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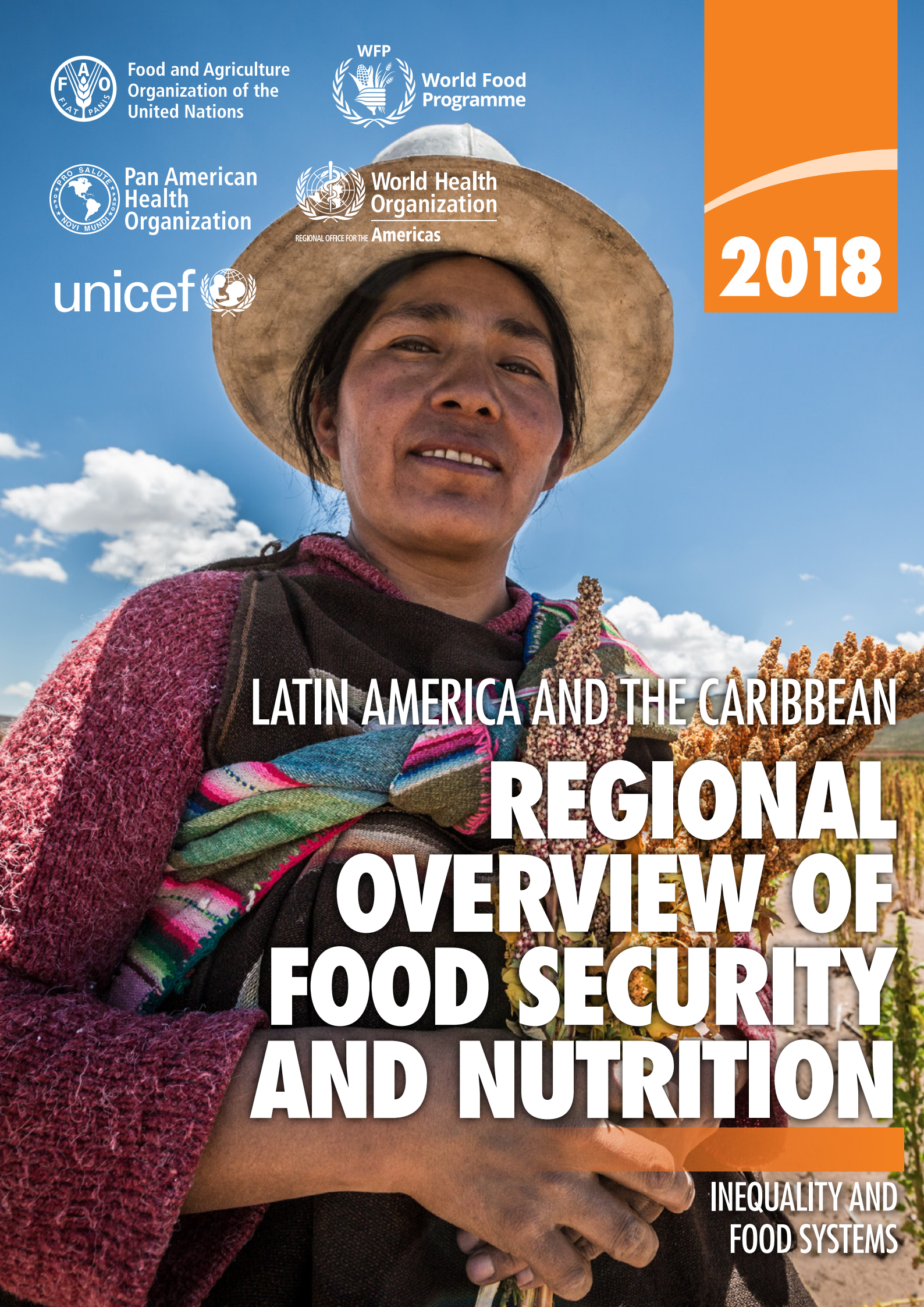

LATIN AMERICA AND THE CARIBBEAN

REGIONAL OVERVIEW OF FOOD SECURITY AND NUTRITION

INEQUALITY AND FOOD SYSTEMS

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INEQUALITY AND FOOD SYSTEMS

Food and Agriculture Organization of the United Nations (FAO)
Pan American Health Organization (PAHO)
World Food Program (WFP)
United Nations Children's Fund (UNICEF)
Santiago, 2019

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FOREWORD

The most recent data available regarding hunger and malnutrition are not positive. Latin America and the Caribbean are becoming less likely to meet the goal of zero hunger. The number of undernourished people increased for the third consecutive year, reaching 39.3 million. Today more than ever, we need to combine our efforts to reverse this backward movement, return to the path of progress and secure the complete fulfillment of the right to food.

As a contribution to this renewed effort, for the first time, four United Nations agencies—the Food and Agriculture Organization of the United Nations (FAO), the Pan American Health Organization/World Health Organization (PAHO/WHO), the United Nations Children's Fund (UNICEF) and the World Food Program (WFP)—have come together to publish the Panorama of Food and Nutrition Security in Latin America and the Caribbean 2018.

The report, known as Panorama for short, has been analyzing the challenges of food and nutrition security in the Region for a decade, and has become the leading regional publication on the subject. The report is a source of information and policy proposals. It provides an instrument for countries to formulate and implement policies that ensure a healthy life for all people and reinforce regional progress towards the international goals of hunger and malnutrition reduction in all its forms..

This year's edition focuses on inequality, a fundamental issue for the region in its efforts to fulfill the 2030 Sustainable Development Agenda.

The economic contraction suffered by Latin America and the Caribbean, political conflict in some countries and the increase in disasters caused by natural phenomena have resulted in an increase inmigration, the growth of poverty and extreme poverty rates, and a consequent deterioration of hunger and malnutrition levels. This situation is added to the effect of unhealthy eating patterns present in this region over the last two decades, and aggravates the situation among the most disadvantaged territories and populations.

Inequality contributes to hunger and different forms of malnutrition. In Latin America, 8.4% of women live in a situation of severe food insecurity, compared to 6.9% of men. In ten countries, 20% of the poorest children suffer three times more from chronic malnutrition. Indigenous populations suffer greater food insecurity than non-indigenous people, and rural populations more than urban ones.

Without addressing inequality in food security and nutrition, we will not be able to fulfill the promise and commitment to leave no one behind. It is necessary to understand why malnutrition, lack of micronutrients, overweight and obesity affect low-income people, women, indigenous people, people of African descent and rural families differently.

Despite this situation, the four agencies that have jointly produced this Panorama affirm that it is entirely possible to transform food systems to ensure better diets for all people, in a manner that is both more sustainable and adapted to climate change. Today we understand that we need to take action in the production, processing and marketing of products in order to make healthy food widely available. We can work to improve food environments in order to facilitate access to healthy foods, and encourage practices that help people make more informed and responsible decisions about their consumption.

The remarkable success made by the region in reducing hunger and malnutrition in Latin America and the Caribbean during the 1990s and the first decade of this century was due to the sustained commitment of societies, together with the

application of policies that addressed the intersectoral character of malnutrition. Other nations of the world replicated these lessons successfully.

However, political, economic and social changes have slowed down regional progress. Yet if it was achieved before, it is possible to redouble efforts and to again accelerate progress towards the goal of eradicating hunger and all forms of malnutrition. Some governments are implementing a new generation of policies to address the specific circumstances of the groups lagging furthest behind. Innovative public policies to reduce overweight and obesity are also being applied for the first time.

We hope that this new edition of the Panorama will help to return to a path that enables us to meet the goals of the 2030 Agenda for Sustainable Development. To do so, it must have the participation of all social actors. It is a call to think about ways of acting more responsibly towards society and the food environment, from producers to consumers. Food systems are needed that ensure adequate nutrition in the present and in the future, and that ensure a healthy lifestyle for all. Only in this way can the zero hunger generation be achieved.

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This edition was prepared under the coordination of Ricardo Rapallo, Food Security Officer at FAO, Rubén Grajeda, Advisor on Nutrition and Social Determinants at PAHO/WHO, Marc-André Prost, Head Social Protection and Nutrition at WFP, and Stefano Fedele, Regional Nutrition Specialist at UNICEF. Drafting and editing was under the responsibility of FAO consultants Sandra Caprile, Francisca Nahmías, María Valentina Quintanilla and Giovanna Zamorano.

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GUATEMALA
Fish production
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CHAPTER 1
TOWARDS ZERO HUNGER AND A HEALTHY LIFE FOR ALL

CHAPTER 1

TOWARDS ZERO HUNGER AND A HEALTHY LIFE FOR ALL

KEY MESSAGES

➔ The Latin America and the Caribbean region is becoming less likely to meet the goal of zero hunger. The number of undernourished people increased for the third consecutive year, reaching 39.3 million, or 6.1% of the population. To a large extent, this reflects an increase in undernourishment in South America. Similarly, severe food insecurity has increased in comparison with the previous year, as a situation that affects more women than men, a gap that has increased over the measurement periods of the indicator.

➔ Stunting of boys and girls has maintained its downward trend. By contrast, childhood overweight continues to increase and affects 7.3% of the population under 5 years of age, surpassing the global average. Obesity in adults maintains its upward trend, affecting more than one-fifth of the population of Latin America and the Caribbean, and is an important risk factor for the development of non-communicable diseases (NCDs).

➔ The inequality characteristic of Latin America and the Caribbean is also present in the case of hunger and the different forms of malnutrition. Rural areas in general, certain territories that are lagging behind, women, people and households with lower incomes, and indigenous peoples all face higher levels of exclusion from the right to food and are at a very high risk of being left behind in fulfillment of the Sustainable Development Goals (SDG) 2 and 3. For these geographical sectors and territories, the general policies related to the right to food are insufficient and sometimes also inadequate, and require specific solutions appropriate to their circumstances.

Malnutrition is an obstacle to personal development, with consequences transmitted throughout society. The various forms of malnutrition not only arise from inadequate or insufficient food intake, but also involve a set of processes that are interrelated with inequalities in access to health, education, sanitation, basic services, gender equity, place of residence, religion, ethnic background, or the conservation of natural resources, among others (UNSCN, 2014). As such, guaranteeing food security and nutrition constitutes one of the cross-cutting and key issues for ensuring compliance with the 17 SDGs of the 2030 Agenda for Sustainable Development.

Goal 2, *End hunger, achieve food security and improved nutrition and promote sustainable agriculture,* and Goal 3, *Ensure healthy lives and promote well-being for all at all ages,* are directly related to food, recognizing that better nutrition is essential for the population to enjoy good health.

To fulfill the slogan of "leave no one behind," as established in the 2030 Agenda, and reach the agreed targets, it is necessary to identify the population living in conditions that lag the furthest behind, and carry out actions specifically directed towards them. One of the greatest difficulties in achieving SDGs 2 and 3 is the lack of disaggregated data that allows for better understanding and characterization of food and nutrition security in the population that faces the highest levels of vulnerability in Latin America and the Caribbean.

SDG 2:

END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION AND PROMOTE SUSTAINABLE AGRICULTURE

SDG 2 pursues the eradication of hunger and all forms of malnutrition by 2030. To this end, the population as a whole must have nutritious food and in quantities adequate to the needs of each person (UN, 2016).

This section will address targets 2.1, *End hunger*, and 2.2, *End all forms of malnutrition of* SDG 2 for Latin America and the Caribbean.

TARGET 2.1

End hunger and ensure access for all people to safe, nutritious and sufficient food

Target 2.1 refers to the lack or deprivation of food, and has two indicators: the prevalence of undernourishment and the prevalence of moderate or severe food insecurity, according to the Food Insecurity Experience Scale (FIES). These indicators are complementary and together allow a better understanding of hunger and food insecurity. Although the indicators are related,[1] they are not equivalent (see Box 1).

The data available at this time indicate that undernourishment affected 10.9% of the global population in 2017, which means an increase over the 10.6% recorded in 2015, the year in which the change in trend occurred. It is estimated that 820.8 million people lack access to a diet that provides the necessary amount of calories to lead an active and healthy life.

Undernourishment in Latin America and the Caribbean[2] has been stagnating since 2014, since prevalence has remained at around 6.1% of the population (Figure 1). However, the number of people experiencing hunger has steadily increased since 2014, from 38.5 million people to 39.3 million people in Latin America and the Caribbean in 2017 (Figure 2). To a large extent this increase is due to the situation in South America,[3] specifically that affecting the Bolivarian Republic of Venezuela in recent years, added to the context of economic deceleration and contraction that the Region[4] has faced in recent years and that has coincided with an increase in poverty.[5]

FAO estimates that 5% of the population of the subregion was undernourished in 2017.

1 Both indicators show degrees of correlation (FAO, IFAD, WHO, WFP and UNICEF, 2017). However, they correspond to different definitions, concepts and methodologies (FAO and PAHO, 2017b). See more details in Box 1.

2 For the purposes of this publication, Latin America and the Caribbean is divided into the following subregions: South America (Argentina, Brazil, Chile, Colombia, Ecuador, Plurinational State of Bolivia, Guyana, Paraguay, Peru, Bolivarian Republic of Venezuela, Suriname, Uruguay), Mesoamerica (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Panama) and the Caribbean (Antigua and Barbuda, Bahamas, Barbados, Cuba, Dominica, Dominican Republic, Grenada, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines and Trinidad and Tobago).

3 Given the size of this subregion, it has a strong influence on regional averages. It concentrates about two-thirds of the population of Latin America and the Caribbean, five-sixths of the region's surface area and three-quarters of the region's GDP.

4 For the purposes of this document, the term "region" refers to Latin America and the Caribbean.

5 Economic performance and the recent evolution of poverty is dealt with in greater detail in the section on access in chapter 2 of this document.

BOX 1
ON THE INDICATORS FOR TARGET 2.1

The prevalence of **undernourishment** (Indicator 2.1.1) corresponds to the estimation of the proportion of the total population who lack the food required to cover their daily energy needs to lead a healthy and active life, during the reference period of one year. To perform this estimation, the following parameters are required in order to characterize a parametric probability density function: 1) the average consumption of dietary energy; 2) the coefficients of variation and symmetry that account for the inequality in the consumption of dietary energy; and 3) the minimum energy consumption threshold needed to lead a healthy life (FAO, 2014c).

According to the above, the estimation corresponds to the cumulative probability that the habitual dietary energy consumption is below the minimum energy consumption threshold for an average individual representative of the population (FAO, 2014c).

In a continuing effort to improve its estimations, FAO incorporates more and better information, to the extent that it is available. This implies that the current series of figures published on undernourishment are not comparable with those prepared in previous years, since the estimations are based on the updated information available at the time of calculation.

