	42.0	60.0	42.9	1.6	7.3	356.3
Trinidad &Tobago	2.4	2.7	12.5	21.0	22.0	4.8	8.0	10.0	25.0
Uruguay	32.9	33.0	0.3	79.0	140.0	77.2	80.9	119.0	47.1
Venezuela	38.0	49.0	28.9	137.0	185.0	35.0	241.1	292.0	21.1
LAC	1,096.5	1,497.7	36.6	12,789.0	16,912.0	32.2	6,957.5	9,379.6	34.8

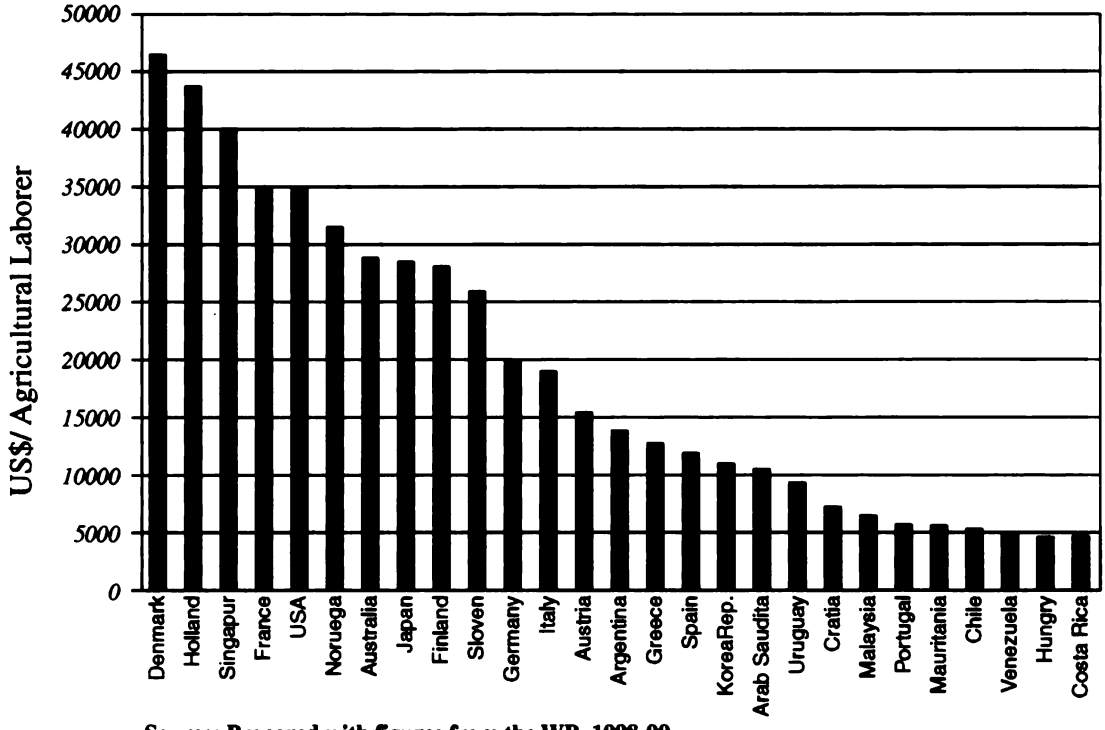
Source: Prepared with data from ECLAC, 1998.

Table 7. Agricultural Labor Productivity in US$ for 1995

Countries	Productivity/ Worker	
	Aver. 1980-81	Aver. 1995-97
USA	--	34,727
Argentina	12,195	13,833
Uruguay	6,822	9,384
Chile	2,612	5,211
Venezuela	4,041	4,931
Costa Rica	3,159	4,627
Brazil	2,047	3,931
Paraguay	2,506	3,295
Colombia	1,926	2,890
Panama	2,122	2,463
Dom.Rep.	1,839	2,454
Guatemala	2,110	1,902
Trinidad & Tobago	3,067	1,838
Ecuador	1,206	1,764
El Salvador	2,013	1,705
Mexico	1,482	1,690
Peru	1,349	1,619
Nicaragua	1,334	1,407
Jamaica	892	1,294
Honduras	697	1,018
Haiti	578	407

