



AGRO- INDUSTRIAL REVOLUTION: FROM FARMS TO THE WORLD MARKETS

DOCUMENT PREPARED BY THE VICE-PRESIDENCY FOR
SECTORS AND KNOWLEDGE OF THE INTER-AMERICAN
DEVELOPMENT BANK

Copyright © 2018 Inter-American Development Bank. This work is licensed under a Creative Commons IGO 3.0 Attribution-NonCommercial-NoDerivatives (CC-IGO BY-NC-ND 3.0 IGO) license (<http://creativecommons.org/licenses/by-nc-nd/3.0/igo/legalcode>) and may be reproduced with attribution to the IDB and for any non-commercial purpose. No derivative work is allowed.

Any dispute related to the use of the works of the IDB that cannot be settled amicably shall be submitted to arbitration pursuant to the UNCITRAL rules. The use of the IDB's name for any purpose other than for attribution, and the use of IDB's logo shall be subject to a separate written license agreement between the IDB and the user and is not authorized as part of this CC-IGO license.

Note that link provided above includes additional terms and conditions of the license.

The opinions expressed in this publication are those of the authors and do not necessarily reflect the views of the Inter-American Development Bank, its Board of Directors, or the countries they represent.



KEY STATISTICS

- Latin America and the Caribbean (LAC) is a major net exporter of food and agricultural products. It accounts for 16% of the total food and agricultural exports worldwide and 4% of the total food and agricultural imports.
- Of the 446 million hectares of land potentially suitable for sustainable expansion of cultivated land in the world, 28% is located in LAC.
- 70% of deforestation in LAC is caused by agribusiness.
- LAC was the only region to achieve the Millennium Development Goal of halving malnutrition between 1990 and 2015. However, the number of undernourished individuals has increased.
- The region is experiencing “the triple burden of malnutrition”: undernutrition, micronutrient deficiencies and obesity.

INTRODUCTION

Food security is one of the greatest challenges of our time. In 2050, the world will have 2.3 billion more people. Additionally, global demand for food will double as quality and safety demands increase.

What role will Latin America and the Caribbean play when faced with this scenario? LAC's forest biomass covers almost 900 million hectares. This is equivalent to half of the world's surface and almost one fourth of the forest coverage worldwide. LAC holds 30% of the fresh water in the world and 40% of the renewable natural water resources in LAC. Additionally, the region produces 12% of the world's agricultural production and contributes 16% of the world's agricultural exports.

DIAGNOSTIC AND TRENDS

The region saw an increase in agricultural production between 1990 and 2014. However, **there is room for more agricultural productivity**. A recent study shows that Total Factor Productivity (TFP) in agricultural production in LAC grew 45% between 1980 and 2012. Although the gap between LAC and OECD countries with respect to TFP has been narrowing recently, it still continues to be around 50%.

LAC's potential of increasing its production is high due to its abundant natural resources. Of the 445.6 million hectares potentially suitable for sustainable expansion of cultivated land, 28% is located in LAC.

The region has the largest fertile land reserves in the world. Additionally, since the beginning of the 21st century, LAC has experienced the largest agricultural expansion in the world. Estimates indicate that between 2001 and 2013, cultivated land expanded by 44.27 million hectares while pasture seeding expanded by 96.9 million hectares. Additionally, the region has more renewable water per capita than other developing regions.

The Southern Cone produces 60% of the food in LAC, followed by Central America (20%), Andean countries (15%), and the Caribbean (3%).

Over the past decade, not only agriculture but **agribusiness** has seen substantial growth in the region, creating a significant number of jobs and adding key elements to the food basket. It also represents an alternative to urban migration, supports local culture and adds value to female labor. The contribution of agribusiness in countries such as Brazil and Argentina ranges from 25–30% of GDP. In Mexico, agribusiness contributes 12% of GDP.

Throughout the past decade, agricultural exports from LAC increased almost 102%, rising from US\$ 105 billion to US\$ 213 billion. Additionally, in 2016, agricultural exports and food products accounted for 24% of the region's total exports. Likewise, the region contributed more than 50% of the world's exports of banana, sugar and soy and over 25% of global exports of coffee, beef, chicken meat and maize. According to FAO (Food and Agriculture Organization), Latin America and the Caribbean is the largest net exporter of food. By 2024, the agricultural trade balance will be more than US\$ 60 billion, surpassing North America.