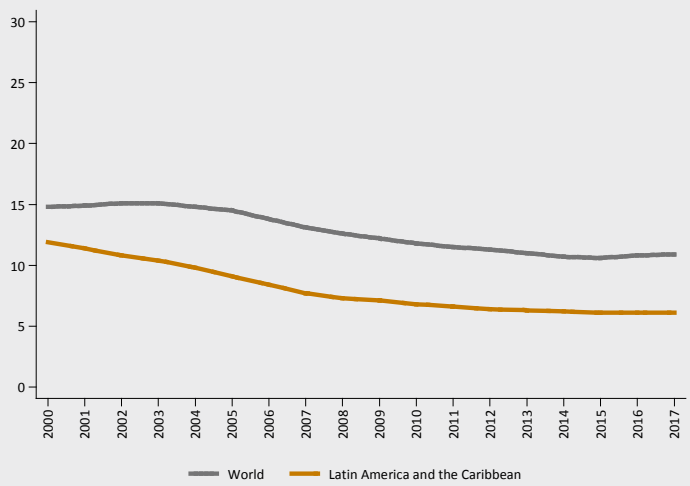
The prevalence of **moderate or severe food insecurity** (indicator 2.1.2) is calculated from information collected in surveys conducted directly with adults (15 years of age or older). This indicator reflects the difficulties in accessing adequate nutrition based on experience, and the degree of severity of the food insecurity, on the basis of the eight questions of the survey module of the Food Insecurity Experience Scale (FIES). The survey explores, among other areas, whether due to lack of money or other resources, the respondent has been worried about having enough food, if they have been forced to decrease the quality or amount of food consumed, or if they have spent whole days without eating (FAO, IFAD, WHO, WFP and UNICEF, 2017).

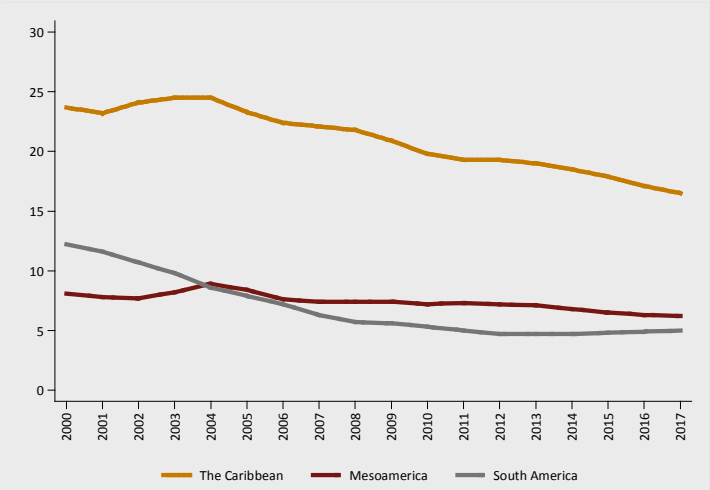
To calculate comparable estimates of the prevalence of food insecurity, respondents should be assigned to food security classes, defined by established standard thresholds along the severity scale. The matching procedure ensures that these thresholds are mapped to the national scales, and the respondents are assigned to the common food insecurity classes on a probabilistic basis, given their raw scores (number of affirmative responses).

The prevalence of food insecurity in the population is based on the weighted sum of the specific probabilities of the raw score.

To obtain comparable prevalence rates between countries, a global FIES scale is defined, and the scales of each country are calibrated with this global scale. This makes it possible to obtain severity measures that are comparable across countries and over time (FAO, 2016b).

FIGURE 1
EVOLUTION OF UNDERNOURISHMENT IN THE WORLD, LATIN AMERICA AND THE CARIBBEAN AND SUBREGIONS, PREVALENCE (%), 2000-2017 ANNUAL VALUES





Source: FAO, IFAD, UNICEF, WFP and WHO, 2018. The state of food security and nutrition in the world. Promoting climate resilience in the interest of food security and nutrition.

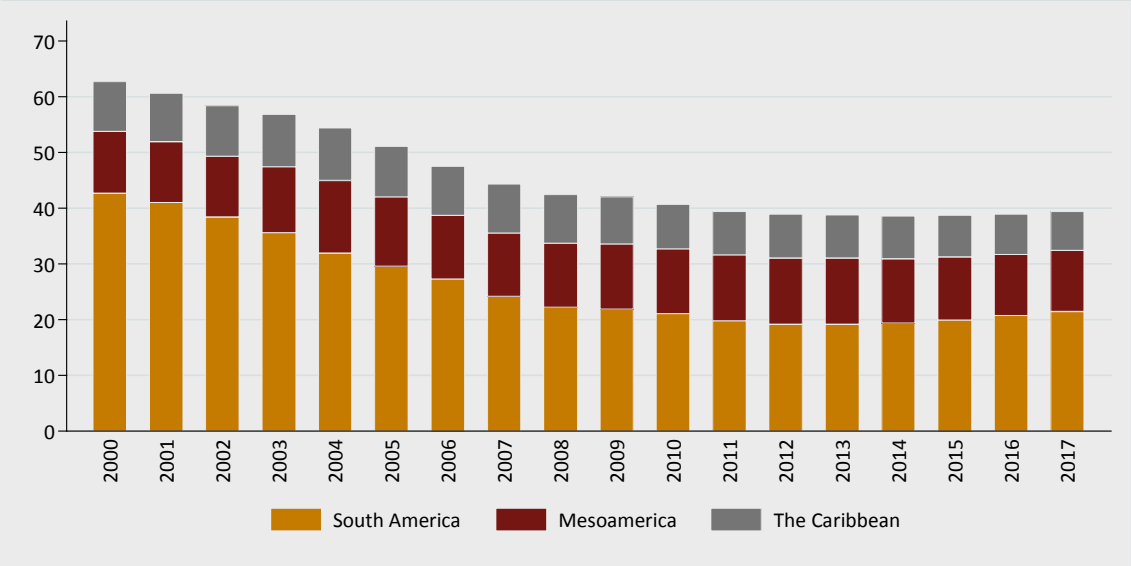
This means a stagnation at the levels recorded in 2011 (Figure 1). Meanwhile, undernourishment in Mesoamerica and the Caribbean maintains its downward trend, with 6.2% and 16.5% of their affected populations, respectively.

Recent estimates on undernourishment in the region not only show a change in trend, but also an acceleration in the increase in hunger by comparison with the increase seen the previous year.

As such, between 2015 and 2016 undernourishment increased by about 200 000 people, while between 2016 and 2017, the increase was 400 000 people. Not only are we further from achieving the goal of zero hunger, but in recent years the distance has been increasing at a faster rate.

The largest number of undernourished people is found in South America, with 21.4 million people in this situation. In this part of the continent, for the fourth consecutive year an increase was recorded, which adds more than 2 million additional people who cannot meet their daily calorie intake needs. In Mesoamerica, the number of undernourished people has remained at 11 million in the last two years. Meanwhile, in the Caribbean this figure has been reduced by 200 000 people compared to the previous year, which gives a total of 7 million undernourished Caribbeans.

FIGURE 2
EVOLUTION OF UNDERNOURISHMENT IN LATIN AMERICA AND THE CARIBBEAN AND SUBREGIONS, MILLIONS OF PEOPLE, ANNUAL VALUES, 2000-2017



Source: FAO, IFAD, UNICEF, WFP and WHO, 2018. The state of food security and nutrition in the world. Promoting climate resilience in the interest of food security and nutrition.

Analyzing the situation of the region's countries allows us to better understand the trend that is becoming evident in Latin America and the Caribbean (Table 1). FAO uses triennial averages for its national and regional estimates on undernourishment so as to avoid that transient factors such as droughts, unexpected increases in food prices or other short-term factors increase the volatility of the estimate.

In the 2015-2017 triennium, Haiti was the country with the highest proportion of undernourished people, with 45.8% of the population. Since the 2000-2002 triennium to date, the number of undernourished people has remained around the five million mark, and therefore requires special attention. Meanwhile, the Bolivarian Republic of Venezuela is the second country requiring most attention, since the prevalence of hunger has almost tripled between 2010-2012 (3.6%) and 2015-2017 (11.7%). In addition, the number of people in this situation increased significantly during that period, reaching 3.7 million people. Thus, the very significant advances that the country had achieved in the 2000s have been lost.

In comparison with the 2010-2012 triennium, the reduction in the undernourished population has stagnated in several countries in Latin America and the Caribbean. In some, the prevalence far exceeds the regional average (6.1%). By contrast, Brazil, Cuba and Uruguay lead the fightagainst hunger in the region, with a prevalence of undernourishment of less than 2.5%.

TABLE 1

UNDERNOURISHMENT IN LATIN AMERICA AND THE CARIBBEAN, PREVALENCE (%) AND MILLIONS OF PEOPLE, IN TRIENNIUMS FROM 2000-02 TO 2015-17

	Prevalence					Millions of People				
	2000-2002	2010-2012	2013-2015	2014-2016	2015-2017	2000-2002	2010-2012	2013-2015	2014-2016	2015-2017
Argentina	4.1	3.9	3.4	3.6	3.8	1.5	1.6	1.5	1.6	1.7
Barbados	5.8	4.9	4.0	3.8	3.7	<0.1	<0.1	<0.1	<0.1	<0.1
Belize	5.0	5.8	6.7	6.6	6.5	<0.1	<0.1	<0.1	<0.1	<0.1
Bolivia (Plurinational State of)	31.6	24.6	19.9	19.6	19.8	2.7	2.5	2.1	2.1	2.2
Brazil	10.6	<2.5	<2.5	<2.5	<2.5	18.8	<5.0	<5.1	<5.1	<5.2
Chile	4.4	4.0	3.6	3.3	3.3	0.7	0.7	0.6	0.6	0.6
Colombia	9.4	10.9	7.9	7.1	6.5	3.9	5.0	3.8	3.4	3.2
Costa Rica	5.3	5.2	5.4	4.9	4.4	0.2	0.2	0.3	0.2	0.2
Cuba	2.8	<2.5	<2.5	<2.5	<2.5	0.3	<0.3	<0.3	<0.3	<0.3
Dominica	4.4	5.6	5.9	5.6	5.2	<0.1	<0.1	<0.1	<0.1	<0.1
Ecuador	18.8	9.1	8.2	8.0	7.8	2.4	1.4	1.3	1.3	1.3
El Salvador	9.3	12.5	11.3	11	10.3	0.6	0.8	0.7	0.7	0.7
Guatemala	18.1	15.8	16.5	16.1	15.8	2.2	2.4	2.6	2.6	2.6
Guyana	7.9	10.5	8.1	7.8	7.5	<0.1	<0.1	<0.1	<0.1	<0.1
Haiti	56.0	49.5	48.8	47.5	45.8	4.9	5.0	5.2	5.1	5.0
Honduras	18.5	15.2	15.6	15.5	15.3	1.2	1.3	1.4	1.4	1.4
Jamaica	6.8	9.0	9.3	9.0	8.9	0.2	0.3	0.3	0.3	0.3
Mexico	4.4	4.6	4.2	4.0	3.8	4.5	5.5	5.2	5.0	4.8
Nicaragua	29.3	20.0	17.0	16.4	16.2	1.5	1.2	1.0	1.0	1.0
Panamá	26.2	11.8	9.1	9.2	9.2	0.8	0.4	0.4	0.4	0.4
Paraguay	12.2	11.9	12.2	11.7	11.2	0.7	0.7	0.8	0.8	0.8
Peru	21.7	10.2	9.3	9.0	8.8	5.7	3.0	2.9	2.8	2.8
Dominican Republic	27.1	14.6	11.9	11.1	10.4	2.4	1.5	1.2	1.2	1.1
St. Vincent and the Grenadines	14.8	6.4	5.9	5.9	5.7	<0.1	<0.1	<0.1	<0.1	<0.1
Suriname	12.9	8.1	7.8	7.6	7.6	<0.1	<0.1	<0.1	<0.1	<0.1
Trinidad and Tobago	11.2	8.6	6.0	5.5	4.9	0.1	0.1	<0.1	<0.1	<0.1
Uruguay	4.1	<2.5	<2.5	<2.5	<2.5	0.1	<0.1	<0.1	<0.1	<0.1
Venezuela	16.3	3.6	7.9	9.8	11.7	4.1	1.1	2.4	3.1	3.7
Latin America and the Caribbean	11.4	6.6	6.2	6.1	6.1	60.6	39.7	38.7	38.7	39.0
The Caribbean	23.7	19.5	18.5	17.8	17.2	8.9	7.9	7.7	7.5	7.2
Mesoamerica	7.9	7.2	6.8	6.5	6.3	11.0	11.8	11.6	11.3	11.1
South America	11.5	5.0	4.7	4.8	4.9	40.7	20	19.4	19.9	20.7

Source: FAO, IFAD, UNICEF, WFP and WHO, 2018. The state of food security and nutrition in the world. Promoting climate resilience in the interest of food security and nutrition.

The second indicator for target 2.1 is moderate or severe food insecurity. It is a complement to the undernourishment indicator set out in the Millennium Development Goals (MDGs). It allows a better understanding of hunger and has great potential for helping to guide actions for compliance with SDG 2.

The indicator explores levels of severity of food insecurity based on a set of questions that explore aspects of food quality and quantity, also considering some psychosocial elements associated with anxiety and uncertainty about the future availability of sufficient food (FAO, 2016b). In addition, the way in which the indicator is calculated allows for a better characterization of the people who are in the most disadvantaged situation.

Table 2 shows the levels of serious food insecurity for some countries of the region. It is important to note that the indicator has only been used since the approval of the SDGs, and as such only the measurements corresponding to two periods are available.[6] The levels of severe food insecurity reflect complete days without food, either due to lack of money or resources to obtain food.

In the period 2015-2017, serious food insecurity [7] affected 6.9% of the population in South America and 10.3% in Mesoamerica.[8] Compared to the previous measurement, this data shows an increase in levels of food insecurity , which coincides with the deterioration of other social indicators. In South America, the largest increases are registered, in line with the economic and political difficulties faced by some countries in the subregion.

6 The second indicator for target 2.1 comes from the Food Insecurity Experience Scale (FIES), which began taking measurements in 2014, and is based on the Latin American and Caribbean Food Security Scale (ELCSA) that has previously been used by some countries in their household surveys. Examples are Brazil, Guatemala and Mexico.

7 This document presents only the results of severe food insecurity. Given the few periods of measurement, it is in the process of validation in conjunction with the countries.

8 The subregional values are calculated based on the information of all the countries where the survey is carried out. For this reason, there is no value for the Caribbean because it does not reach a representative value among countries. Further information on the methodology is available at: http://www.fao.org/3/c-i4830e.pdf

TARGET 2.2:

End all forms of malnutrition

In addition to putting an end to all forms of malnutrition by 2030, target 2.2 takes up the targets on malnutrition agreed upon in 2012 at the World Health Assembly. It consists of two indicators: the prevalence of stunting [9] and the prevalence of malnutrition by type (wasting and overweight),[10] in both cases for children under 5 years of age.