Source: Prepared with figures from the WB, 1998-99

Figure 4. Agricultural Productivity, Value per Worker (Price in 1995 US$, average for 1995-1997)

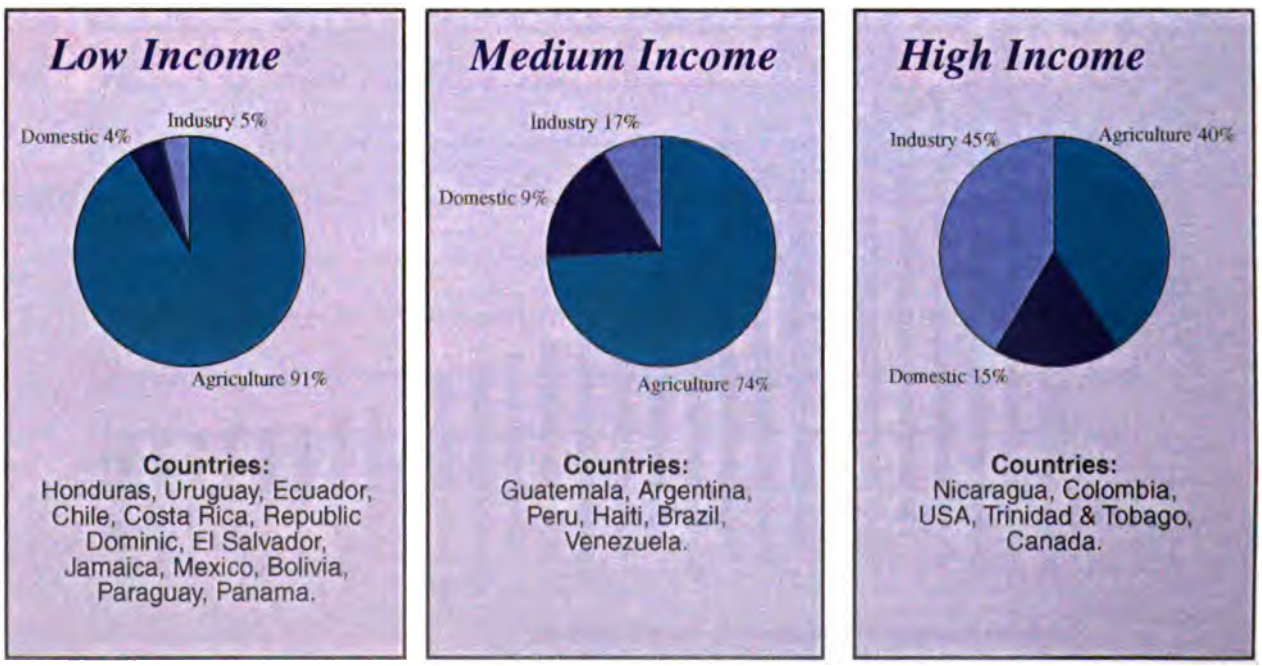


Source: Prepared with figures from the WB, 1998-99.

Table 8. Annual Fresh Water Usage (% Participation in Usage)

	Agricultural	Industrial	Household
Argentina	73	18	9
Bolivia	85	5	10
Brazil	59	19	22
Canada	12	70	18
Chile	89	5	6
Colombia	43	16	41
Costa Rica	89	7	4
Dom.Rep.	89	6	5
Ecuador	90	3	7
El Salvador	89	4	7
Guatemala	74	17	9
Haiti	68	8	24
Honduras	91	5	4
Jamaica	86	7	7
Mexico	86	8	6
Nicaragua	44	10	46
Panama	77	11	12
Paraguay	78	7	15
Peru	72	9	19
Trinidad & Tobago	35	38	27
USA	42	45	13
Uruguay	91	3	6
Venezuela	46	11	43