Agrifood systems have changed. Changes in household diets, rapid urbanization and access to technologies and inputs help explain part of the changes in agrifood systems. Additionally, agriculture mechanization increased land and labor productivity. This redirected the bulk of agricultural labor towards the non-agricultural sector and contributed to urban migration.

However, significant **challenges** still exist. Namely:

- **Trade openness consolidation.** Relatively high levels of protection continue to exist on several agribusiness and agricultural products in the region. This hinders the availability of food, especially in populations with less resources.
- **Sustainable food production.** Increase in agricultural production and productivity and agribusiness must be done in an environmentally sustainable fashion. A recent FAO report estimates that 70% of deforestation in LAC is due to the expansion of agricultural borders caused by commercial agriculture.
- **Producing more and better food.** On one hand, increasing food production is important to guarantee food safety among the population. On the other hand, agricultural production has to increase its quality by increasing the production of safe and diversified food products with higher nutritional content. LAC was the only region to

achieve the millennium development goal of reducing the proportion of malnutrition. However, the number of undernourished individuals grew by 2.4 million between 2015 and 2016, representing a total of 42.5 million people. Additionally, the region is experiencing “the triple burden of malnutrition”, which deals with the coexistence of undernutrition, micronutrient deficiencies and obesity.

- **Ensure production is resilient with respect to climate change.** In 2016, LAC suffered 55 disasters that impacted 12.9 million people, the majority of which were of a hydrological or meteorological nature. This poses a major challenge to agricultural production and food safety in the region.

THE ROLE OF THE PRIVATE SECTOR

Infrastructure Development

Access to public and private infrastructure should be promoted in order to increase agricultural productivity and improve the availability of food. Access to better infrastructure reduces transaction costs and enables access to markets. This, in turn, lowers food prices.

Information and Communications Technology

Access to cell phones and internet increases the efficiency of rural markets. This provides more access to information and improves sales prices, hence income for rural populations. Additionally, these tools offer producers more options when it comes to purchasing inputs, selling their crops and obtaining climate information, among others. Those in charge of public policies must work together with the private sector in order to promote the massive use of technology and the development of apps for rural areas. International trade is an instrument that promotes technological exchange and helps access quality inputs.

Access to Rural Credit and Funding

The lack of financial services designed for the needs of small farmers is a major constraint for growth in productivity. This reality restricts investments, links to food systems, the use of inputs and technological adoption.

Agricultural Research and Development

Technology research and transfer has been a key determinant of agricultural productivity improvement. Investments in agricultural research and development generate 14% average rates of return. This is why it is important for the

public and private sector to invest in solving demand-driven problems such as nutritional deficiencies, for example, by developing bio-fortified crops.

Technological Changes and Agriculture Mechanization

Agriculture mechanization increases land and labor productivity. It also reduces the need to expand the agricultural frontier and, therefore, the pressure on natural resources. For the region's largest commercial farms, this means investing in precision farming and in new and improved crop varieties. For smaller scale agriculture, this means access to technology through targeted financial support structures or through agricultural extension services.

Climate-Smart Agriculture

In order to reduce food system vulnerability due to climate change and natural disasters, both those in charge of enacting policy and the private sector must promote the implementation of adaptive measures that mitigate the vulnerability of production due to climate events. These measures include irrigation, adoption of agroforestry crops, the use of technology and farm insurance, among other alternatives. In particular, it is worth noting the importance of promoting access to modern irrigation systems that increase water use efficiency and reduce production vulnerability due to changes in precipitation.

Food Losses and Post-Harvest Technologies

Food losses in LAC ascend to 220 kg annually per capita. More than 85% of these occur in the market between the production and sales stages. The rest is due to consumer waste. Food groups with the highest losses are cereals, fruits and vegetables. In particular, estimates show that food losses in the region could feed 300 million people. This is why the public and private sectors must invest in technologies that reduce post-harvest losses.

Gender Gap

Women represent 43% of the labor force in the agricultural sector of developing countries. In LAC, they represent 21%. The breach in access to productive resources between men and women (i.e. work, land, irrigation and technology) generates significant inefficiencies. This, in turn, reduces agricultural productivity and consequently the availability of food. According to FAO, if the gender gap in access to production resources is reduced, agricultural production could grow by 2.5% to 4% in developing countries. This will reduce the number of people suffering from hunger between 12% and 17%.