Thus, the indicators established in target 2.2 are more demanding, since by the year 2025 they must also produce results. Specifically, between 2010 and 2025 stunting (short height for age or chronic malnutrition) has to be reduced by 40%. Rates of wasting (low weight for height or acute malnutrition) must also be reduced to less than 5%, and childhood overweight should not increase (WHO, 2017a).

Stunting is a consequence of several factors but is closely linked to the lack of necessary food and nutrients over a long period, which increases the risk of diseases and affects the physical and cognitive development of children (UNICEF, 2011).

Figure 3 shows the evolution of stunting in children under 5 in Latin America and the Caribbean, registering a downward trend in recent decades. According to the most recent WHO estimates, in 2017, 9.6% or 5.1 million children under 5 were stunted.

By subregion, in 2017 in South America 7.5% of children under 5 were stunted (2.5 million), in Mesoamerica, 14.1% (2.3 million), and in the Caribbean, 8% (286 000).

Projections for 2025 indicate that Latin America and the Caribbean is well on track to meet the first indicator. If the current trend continues, at the subregional level, in 2025 the Caribbean and South America would also achieve a 40%

9 Corresponds to height for age, with a standard deviation below -2 of the median population of WHO child growth standards, in children under 5 years of age (UN, 2017).

10 Corresponds to the weight for height, with a standard deviation lower than -2 or higher than 2 of the median population of WHO child growth standards, in children under 5 years of age (UN, 2017).

TABLE 2
SEVERE FOOD INSECURITY IN LATIN AMERICA AND THE CARIBBEAN COUNTRIES AND SUBREGIONS, PREVALENCE (%) AND MILLIONS OF PEOPLE, 2014-2016 AND 2015-2017

	Prevalence (%)		Millionsof people	
	2014-2016	2015-2017	2014-2016	2015-2017
Argentina	5.8	8.7	2.5	3.8
Chile	3.9	4.4	0.7	0.8
Costa Rica	4.8	4.8	0.2	0.2
Ecuador	7.3	7.1	1.2	1.2
El Salvador	12.2	11.7	0.8	0.7
Mexico	9.0	8.9	11.3	11.3
Saint Lucia	4.5	4.5	<0.1	<0.1
Latin America	7.2	7.9	42.2	47.1
South America	5.8	6.9	24.3	29.0
Mesoamerica	10.4	10.3	17.9	18.1

Source: FAO. IFAD. UNICEF. WFP and WHO. 2018. The state of food security and nutrition in the world fostering climate resilience in the interests of food security and nutrition.

reduction in the proportion of children under 5 with stunting, and Mesoamerica would be very close to compliance.

At the national level, it is observed that all countries for which information is available have reduced the prevalence of stunted children under 5 (Figure 4), and several countries show low levels of stunting. In their latest measurements, Brazil, Costa Rica, Paraguay and Saint Lucia recorded a ratio of less than or equal to 6%. However, despite showing a reduction in the rate of stunted children, this situation still affects a significant part of the child population. Of particular concern are the cases of Guatemala, with 46.5% of the children affected, and Ecuador, Haiti and Honduras, with more than a fifth of children suffering stunting. In contrast, the Plurinational State of Bolivia, El Salvador and Peru have made significant progress.

The second indicator for target 2.2 corresponds to malnutrition, which is divided in two indicators. One of these corresponds to wasting.[11]

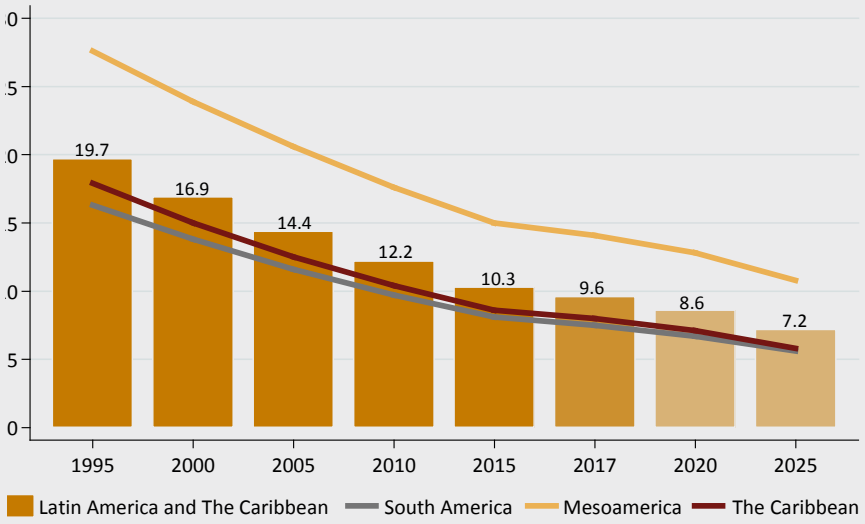
Figure 5 shows the latest estimates carried out by WHO in the year 2017. In Latin America and the Caribbean, 1.3% of children under 5 were wasted, a rate lower than the 5% established in the target. Therefore, the region and the subregions have met the goal established for 2025. According to WHO estimates, wasting affects about 700 000 children in Latin America and the Caribbean.. Severe wasting significantly increases a child's risk of death compared to another child in a normal situation (UNICEF, 2011).

The second indicator of malnutrition corresponds to overweight in children under 5. The latest estimates indicate that in 2017 overweight children increased in comparison with previous years to reach a rate of 7.3% of children under 5 in Latin America and the Caribbean. This rate corresponds to about 3.9 million, a figure that exceeds the world average of 5.6%. In South America, overweight affects 7.7% of boys and girls, in the Caribbean 7.2% and in Mesoamerica 6.4% (Figure 6).

Given the rapid growth of overweight and obesity around the world and in Latin America and the Caribbean, there is an urgent need to redouble efforts for their prevention, especially at early ages, as the SDGs emphasize. Children who are

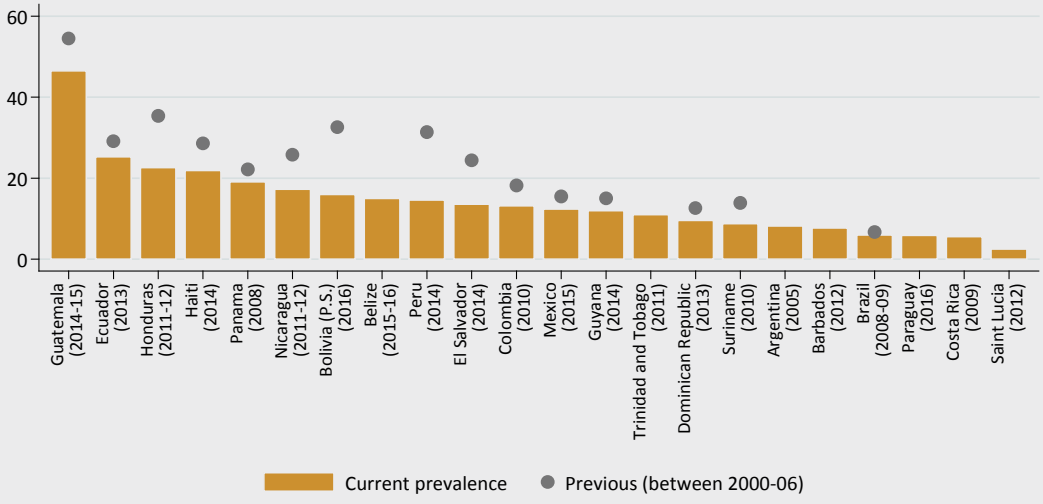
11 Acute wasting or malnutrition corresponds to low weight for height, which is defined as a standard deviation less than -2 of the median of WHO growth standards in children under 5 years of age.

FIGURE 3
EVOLUTION OF STUNTING IN CHILDREN UNDER 5 IN LATIN AMERICA AND THE CARIBBEAN AND SUBREGIONS, PREVALENCE (%), 1995-2025



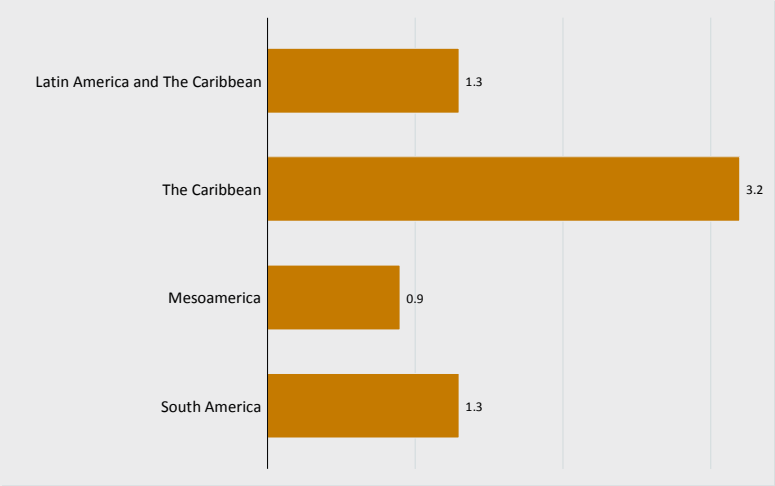
Source: WHO, online. Global Health Observatory data repository.

FIGURE 4
STUNTING IN SOME COUNTRIES OF LATIN AMERICA AND THE CARIBBEAN, IN PREVALENCES (%), EARLY 2000'S AND LATEST DATA AVAILABLE



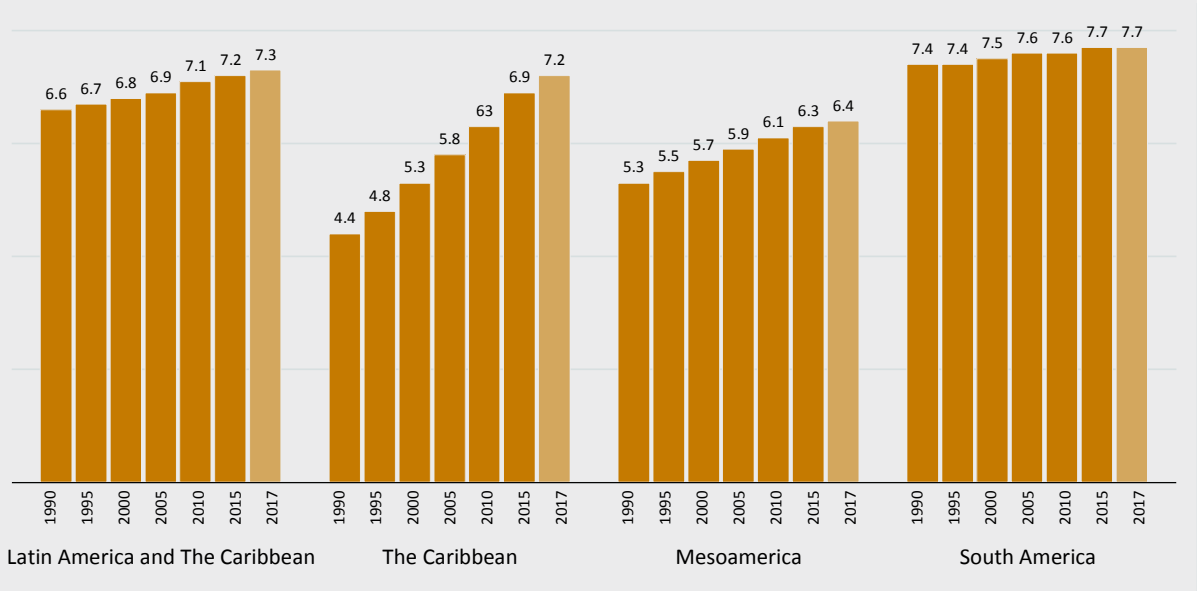
Source: Official information from the countries.

FIGURE 5
WASTING (LOW WEIGHT FOR HEIGHT) IN CHILDREN UNDER 5 IN LATIN AMERICA AND THE CARIBBEAN AND SUBREGIONS, PREVALENCE (%), 2017



Source: WHO, online. Global Health Observatory data repository.

FIGURE 6
EVOLUTION OF OVERWEIGHT IN CHILDREN UNDER 5 IN LATIN AMERICA AND THE CARIBBEAN AND SUBREGIONS, PREVALENCE (%), DIFFERENT PERIODS



Source: WHO, online. Global Health Observatory data repository.

overweight and obese are more likely to maintain this nutritional status as they grow up (FAO and PAHO, 2017b).

A national overview (Figure 7) shows the heterogeneity of the overweight rate in children under 5. However, in recent years, most of the countries for which information is available have registered an increase.

SDG 3:

ENSURE HEALTHY LIVES AND PROMOTE WELL–BEING FOR ALL AT ALL AGES

SDG 3 covers priorities in health with a focus on the life cycle, including maternal and child health and NCDs, among others. To achieve this, it is not only necessary to expand health coverage and health services, but also to make progress in research, in financing for health and in strengthening the capacities of all countries to reduce health risks (UN, 2016b).

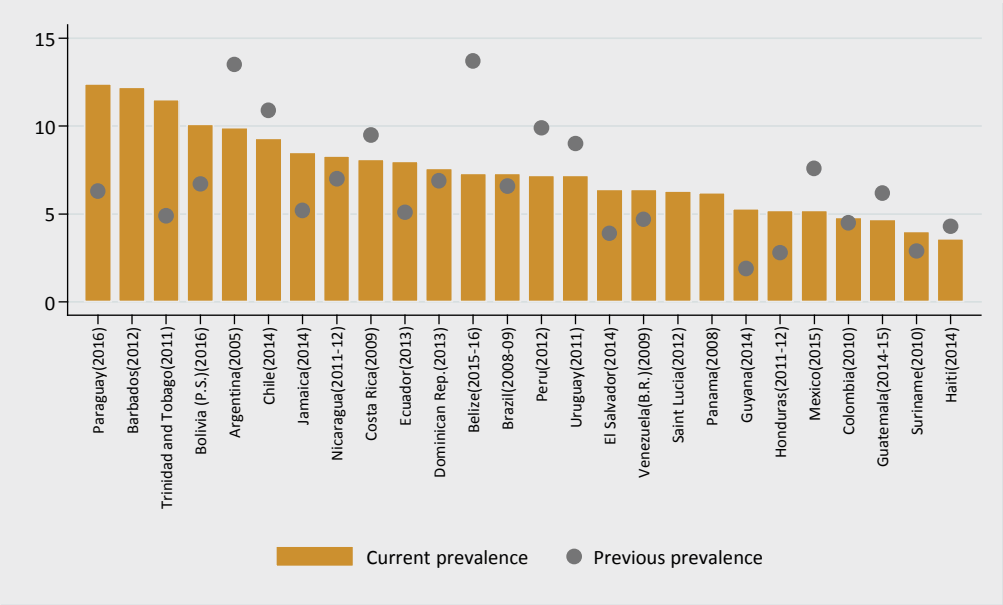
BOX 2

NUTRITIONAL STATUS OF THE MOTHER, EXCESS OF WEIGHT AND NON-COMMUNICABLE DISEASES IN CHILDREN

From fetal development, children can be exposed to conditions that predispose them to overweight and obesity as a result of the mother's diet and nutritional status. The intrauterine nutritional environment has an important function since it imprints on the fetus traits and metabolic characteristics that can generate a predisposition to obesity and non-communicable diseases (NCDs) in adult life. Therefore, the nutritional status of the mother before and during pregnancy is a key factor. All these mechanisms are framed under the hypothesis of fetal programming through hormonal or nutritional factors. For example, in situations of maternal malnutrition during pregnancy, the genes of the new individual must adapt to live in those conditions.