Figure 5. Overall Water Usage by Sector in the World's Low, Medium, and High Income Economies



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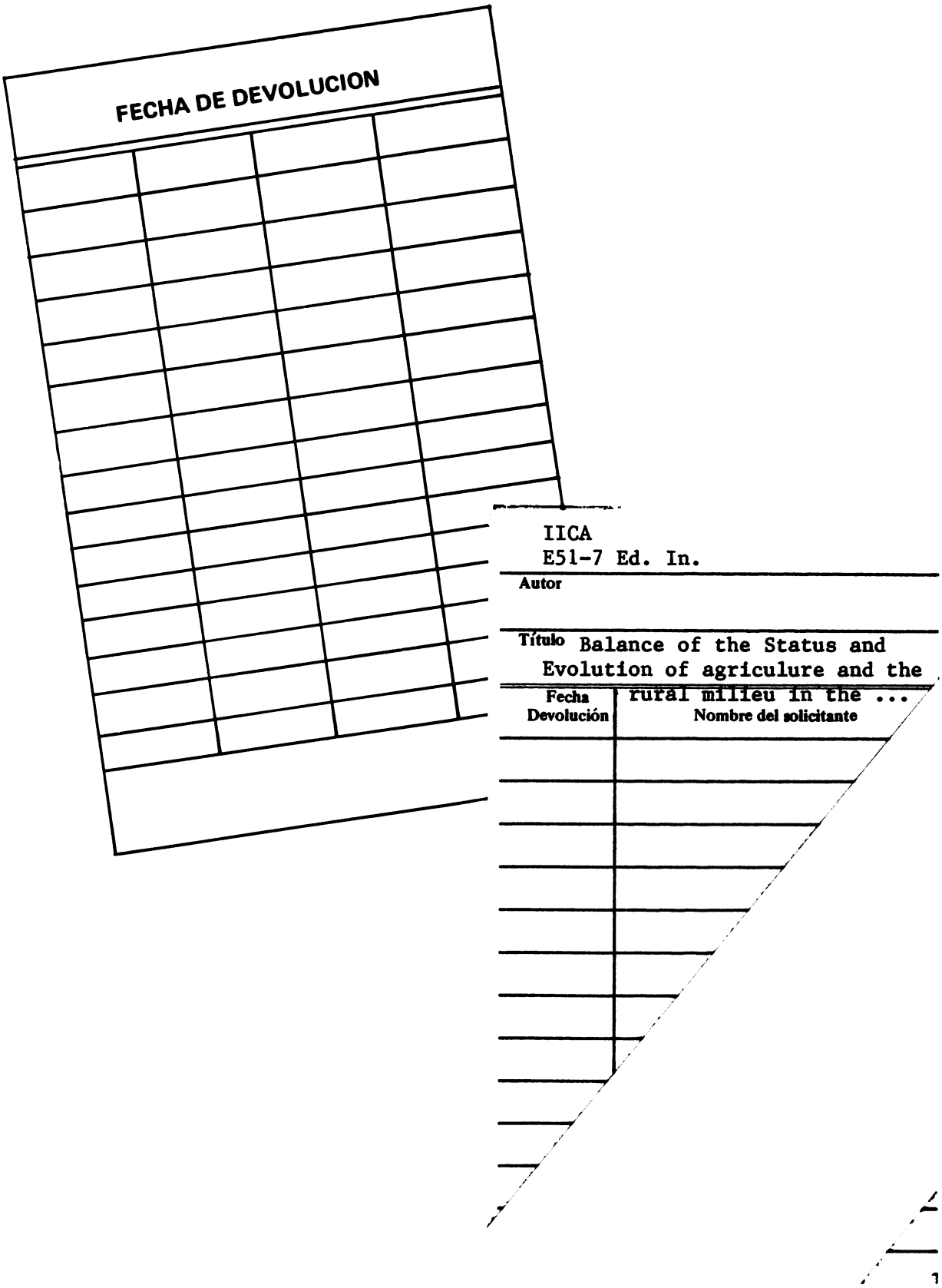

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