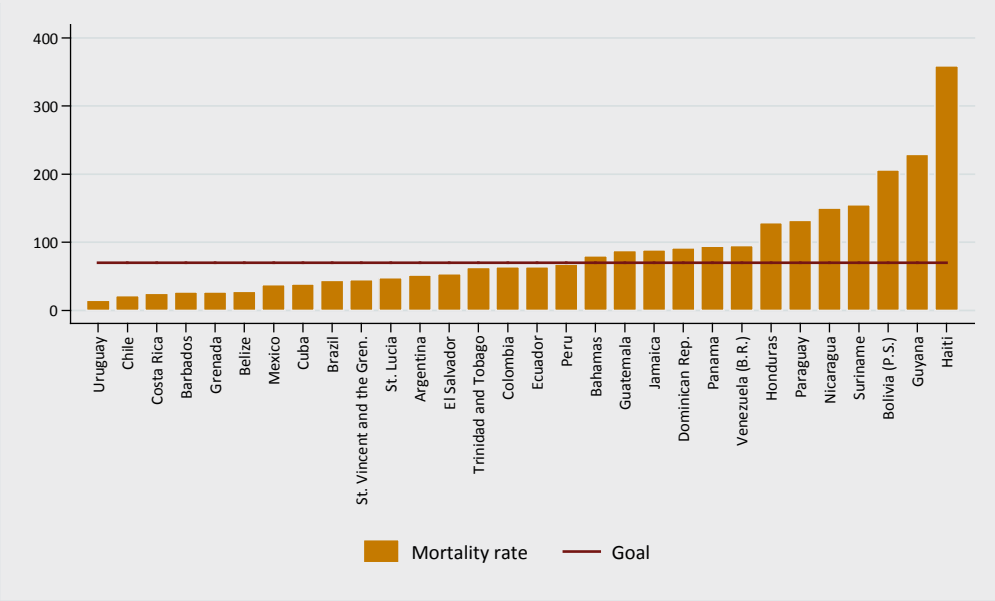
This programming is maintained after the gestation period, increasing the risk of developing metabolic syndrome (Barker, D., 2005). Likewise, several studies have analyzed the relationship between maternal obesity and the appearance of NCDs in children. This relationship associates obesity with the diagnosis of gestational diabetes that causes excessive levels of nutrients that result in an overload of sugars, lipids and circulating growth hormones that may predispose the new individual to develop diabetes and other NCDs in later stages of life (Fall, C., 2013). These findings make clear that malnutrition and obesity do not occur independently and, therefore, are present in many cases and in a greater proportion in the population with higher levels of vulnerability (Popkin, B., Adair, L., and Ng, S., 2012).

FIGURE 7
OVERWEIGHT IN CHILDREN UNDER 5 IN COUNTRIES OF LATIN AMERICA AND THE CARIBBEAN, PREVALENCE (%), DIFFERENT PERIODS



Source: WHO, online. Global Health Observatory data repository.

FIGURE 8
MATERNAL MORTALITY RATIO PER 100,000 LIVE BIRTHS IN COUNTRIES OF LATIN AMERICA AND THE CARIBBEAN, 2015



Source: WHO, online. Global Health Observatory data repository.

This section deals with indicators related to maternal and infant mortality and NCDs, which can be avoided with adequate nutrition and diet, among other factors.

TARGET 3.1:

Reduce maternal mortality

The nutrition of the mother is crucial for a successful pregnancy and, as shown in Box 2, for the proper development of the children in their future life. Micronutrient deficiencies, including iron deficiency, which is a cause of anemia, and of vitamin A, increase the risk of complications during delivery and, as a result, the probability of maternal death increases. In addition, a woman with anemia is more than twice as likely to die during childbirth or in the subsequent days compared to women without anemia (Daru, J. et al., 2018). This deficit affects most women with lower incomes and who live in rural areas.[12]

Maintaining adequate levels of calcium, vitamin D and folic acid during pregnancy is 12 WHO, online. Maternal Mortality fundamental and their lack can lead to several major complications (FAO and PAHO, 2017b).

Target 3.1 focuses on reducing the maternal mortality rate.[13] Its objective is to achieve a rate lower than 70 deaths per 100 000 live births. Figure 8 shows the WHO estimates for this indicator for the year 2015. Although a significant number of the countries in the region have a mortality rate below the established target, some still exhibit high levels and are far from the target.

Estimations show that most of the countries have made progress, in some cases significant, but still insufficient for reaching the 2030 goals. Haiti, for example, is the country with the highest maternal mortality rate in the region. In the year 2000 it presented a rate of 505 deaths per 100 000 live births. By 2015, it had managed to reduce this to 359 deaths, but it is still far from the target of 70 deaths.

Of the 30 countries for which information is available, 13 have values higher than 70 deaths per 100 000 live births, with a wide range of values among them. A notable aspect of this indicator is that most deaths are preventable and occur in low-resource environments (UN, 2016), so policies of access to health and social protection will be key to achieving the goal.

TARGET 3.2:

End preventable deaths of newborns and children under 5 years of age

Target 3.2 seeks to end preventable deaths of newborns and children under 5. The goal is to reduce neonatal mortality to less than 12 per each 1 000 live births. For the case of mortality in children under 5, the goal is to achieve a rate of less than 25 per 1 000 live births.

Nutrition is essential to meet this goal. It is estimated that globally, in about 45% of child deaths the underlying cause is malnutrition, since children (especially those suffering from severe wasting) are more likely to suffer from common conditions such as diarrhea and pneumonia or other respiratory diseases, whose consequences increase the probability of death.[14] The development of diseases and lack of nutrients are closely related, and stress the need for all people to have access to good nutrition (UNSCN, 2017) (Box 3).

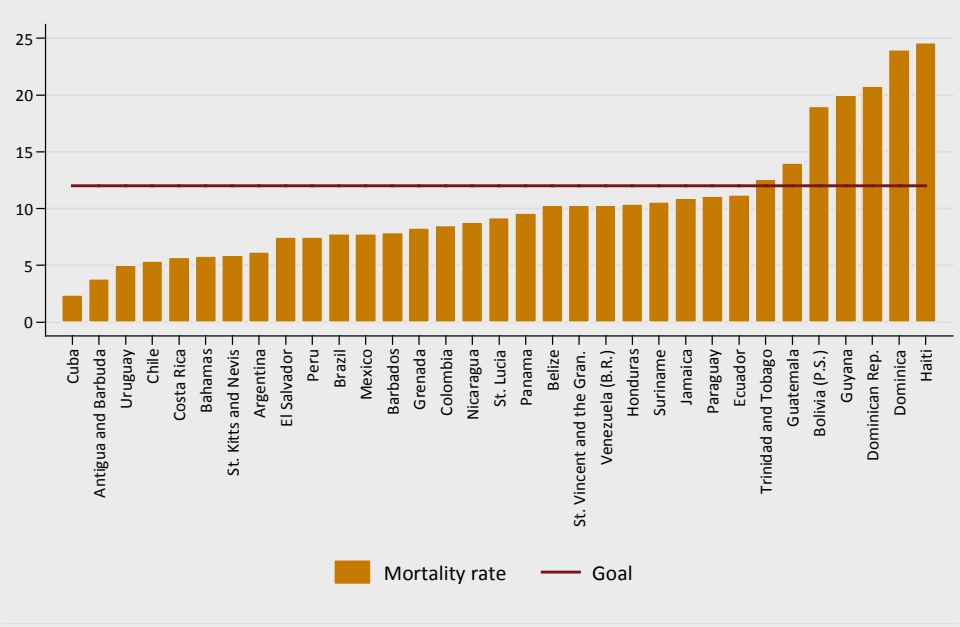
As indicated in the previous target, the good nutritional status of the mother is decisive for the newborn because it determines their birth weight, their health and their nutritional status, as well as their life expectancy. An adequate intake of food before and during pregnancy affects the nutritional status and health of children throughout the course of their lives (HLPE, 2017, FAO, 2013a, WHO, 2017b).

12 WHO, online. Maternal Mortality.

13 Maternal mortality corresponds to death during pregnancy or within 42 days of the termination of pregnancy, regardless of the duration and place of pregnancy, due to any cause related to or aggravated by pregnancy or its treatment (WHO, online. Health statistics and information systems).

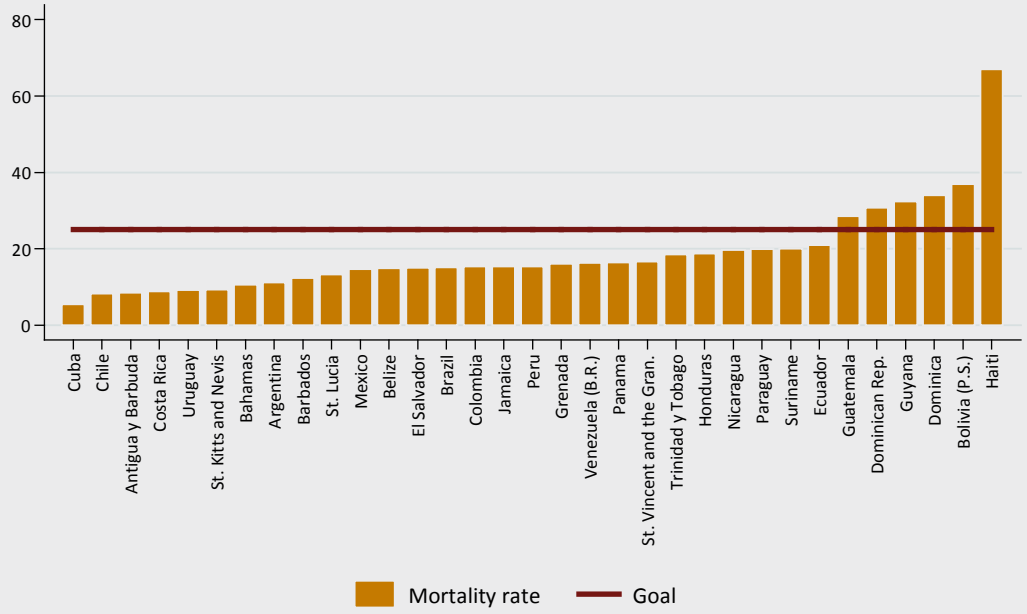
14 WHO, online. Reduction of child mortality.

FIGURE 9
NEONATAL MORTALITY RATE PER 1,000 LIVE BIRTHS IN LATIN AMERICA AND THE CARIBBEAN, 2016



Source: WHO, online. Global Health Observatory data repository.

FIGURE 10
MORTALITY RATE IN CHILDREN UNDER 5 PER 1,000 LIVE BIRTHS IN COUNTRIES OF LATIN AMERICA AND THE CARIBBEAN, 2016



Source: WHO, online. Global Health Observatory data repository.

The most frequent consequence of intrauterine growth restriction is low birth weight. In turn, mortality of these children is higher than that of those born with an adequate weight (UNICEF, 2011).

According to recent estimates, over the last 16 years, practically all the countries in Latin America and the Caribbean have reduced their neonatal mortality rates and in children under 5,[15] although large gaps remain between the countries (PAHO, 2017). In part, this is due to a greater coverage of health services, along with the implementation of wide-ranging policies that involve the promotion of breastfeeding and adequate food intake for mothers, among other factors (FAO and PAHO, 2017a).

Figure 9 shows the latest WHO estimate regarding neonatal mortality. Many of the countries are already below the target of 12 deaths per 1 000 live births. However, Haiti has a rate close to 25 deaths per 1,000 births. Meanwhile, Dominica, the Plurinational State of Bolivia, Guatemala, Guyana, the Dominican Republic and Trinidad and Tobago exceed 12 deaths per 1 000 births.

Figure 10 shows the mortality rate in children under 5. Almost all the countries have shown improvements in the indicator since 2000. Most countries in Latin America and the Caribbean have managed to maintain a mortality rate below 25 per 1 000 births.[16] Haiti is the furthest from compliance, while Dominica, the Plurinational State of Bolivia, Guatemala, Guyana and the Dominican Republic also have over 25 deaths per 1 000 births.

15 From WHO estimates, online. Global Health Observatory data repository.

16 With regard to economic and other impacts of the different nutritional deficiencies or excesses, see Box 3. Additionally, using the analysis of three countries, it was estimated that in the period 1950-2014 there were more than two million deaths in children under 5 years of age in Mexico, and almost 340,000 in Ecuador as a consequence of stunting. Taking into account the census projections, it was estimated that for 2014-2018 in Ecuador and Mexico there would be 4,000 deaths associated with low height for age in Ecuador, and almost 14,000 in Mexico. Mortality associated with malnutrition has a direct effect on the productive capacity of the country, affecting the size of the working-age population (WAP). This effect is estimated at 3% for Ecuador and 2.4% for Mexico, in relation to the size of the WAP in 2014 (ECLAC and WFP, 2017).

TARGET 3.4:

Reduce premature mortality due to non-communicable diseases

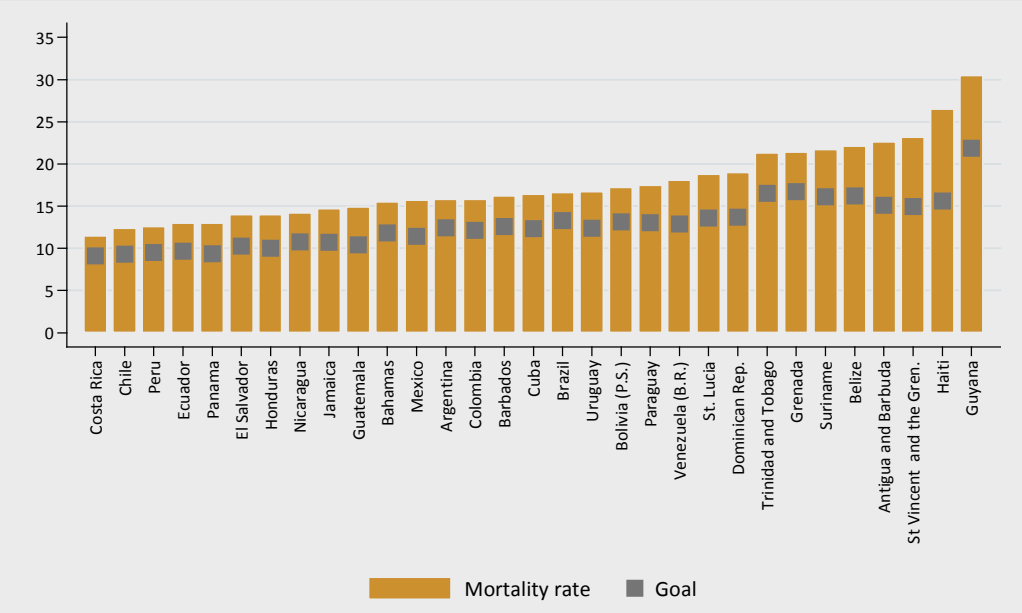
Dietary practices define people's health and development, together with other healthy behaviors like physical activity and avoidance of tobacco and alcohol. These factors contribute to the prevention of several diseases, including NCDs (WHO and FAO, 2003). Globally, NCDs are responsible for the death of around 41 million people per year, equivalent to 70% of the total deaths that occur in the world. Of deaths due to NCDs, approximately 36% are considered premature deaths (between 30 and 70 years of age).[17] NCDs are the main cause of premature morbidity and death in Latin America and the Caribbean (PAHO and University of Washington, 2017).

Target 3.4 aims to reduce NCDs through prevention and treatment, as well as promoting mental health and well-being. The indicator to measure this target corresponds to the reduction by a third of the probability of premature death attributable to cardiovascular diseases, cancer, diabetes or chronic respiratory diseases, in people between 30 and 70 years of age.

Examination of the information available at the national level reveals that the situation is heterogeneous and that, although several countries are close to meeting the target, none of them has achieved it yet (Figure 11).

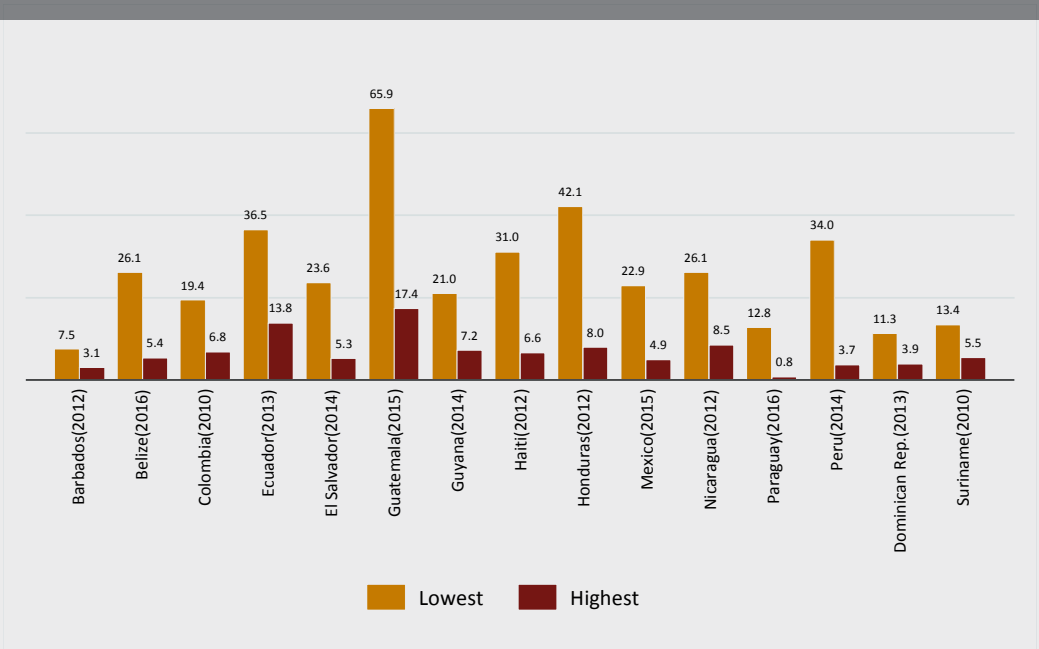
17 WHO, online. The top 10 causes of death.

FIGURE 11
MORTALITY RATE ATTRIBUTED TO CHRONIC NON-COMMUNICABLE DISEASES (NCDS) IN COUNTRIES IN LATIN AMERICA AND THE CARIBBEAN, LIKELIHOOD OF DYING BETWEEN 30 AND 70 YEARS OF AGE (%), 2016



Source: WHO, online. Global Health Observatory data repository.
Note: Given the information available, the established target

FIGURE 12
STUNTING IN CHILDREN UNDER 5 BY INCOME QUINTILE IN COUNTRIES OF LATIN AMERICA AND THE CARIBBEAN, PREVALENCE (%), SEVERAL YEARS



Source: Own elaboration based on official information from the countries.

BOX 3
THE COST OF THE DOUBLE BURDEN OF MALNUTRITION: SOCIAL AND ECONOMIC IMPACT

Malnutrition generates multiple costs for society and families, with significant negative consequences on morbidity and mortality, on the development of capacities and on educational outcomes, on social and labor inclusion, on the environment and on productivity. In turn, these effects also have major economic consequences. Therefore, taking into account its negative effects and consequences in the short and long term, it is essential to put an end to all forms of malnutrition.

The most serious effect of stunting in children under 5 is to increase the risk of death, but there are also other negative consequences that influence different dimensions of people's lives. We are referring to impacts on health, education and the economy (public and private costs and expenditures, and productivity), problems of social insertion and an increase or deepening of poverty (which repeats the vicious circle by increasing in turn the vulnerability to malnutrition).

These effects can occur immediately or throughout people's lives, such as intrauterine malnutrition problems that can cause difficulties from the moment of birth to adulthood. Lack of food alters the ability of children to concentrate in the classroom and limits learning. The deficit of micronutrients, especially iron, zinc, iodine and vitamin A, is associated with a cognitive deterioration that results in lower learning abilities.

Study of the double burden of malnutrition (ECLAC and WFP, 2017) reveals an analysis of the health effects that malnutrition has on education and productivity. Its costs and effects arise from the direct costs of care due to wasting, in addition to other costs associated with acute diarrheal disease (ADD) and acute respiratory infection (ARI).

The effects of malnutrition in education are arise from the learning gaps that occur and that cause poorer performance at school. This generates a higher probability of repeating courses and of dropping out of studies, thus limiting the child's future opportunities for development.

The effects of malnutrition on health are related to the probability of morbidity and mortality of those who have been exposed to malnutrition before reaching 5 years of age, compared to those who have not experienced it. The ECLAC and WFP study (2017) conducted in Mexico and Ecuador reveals the burden of mortality and its relation to stunting. It is estimated that in the period 1950-2014 more than 2 million deaths occurred in Mexico and almost 340 000 in Ecuador as a consequence of stunting. Furthermore, mortality associated with malnutrition has a direct effect on the productive capacity of the country, affecting the size of the working-age population (WAP). This effect is estimated at 3% for Ecuador and 2.4% for Mexico, in relation to the size of the WAP in 2014. Regarding education, it causes lower school performance and a greater probability of repeating courses or dropping out. According to official sources, the total repetition rate for 2014 was 2.9% for Ecuador and 2.4% in Mexico. In relation to these figures, it is estimated that 32% in Ecuador and 16% in Mexico were associated with exposure to stunting in the early years of life. Thus, the economic impact resulting from malnutrition have come to represent between 1.7% and 11.4% of the gross domestic product (GDP).

With regard to malnutrition by excess, overweight and obesity directly affect the health of people (morbidity and mortality) and education and the economy (labor and productivity). However, unlike malnutrition by deficit, environmental effects may

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BOX 3

THE COST OF THE DOUBLE BURDEN OF MALNUTRITION: SOCIAL AND ECONOMIC IMPACT

be added associated with greater use of resources (energy and food consumption).

Malnutrition by excess has direct effects on people's health. It increases the risk of associated diseases and, therefore, increases the incidence of NCDs, as well as the probability of death. Even though the effects of malnutrition on health may advance slowly, they are long-lasting and the associated diseases are the leading cause of adult mortality and morbidity worldwide.

It is estimated that a patient with obesity represents medical costs of between 25% and 52% higher compared to people who have a normal weight (Kang, J. et al., 2011). In relation to national budgets allocated to health, medical costs attributed to obesity constitute between 2% and 7% of expenditure in developed countries (Kang, J. et al., 2011).

A study of the financial impact of obesity and overweight on the health of the Mexican population for the year 2014 (Nicte-Ha and Gutiérrez, 2015), concluded that malnutrition by excess represented a cost of 0.4% of GDP for indirect costs (mortality, absenteeism, disability) and 0.9% of GDP for direct costs (medical and non-medical costs derived from morbidity).

Finally, the economic impact of the double burden of malnutrition in three countries of the region (Chile, Ecuador and Mexico) for the year 2014 ranges from 0.2% to 4.3% of GDP, representing an average of between 493 million to 28.8 billion dollars, respectively.

Box based on ECLAC and WFP (2017).

ERADICATE MALNUTRITION:

FOCUS ON INEQUALITIES TO ACHIEVE THE SDGS

The 2030 Agenda for Sustainable Development emphasizes the importance of leaving no one behind. To achieve this, it is particularly important to understand which populations face the greatest lags and difficulties with achieving the targets that the community of member states of the United Nations has committed to reach. In addition, it is necessary to understand the main characteristics of the population that experiment higher level of exclusion to apply the adequate policy measures.

This section develops further the discussion of SDGs 2 and 3 in the region. It first addresses food insecurity, stunting and micronutrient deficiency. Next, it addresses overweight and obesity, and premature deaths associated with NCDs. Emphasis is placed on those populations that face the greatest difficulties due to the economic or geographical conditions in which they live, or the gender and ethnic group to which they belong.[18] This challenge has already been picked up by some indicators, or the necessary efforts are being made for them to do so.

NUTRITIONA AND INEQUALITIES:

Food insecurity, stunting and micronutrient deficiency

Food insecurity tends to affect women more (Table 3) and, considering the two periods for which measurements are available, food insecurity has increased in South America, while in Mesoamerica not only has it increased, but the gap between women and men has increased. This indicator, since it is directly related to the access dimension, shows that the economic limitations faced by women are greater. This result is in line with other social indicators such as the feminization of poverty.[19]

In Latin America, 8.4% of women live in a situation of severe food insecurity, compared to 6.9% of men. This represents that 19.2 million women and 15.1 million men suffered severe food insecurity in the last triennium. In Mesoamerica, 10% of women (6.4 million) were food insecure. In South America, this situation affects 7.8%, which is equivalent to 12.7 million women in the subregion.

Stunting is one of the indicators with data most widely available. Most of the countries of Latin America and the Caribbean have health surveys that allow this information to be gathered about children under 5 years of age. This enables a better characterization of the problem and provides evidence for its close link with poverty, as shown in Figure 12. Stunting in children tends to be more prevalent at the bottom of the income distribution. For example, in Guatemala, the poorest quintile has a prevalence of stunting that is 48.5 percentage points higher than the richest quintile. In Honduras, the gap is of 34 percentage points and in Peru of 30 percentage points.[20]

Figure 13 shows the distribution of stunting by geographic area. It shows that stunting is higher in rural areas compared to urban ones. In some cases, such as in Guatemala and Peru, the prevalence of stunting in rural areas exceeds urban areas by approximately 20 percentage points.

The prevalence of stunting is usually higher in the indigenous population than in the non-indigenous population. For example, according to figures from 2016, in the Plurinational State of Bolivia stunting affected 24.6% of children if the mother's first language was Quechua, and 23.5% in the case of the Aymara population, compared to the 16% national average or 11.7% when the mother's first language was Spanish. In Ecuador,

18 In section 3.2 of this document we explore the reasons that allow us to gain a better understanding of these results.

19 See Figure 39 of Chapter 3.

20 Paraje, G. (2009) points out that some countries in the region, such as the Plurinational State of Bolivia, Guatemala and Peru have some of the highest prevalences in the world in the poorest quintile, far exceeding the global average. These analyses have been carried out based on the World Bank (2007), which considered nine countries in the region out of a total of 56 countries in the world.

TABLE 3

SEVERE FOOD INSECURITY BY GENDER IN LATIN AMERICA AND SUBREGIONS, PREVALENCE (%) AND MILLIONS OF PEOPLE, 2014-2016 AND 2015-2017

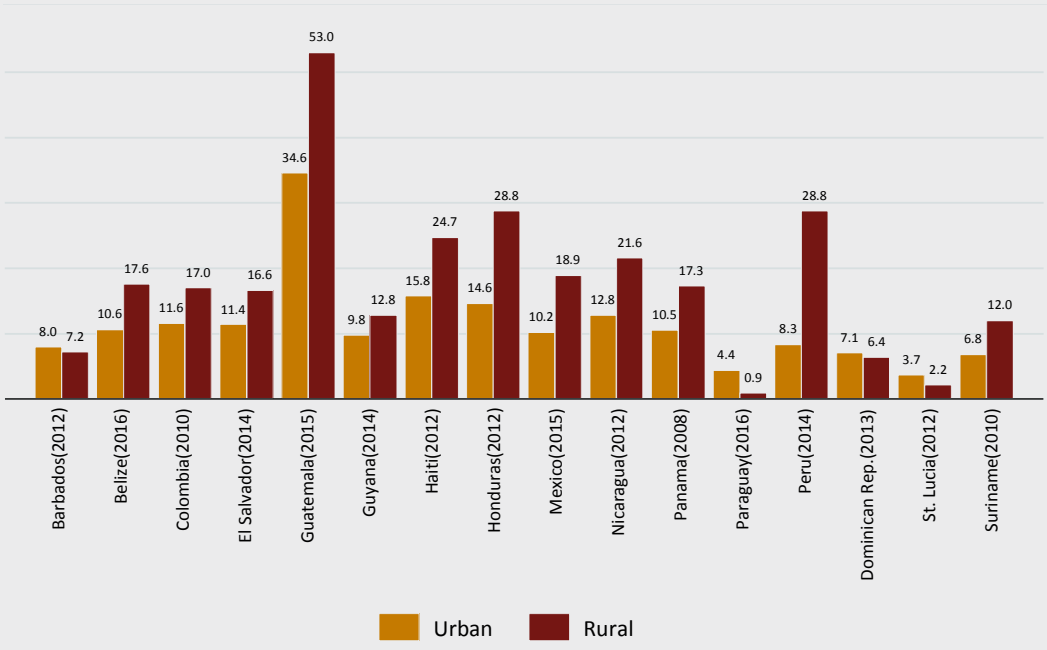
Prevalence (%)	2014-2016		2015-2017	
	Women	Men	Women	Men
Mesoamerica	9.7	8.2	10	8.1
South America	6.7	5.3	7.8	6.5
Latin America	7.5	6.1	8.4	6.9

Millions of people	2014-2016		2015-2017	
	Women	Men	Women	Men
Mesoamerica	6.1	5.0	6.4	5.0
South America	10.8	8.1	12.7	10.1
Latin America	16.9	13.1	19.2	15.1

Source: FAO, IFAD, UNICEF, WFP and WHO. 2018 The state of food security and nutrition in the world. Promoting climate resilience in the interest of food security and nutrition.

FIGURE 13

EVOLUTION OF STUNTING IN CHILDREN UNDER 5 IN COUNTRIES OF LATIN AMERICA AND THE CARIBBEAN, BY AREA, PREVALENCE (%), SEVERAL YEARS



Source: Own elaboration based on official country data.

42.3% of indigenous children presented stunting in 2012 compared to the national average of 25.2%. In Guatemala, in 2014-2015, stunting affected 61.2% of indigenous children under 5 and 34.5% of non-indigenous children. In Panama, in 2008, 62% of indigenous children were affected, compared to 19% at national level (2008), and in Paraguay in 2016 the figures were 31.5% and 5.9%, respectively.[21]

The lack of micronutrients, also known as "hidden hunger," is another of the nutritional challenges faced by Latin America and the Caribbean. The deficit of vitamins and minerals is less visible, but its consequences have serious implications for health and physical and cognitive development.

In particular, anemia due to iron deficiency leads to negative consequences in children's cognitive development, and is a higher risk factor for maternal and infant mortality and low birth weight. It can also have consequences on working capacity in adulthood, becoming a major public problem (FAO, 2013a, FAO and PAHO, 2017a).

In Latin America and the Caribbean, a significant proportion of women of childbearing age suffer from anemia. Although the incidence presents a downward trend since 1990, it has stagnated at around 22% in the present decade (Figure 14) It is worth noticing that at national level the values in 2016[22] ranged from 46.2% in Haiti to 14.6% in Costa Rica.

It is evident that the lower the level of income, the higher the prevalence of anemia, both in women of childbearing age and in children under 5. Although the differences are not as marked as in the case of stunting, in the lower quintiles anemia tends to have a higher prevalence (with the exception of Bolivia and Brazil, in the case of anemia in children) (Figure 15). In addition, poverty and unhealthy food environments are the underlying causes of micronutrient deficiencies.[23]

Vitamin A is essential for the proper functioning of the body (FAO and WHO, 2004). However, deficiencies still persist in medium- and low-income countries in Latin America and the Caribbean, mainly among indigenous peoples and impoverished rural areas, affecting children and pregnant women (WHO, 2009). During childhood and adolescence, adequate intake of foods that provide calcium, iron, zinc and vitamin A (Ramakrishnan, U., et al., 2004) contributes to achieving the greatest potential for height in adulthood, while adequate calcium intake also reduces the risk of osteoporosis (Weaver, C., et al., 2016). In addition, calcium is necessary throughout the life cycle since the bones constantly rebuild themselves (Weaver, C., et al., 1995) (see Box 4).

NUTRITION AND INEQUALITIES:

Overweight, obesity and NCDs

Figure 16 shows the evolution in the probability of dying from the main NCDs. Although it shows a downward trend, it needs to accelerate in order to meet the WHO global target for premature NCD mortality by the year 2025. Analysis by gender shows that men have a higher probability of death from NCDs. Although this result may be counter-intuitive, given the higher rates of obesity in women compared to men, it is necessary to bear in mind that the risk factors are broader and are related to other unhealthy behaviors. The causes of these diseases include smoking, harmful alcohol use, unhealthy diet and physical inactivity (FAO and PAHO, 2017b).

Men are more likely to die,[25] which does not mean that women do not suffer the consequences of these diseases. In general, men have a lower life expectancy and women tend to have greater morbidity and disability. That is, they live longer, but with a lower quality of life, which makes it necessary to analyze the causes of the specific issues

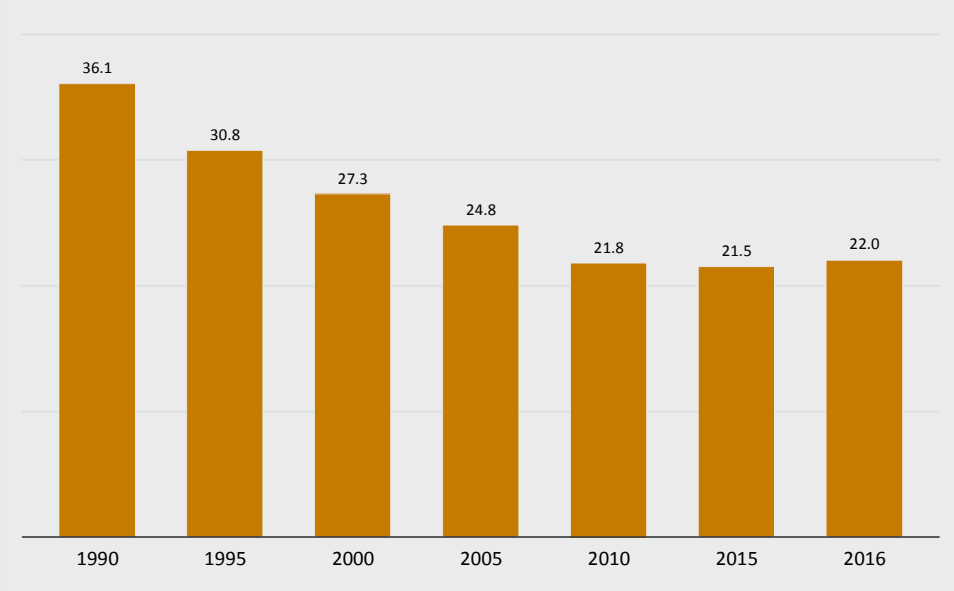
21 Based on official information from the countries obtained from health surveys.

22 WHO, online. Global Health Observatory data repository.

23 UNICEF, online. Micronutrients.

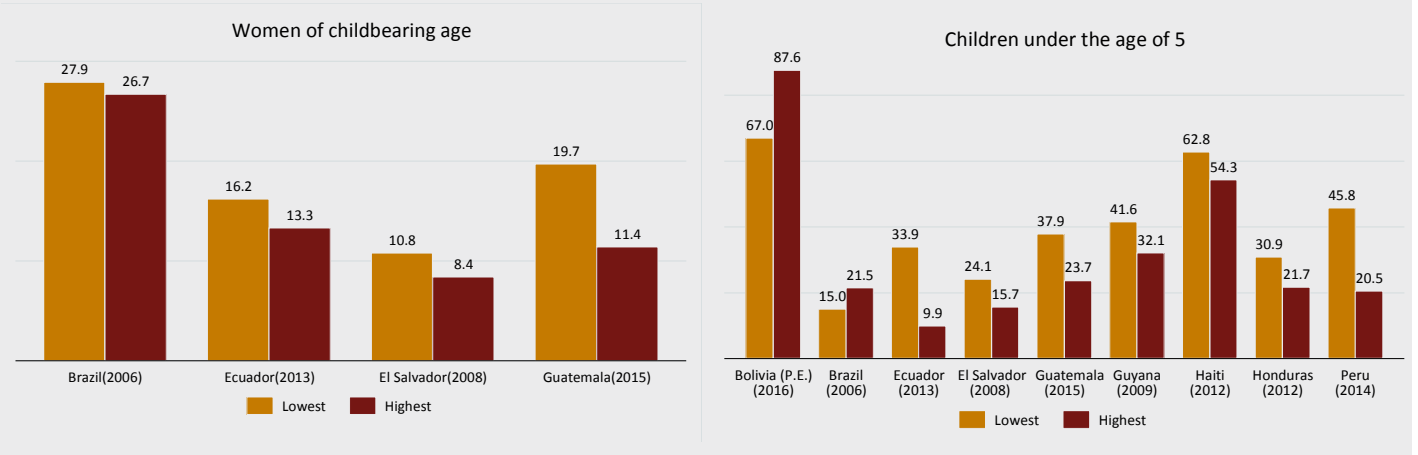
25 These results can be explained by the tendency of men to accumulate fat in the abdominal area, a distribution associated with greater health risks. In fact, abdominal obesity is associated with diseases such as diabetes, hypertension and cardiovascular diseases. In addition, men are more likely than women to accumulate an excess of visceral fat, which represents a risk factor for obesity since excess visceral fat is associated with insulin resistance and hypertension (Power, M., and Schulkin, J., 2008).

FIGURE 14
EVOLUTION OF ANEMIA IN WOMEN OF CHILDBEARING AGE 14-49 YEARS OLD IN LATIN AMERICA AND THE CARIBBEAN, PREVALENCE (%), SEVERAL YEARS



Source: Prepared by the authors based on WHO, online. Global Health Observatory data repository and DAES, 2017. World Population Prospects: The 2017 Revision.

FIGURE 15
ANEMIA IN WOMEN OF CHILDBEARING AGE AND CHILDREN UNDER 5, PREVALENCE (%) BY INCOME QUINTILE, SEVERAL YEARS



Source: Based on official information.

BOX 4
MICRONUTRIENTS

Calcium is an essential mineral that has several functions for the body. It participates in the construction and maintenance of teeth and bones, muscle contraction, heartbeat, transmission of nerve impulses, intracellular signaling and hormone secretion (FAO and WHO, 2004, Institute of Medicine, 2011).

The dietary intake of calcium varies according to physiological conditions, with higher requirements during pregnancy, lactation and adolescence (Prentice, A., 2000). The principal foods that are sources of calcium are dairy products (milk, yogurt and cheeses), which represent more than 70% of the calcium in the diet. Other sources include green leafy vegetables, grains, pulses, fruits, seeds, fish and eggs.[24] Meanwhile, vitamin D is essential for the metabolism of calcium. In states of vitamin D deficiency, bone health is affected due to decreased intestinal calcium absorption (Institute of Medicine, 2011). Therefore, the relationship between calcium and vitamin D cannot be dissociated. The age groups most at risk of vitamin D deficiency are infants, children, and adolescents; pregnant and breastfeeding women, and older adults. Unlike other nutrients, vitamin D is created as a result of sun exposure. Foods that contain vitamin D include fish (salmon and tuna), egg yolk and milk. Meanwhile, exposure to the sunlight (10-15 minutes/day). Estimulates receptors in the skin that produce vitamin D (Rajakumar, K. and others, 2007).

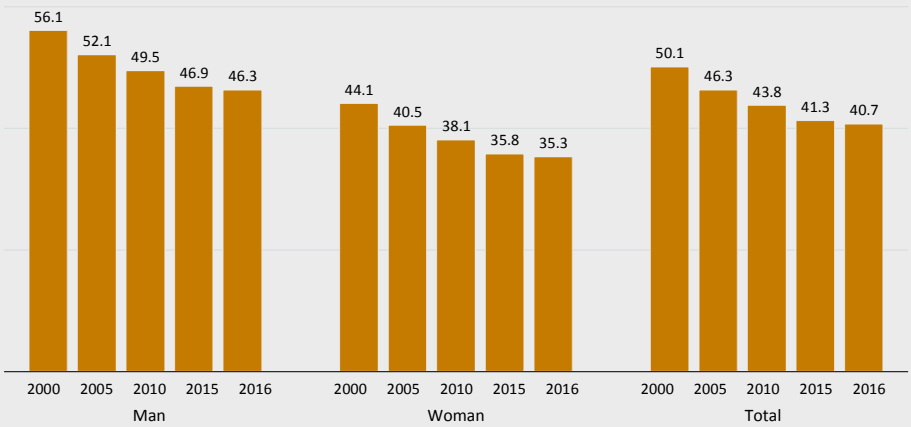
Vitamin A deficiency is the leading cause of childhood blindness (Roodhooft, J., 2002). In addition, it is essential for adequate immune function and is involved in cell replication, bone metabolism, the reproductive system and embryonic and fetal development (Solomons, N., 2012; Zhong, M., et al., 2012).

Foods with vitamin A are of animal origin. However, some carotenoids are considered pro-vitamin A. Therefore, food is the main source of vitamin A and carotenoids. Fish oil, liver, egg yolk, butter and cream contain vitamin A. Also, more than 700 forms of carotenoids are present in the red and yellow pigments of fruits and vegetables, such as carrots, pumpkin, squash and mangoes (Stahl, W. and Sies, H., 2003).

Due to their multiple roles, vitamin A and carotenoids are part of the micronutrients that must be obtained from food in adequate quantities when fruits, vegetables, cereals and tubers are consumed regularly. However, changes in eating patterns, characterized by the replacement of traditional foods with a frequent consumption of highly processed products and sugary drinks, have caused deficiencies of specific micronutrients such as vitamin A, with the resulting consequences.

24 USDA, en línea. USDA Food Composition Databases.

FIGURE 16
MORTALITY RATE ATTRIBUTED TO CHRONIC NON-COMMUNICABLE DISEASES (NCDS) IN LATIN AMERICA AND THE CARIBBEAN, LIKELIHOOD OF DYING BETWEEN 30 AND 70 YEARS OF AGE (%), BY GENDER, SEVERAL YEARS



Source: WHO, online. Global Health Observatory data repository.

affecting women. (Rohlfs, I., 2003).decir, viven más tiempo, pero con baja calidad de vida, lo que hace necesario analizar las causas de los padecimientos específicos de las mujeres (Rohlfs, I., 2003).

Although the relationship between overweight and income level is widely documented, it is not as linear as in the case of malnutrition. As a country develops and depending on the stage of its nutritional transition, the prevalence of overweight tends to be higher in households with higher income levels, but as the availability of and access to foods with a high calorie content and low nutritional value increases, this situation reverses, and an increase in prevalence among the less well-off is observed. In the Latin America and the Caribbean countries, shown in Figure 17, this trend can be observed, which is also seen in other regions of the world (Perez-Escamilla, R., et al., 2018). A systematic review of the literature by Dinsa, G., et al. (2012) provides data to help understand this result. In the particular case of obesity, the literature shows that as countries increase their level of development, the highest prevalences are transferred to the population with lower income (Dinsa, G., 2012; Monteiro, C., et al., 2004).

According to WHO estimates, the average body mass index (BMI)[26] for the adult population in the countries of Latin America and the Caribbean is above 25, which is classified as overweight. This situation is very different from that recorded in 1980, when only three countries had an average BMI greater than 25.

The main risk factors for obesity are the increase in the consumption of highly processed products and less physical activity, which are explained by and interact with economic, social, demographic and environmental changes. These changes are experienced in accelerated fashion in Latin America, where they have led to a

26 BMI is a measurement widely used to measure excess of weight. It corresponds to the ratio between the weight (kg) of a person and the height squared (m2). According to the WHO classification, a BMI greater than or equal to 25 indicates overweight, and a BMI greater than or equal to 30 represents obesity. One of the advantages of this measure is its simplicity for calculating and interpreting.

nutritional transition that has increasedthe consumption of fats, salt, sugar and refined carbohydrates, in parallel with a decrease in physical activity.[27]

In line with the above, the proportion of overweight and obese adults has increased significantly in recent decades (Figure 18). This has been associated with the increase in the average income of countries and the change in consumption patterns.[28]

If the current trend continues, by 2030 the proportion of the population in Latin America and the Caribbean with obesity will increase to 30% of the adult population.

As already mentioned, obesity tends to affect women in a greater proportion (Table 4). Thus, in 19 countries, the prevalence of obesity in women is at least 10 percentage points higher than that of men. The greatest differences are observed in the Caribbean countries (with the exception of Haiti), led by Jamaica, with 18.1 percentage points, and Barbados, with 16.6 percentage points.

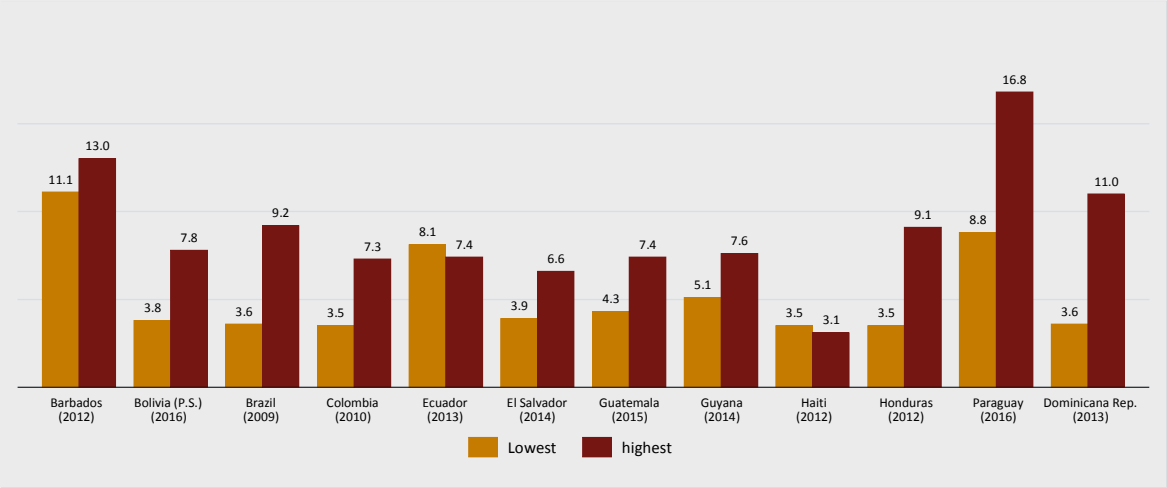
These differences not only reflect specific characteristics of men and women (biological, genetic and metabolic), but also emotional, cultural and socioeconomic factors. These also impact on health in a different way according to gender, that is, due to the roles traditionally imposed on women and because they face greater economic limitations.[29]

27 See chapter 3 for further discussion of this topic.

28 See note 21.

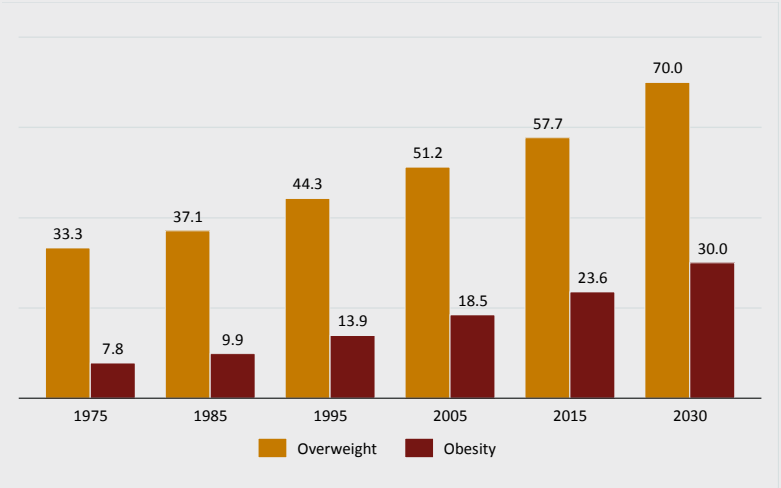
29 The inequalities that women face and that impact on their nutritional status are addressed in more detail in section 3.2.2.

FIGURE 17
OVERWEIGHT IN CHILDREN UNDER 5 BY INCOME LEVEL, IN PERCENTAGES (%), VARIOUS YEARS



Source: Based on official information from the countries.

FIGURE 18
EVOLUTION OF OVERWEIGHT AND OBESITY IN LATIN AMERICA AND THE CARIBBEAN IN POPULATION 18+ YEARS OF AGE, PERCENTAGE (%), SEVERAL YEARS



Source: Prepared by the authors based on WHO, online. Global Health Observatory data repository and DAES, 2017. World Population Prospects: The 2017 Revision.
** Projection under the assumption that national rates follow a linear trend. The value of total population for Latin America and the Caribbean was obtained from the population projections of the United Nations Population Fund.

** Obesity corresponds to a BMI greater than or equal to 30 and overweight to a BMI greater than or equal to 25, that is, the population is considered obese.

TABLE 4
OBESITY IN ADULTS 18+ YEARS OF AGE BY GENDER, PREVALENCE (%), 1980 AND 2016

	1980			2016		
	Total	Men	Women	Total	Men	Women
Antigua and Barbuda	6.6	2.9	10.3	18.9	11.6	25.9
Argentina	12.8	10.6	14.7	28.3	27.3	29
Bahamas	14.1	7.2	20.3	31.6	24.4	38.1
Barbados	9.3	3.9	13.6	23.1	14.7	31.3
Belize	9.7	4.7	14.8	24.1	16.5	31.5
Bolivia (Plurinational State of)	5.9	2.8	8.7	20.2	14.5	25.6
Brazil	6.6	4.1	9	22.1	18.5	25.4
Chile	13	9.5	16.1	28	24.9	31
Colombia	8	4.3	11.4	22.3	17.6	26.6
Costa Rica	6.4	3.6	9.2	25.7	21.1	30.4
Cuba	9.5	4.6	14.3	24.6	18.9	30.3
Dominica	8.3	3.6	12.8	27.9	19.9	35.6
Ecuador	6.2	3.2	9.1	19.9	14.9	24.7
El Salvador	7.1	3.8	10	24.6	18.9	28.9
Grenada	6.9	2.8	10.3	21.3	13.3	29
Guatemala	6.1	3.1	9	21.2	15.1	26.4
Guyana	6.2	2.6	9.6	20.2	12.7	27.1
Haiti	3.9	1.9	5.8	22.7	17.9	26.9
Honduras	5.5	2.8	8.1	21.4	15.6	26.9
Jamaica	8.4	3	13.3	24.7	15.3	33.4
Mexico	11.5	7.4	15.3	28.9	24.3	32.8
Nicaragua	8.3	4.6	11.8	23.7	17.9	29
Panama	7.1	4	10.4	22.7	17.8	27.6
Paraguay	5.2	3.4	6.8	20.3	17.1	23.4
Peru	7.6	4.1	10.9	19.7	15.2	24.2
Dominican Republic	7.6	3.6	11.8	27.6	21	34.1
Saint Kitts and Nevis	7.7	3.5	11.7	22.9	15.3	30.1
Saint Lucia	6.2	2.5	9.4	19.7	12	27
Saint Vincent and the Grenadines	6.9	2.9	10.2	23.7	16.6	31
Suriname	10.3	4.8	15.7	26.4	18.9	33.7
Trinidad and Tobago	4.7	2.1	7.1	18.6	10.8	26
Uruguay	12.9	9.3	16.1	27.9	24.9	30.6
Venezuela (Bolivarian Republic of)	11.4	7.6	15.2	25.6	22.4	28.6

Source: WHO, online. Global Health Observatory data repository.

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CHAPTER 2
DIMENSIONS OF FOOD SECURITY AND NUTRITION

CHAPTER 2

DIMENSIONS OF FOOD SECURITY AND NUTRITION

KEY MESSAGES

➔ In Latin America and the Caribbean, trade has been fundamental to ensuring the availability of food. Although there is enough calories available, the production and sale of foods that promote healthy diets and that support better nutrition, such as fruits, vegetables and pulses that help prevent non-communicable diseases (NCDs) must be promoted.

➔ There is a dramatic increase in extreme poverty in the region. In a context of slow economic recovery, food security and nutrition can only be achieved if policies and programs for social protection and productive inclusion are strengthened and broadened. These should facilitate growth reaching all sectors of the population, reducing gaps and paying special attention to the social sectors and territories that are lagging behind.

➔ Sanitary and environmental conditions are decisive to nutritional status. Access to drinking water and sanitation services in rural areas across the region is still limited.

➔ Natural disasters are increasingly frequent in the region and have consequences for food security. They lead families to migrate in unfavorable conditions of extreme vulnerability, which can exacerbate the problem.

➔ The different forms of malnutrition are present in the region. In most countries, there is a high prevalence of obesity, which coexists with other forms of malnutrition such as hunger, stunting and anemia in women.

In 1996, the World Food Summit (WFS) adopted the following definition of food security: ""*Food security exists when all people at all times, have physical*[30] *and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.*" This definition is understood to comprise four dimensions: availability, access, utilization and stability as a transversal component.[31] This chapter is structured around these dimensions.

It should be noted that nutrition is embedded in the definitionby referring to all people consuming food in sufficient quality and quantity to meet their dietary needs and food preferences in order to lead a healthy and active life at all times (WFS, 2012).

In this way, the term food security and nutrition combines both elements and directly involves food systems, as these are responsible for providing adequate food for the entire population (WFS, 2012).

30 In addition, the 2009 World Food Summit incorporated the notion of "social" access.

31 FAO, online. Rome Declaration on World Food Security and Plan of Action of the World Food Summit.

2.1 AVAILABILITY

The availability of food is related to the food supply, which is determined by production, imports and exports and the storage of food (FAO, 2011c).

Normally, domestic productive capacity is the main source of supply for foods. On the other hand, trade makes it possible to take advantage of the complementarities and comparative advantages of each country. Both sources add up to the total amount of food supply that provides enough food to meet the nutritional needs of each person.

All the countries in Latin America and the Caribbean (including those with high rates of hunger) have enough food to cover the minimum calorie requirements of their populations. However, this does not mean that all of them have the amount and diversity of foods necessary to ensure appropriate nutrition for their populations. This situation, in a region with a significant level of development where 85% of its countries are classified as upper-middle-income or high-income, offers the opportunity not to settle for ensuring only the minimal necessary calories for survival. We must fully take up the challenge of adequate nutrition, that is, one that ensures that no person suffers at any moment any form of malnutrition. To do this, it is important to analyze the availability of food according to its capacity to cover all the nutritional needs in a way that is accessible to all population groups.

2.1.1 Caloric availability by food groups

In previous editions of the *Panorama of Food Security and Nutrition in Latin America and the Caribbean* the productive capacity of the region was comprehensively addressed. Such analysis shows that the Region has become a net exporter of food and other agricultural products, to the extent that it has become a major player in global food security.

However, not all countries behave in the same way, so they use different strategies to obtain their food supply. Figure 19 shows this reality by subregions. Values above one hundred indicate that domestic production exceeds the necessary amount of food to meet the minimum calorie requirements[32] (that is, the subregion produces a surplus and can export it without affecting the availability to meet its internal food needs). Meanwhile, values below a hundred indicate that subregional production is insufficient, and it is therefore necessary to import food to meet domestic needs in terms of an adequate food supply. For example, food production in most Caribbean countries is not enough to ensure adequate food for the population. Therefore, imports play a key role in increasing total food supply. By contrast, South America has positioned itself as a net exporter of food, with production that exceeds domestic availability for most products.

The average food supply in Latin America and the Caribbean is more than 3 000 kilocalories a day per person, an amount that easily exceeds the minimum energy requirements of 1 866

32 Defined by FAO as domestic supply quantity, which includes production plus imports minus exports plus changes in inventories (increase or decrease), making up the supply for national utilization. **Source:** FAO, online. FAOSTAT.

kilocalories/day. Figure 20 shows how different food groups contribute to the total energy supply in each of the subregions. As can be observed, cereals are the main caloric source in the region (FAO and PAHO, 2017 b). Both in South America and in Mesoamerica there is a significant decrease in the energy supply of pulses and tubers, in parallel to an increase in meats and dairy products. In Mesoamerica, there is also a significant reduction in the energy supply of cereals. In the Caribbean, there is a reduction in the energy supply from sugar and sweeteners and an increase from meats, although to a lesser extent than in the other subregions.

Meanwhile, it is also important to analyze the volume by groups of foods. Some of them contribute little in terms of calories per gram, such as fruits and vegetables, but they are rich in micronutrients, fiber and other elements necessary for a nutritious diet. Table 5 indicates the food availability by person in grams per day.[33] The low availability of fish in comparison with the global average is noteworthy. However, the production at the region and in particular at South America easily exceeds the domestic supply, which means that a significant portion is exported (Figure 19). Meanwhile, the availability of sugar far exceeds the global average.

33 These values include non-edible parts of foodstuffs, such as peel, stones, skin, etc.

2.1.2 Availability of fruits and vegetables to cover ideal requirements

Low consumption of fruits and vegetables is a risk factor for non-communicable diseases (GBD 2015 Risk Factors Collaborators, 2016; WHO and FAO, 2003). The WHO recommendation is to consume a minimum of 400 grams of fruits and vegetables a day. A study conducted by Siegel, K., et al. (2014) analyzes whether the supply is sufficient to cover the fruit and vegetable needs of a growing population. Based on this study, an analysis was made of the subregions of Latin America and the Caribbean and other regions of the world. A minimum requirement of 400 edible grams per day per person[34] was compared with the availability of fruits and vegetables[35] subtracting the inevitable waste[36] (the inedible parts of fruits and vegetables). Based on this data, a ratio was established where values greater than 1 mean that the minimum requirements are exceeded, and those less than 1 mean they are not reached.[37]

In Table 6, it may be observed that Latin America and the Caribbean have a ratio of 0.92, that is, the average fruit and vegetable availability for the region does not meet the minimum requirements set by FAO and WHO (2003). Only the Caribbean meets the requirement, exceeding it by 33%.

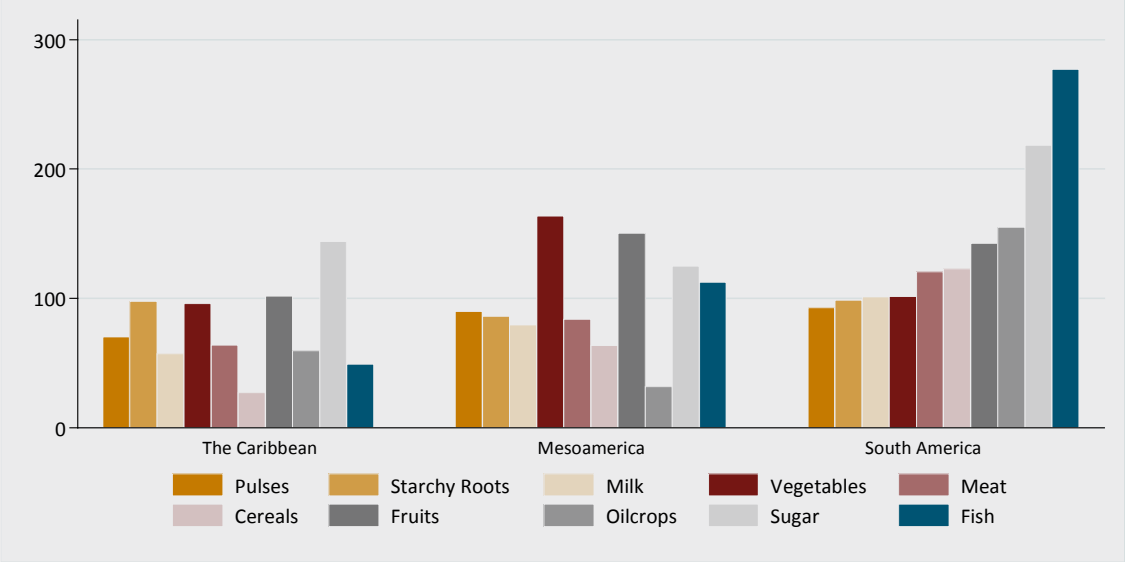
34 This value of reference is for an adult, and is estimated at 45% less in children under 5 years and 20% less in children between 5 and 14 years, allowing calculation of the requirement for each age range. It was then prorated by the percentage of population that is in each age range to finally give a weighted average of grams/capita/day.

35 FAO, online. FAOSTAT.

36 De Laurentiis, V.; Corrado, S. and Sala, S., 2018. Quantifying household waste of fresh fruit and vegetables in the EU.

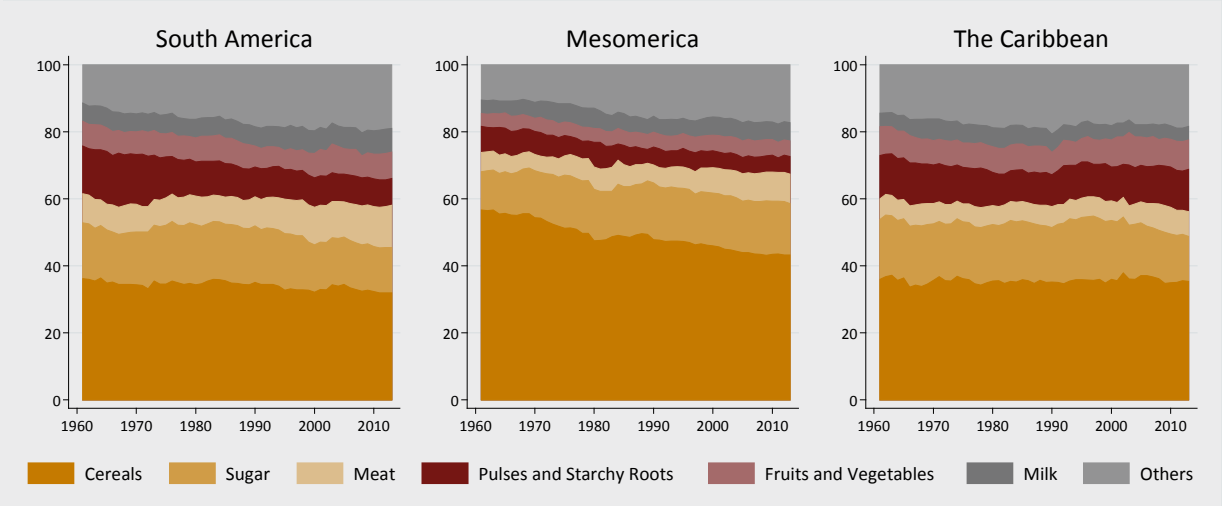
37 For this analysis the FAO and WHO recommendation of 400 "edible" grams per person per day of fruits and vegetables was used as an "ideal" requirement to improve health and reduce the risk of suffering from certain non-communicable diseases. On the other hand, the availability of "edible" fruits and vegetables was calculated using the FAOSTAT balance sheets, which includes information on the availability of fruits and vegetables in kg/person/year. However, this figure includes both the edible and inedible parts, so a percentage of 20% of "inevitable waste" was used to represent the inedible part, in order to make the requirement and the availability comparable without the inevitable waste. The ratio is established on the basis of this data.

FIGURE 19
RELATIONSHIP BETWEEN PRODUCTION AND DOMESTIC AVAILABILITY OF A SELECTION OF BASIC PRODUCTS IN LATIN AMERICA AND THE CARIBBEAN BY SUBREGION, RATIOS (BASED ON VOLUMES), 2011-2013



Source: Prepared by the authors based on FAO data, online. FAOSTAT.

FIGURE 20
EVOLUTION OF THE PARTICIPATION OF THE SOURCES OF CALORIC AVAILABILITY IN LATIN AMERICA AND THE CARIBBEAN, BY SUBREGION, PERCENTAGES (%), 1961-2013



Source: Prepared by the authors based on FAO data, online. FAOSTAT.

TABLE 5
FOOD AVAILABILITY IN LATIN AMERICA AND THE CARIBBEAN BY SUBREGION AND GLOBAL, GRAMS PER PERSON PER DAY, 2011-2013

	The Caribbean	Mesoamerica	South America	World
Milk	183.6*	289.1	374.8	247.5
Cereals	293.5*	413.8	316.4*	402.5
Roots and tubers	203.9	45.9*	174.8	173.7
Sugar and sweeteners	104.9	132.8	114.7	67.2
Pulses	41.7	32.5	28.8	19.2
Oil crops	26.0	7.5	27.9	19.8
Meat	120.0	148.4	217.6	117.2
Fish and seafood	24.7*	25.3*	28.1*	52.2

Source: Prepared by the authors based on FAO data, online. FAOSTAT.
* lower than the world average

TABLE 6
RATIO (AVAILABILITY/REQUIREMENT) BETWEEN REQUIREMENT (GRAMS/CAPITA/DAY) AND AVAILABILITY WITHOUT INEVITABLE WASTE (GRAMS/CAPITA/DAY) OF FRUIT AND VEGETABLES BY REGION AND GLOBAL, BASED ON THE RECOMMENDATION OF 400 GRAMS/CAPITA/DAY OF THE WORLD HEALTH ORGANIZATION, BY REGIONS AND GLOBAL, 2013

Region	g/capita/day		Availability ratio
	Requirement	Availability without inevitable waste	
AFRICA	351.2	294.1	0.84
ASIA	371.4	546.8	1.47
EUROPE	382.1	461.8	1.21
NORTH AMERICA	378.2	486.0	1.29
OCEANIA	372.7	418.2	1.12
LATIN AMERICA AND THE CARIBBEAN	**370.0**	**339.4**	0.92
The Caribbean	**370.8**	**494.3**	**1.33**
Mesoamerica	**366.3**	**332.9**	**0.91**
South America	**371.4**	**328.1**	**0.88**
WORLD	**369.6**	**480.1**	**1.30**

Source: Prepared by the authors based on FAO data, online. FAOSTAT; DAES, online. *Population Databases*; Siegel, K., et al., 2014 and De Laurentiis, V.; Corrado, S. and Sala, S., 2018.

Taking into account the above, it would be interesting to examine whether the production alone would be enough to cover the minimum needs. In Table 6 in Latin America and the Caribbean, the volume of fruit and vegetable production[38] it is 55% higher than the minimum necessary requirement for a healthy diet. Worldwide, the production exceeds requirements by 48%, with Africa being the only region where production is below that requirements. This data shows that the region has the productive capacity to produce the necessary volume of fruits and vegetables.

Tables 6 and 7 show that all the subregions of Latin America and the Caribbean have a large productive capacity that allows them to satisfy the minimum requirements for fruits and vegetables (it should be taken into account that the production is destined to both food and other purposes). However, in South America and Mesoamerica the availability is below the requirement, which suggests that a significant fraction of the production of fruits and vegetables is destined for export, generating a deficit from a nutritional perspective.

By country, 19 of 31 of those reviewed do not have the availability to meet the minimum requirements for fruits and vegetables. These include most notably Nicaragua (0.32) and Haiti (0.52). In South America, only Colombia, Peru and Suriname exceed the minimum requirements for fruits and vegetables, and in Mesoamerica only Belize and Costa Rica. In the Caribbean, most countries exceed the minimum requirements, and the only ones below the threshold are Barbados, Haiti and Trinidad and Tobago (Table 8).

Table 8 also shows that several countries in the region have enough productive capacity to provide the population with appropriate quantities of fruits and vegetables. For example, in Chile and Ecuador, production is three times greater than the minimum requirements; in Guatemala, 2.4 times higher; in Honduras and Argentina it is more than 60% larger; in Mexico, 50%, and in Brazil, 39%. Conversely, Antigua and Barbuda and Trinidad and Tobago would have fewer fruits and vegetables if they depended only on the local production.[39]

Table 8 shows that there are seven countries that produce more fruits and vegetables than are needed to adequately feed the population according to the standard of 400 g/day/person. However, when the availability of such foods for their populations is measured (domestic production, plus imports, minus exports, plus variations in stocks) then Argentina, Brazil, Chile, Ecuador, Guatemala, Honduras, Mexico, Panama and Uruguay are seen to be in a deficit.

2.2 ACCESS

Access to food is related to the way people can obtain food both physically and economically, either through income from work, production for self-consumption, or through the support of public policies such as conditional transfers, food assistance and school meals.

In Latin America and the Caribbean, the economic cycle has been closely linked to changes in social indicators. Therefore, it is one of the most significant variables for food security, since it affects a set of factors that directly impact the possibilities of access to food by people and households, such as the labor market and, in consequence, the level and stability of income, and the inflation rate, particularly that of food, among other factors.

38 The production used for this calculation includes the different types of use: animal consumption, seeds, industrial production and losses, since it is not possible to differentiate which part of these uses are part of domestic production, and which part of imports. Therefore, production, in this case, only accounts for the productive capacity of the country or region, regardless of the final use of the food.

39 It should be considered that there is an additional percentage of waste that occurs in households and that is additional to the inevitable waste, which can vary according to country and to product.

TABLE 7
RATIO (PRODUCTION/REQUIREMENT) BETWEEN REQUIREMENT (GRAMS/CAPITA/DAY) AND PRODUCTION[40] WITHOUT INEVITABLE WASTE (GRAMS/CAPITA/DAY) OF FRUIT AND VEGETABLES FOR 2013, BASED ON THE WHO RECOMMENDATION OF 400 GRAMS/CAPITA/DAY, BY REGIONS

Region	/capita/day		Production ratio
	Requirement	Production without inevitable waste	
AFRICA	351.2	304.9	0.87
ASIA	371.4	622.7	1.68
EUROPE	382.1	511.1	1.34
NORTH AMERICA	378.2	419.4	1.11
OCEANIA	372.7	453.6	1.22
LATIN AMERICA AND THE CARIBBEAN	**370.0**	**572.4**	**1.55**
The Caribbean	**370.8**	**519.5**	**1.40**
Mesoamerica	**366.3**	**620.7**	**1.69**
South America	**371.4**	**558.1**	**1.50**
WORLD	**369.6**	**546.1**	**1.48**

Source: Prepared by the authors based on FAOSTAT data. (FAO, online); DAES, online. Population Databases; Siegel, K., et al., 2014 and De Laurentiis, V.; Corrado, S. and Sala, S., 2018.

2.2.1 The evolution of hunger and poverty have been closely linked to the economic and social performance of the region

The economic growth recorded in the last decade has brought significant improvements in the living conditions of the population. Significant reductions in poverty rates and a significant decrease in hunger have been recorded in most countries of Latin America and the Caribbean (Figure 21). However, in terms of social, economic and environmental inequalities, economic growth does not always benefit in equal fashion poor households, individuals, and territories. Therefore, measures to promote and consolidate growth must be accompanied by policies for education, health and strengthening the labor market to make it more inclusive and to provide decent employment conditions. Social protection policies also have an essential role to play in improving the income of families with high levels of vulnerability, protecting the consumption of basic goods, their ability to respond to contingencies, and in building human capital, all of them key aspects of food security and nutrition. These policies contribute to providing a security, support and advocacy base that is essential to the sustainable reduction of hunger and poverty, especially in territories that are lagging behind. Otherwise, households in poverty find easier to invest their time and resources in unprofitable or harmful activities,[41] thus remaining in poverty traps without the capacity to acquire basic goods or to strengthen their means of subsistence.

All this severely reduces their ability to consume healthy foods (FAO, 2015a, FAO, 2017f).

Between 2002 and 2008, Latin America and the Caribbean experienced significant economic growth (GDP grew by 4% per year on average).

40 For this calculation the production used includes the different types of use: animal consumption, seeds, industrial production and losses, since it is not possible to differentiate which part of these uses are part of domestic production, and which part of imports. Therefore, production, in this case, only accounts for the productive capacity of the country or region, regardless of the final use of the food.

41 Some of these activities include withdrawal from school of minors, child labor, lower consumption of healthy foods, and the increase in consumption of low-priced foods with lower nutritional quality, hazardous or illegal work, precarious employment, production of short-cycle foods or with better storage capacity (low price and nutritional properties), unsustainable use of natural resources (such as burning and clearing of forests, overexploitation of fishery resources), among others (FAO, 2017f)

TABLE 8

RATIO (AVAILABILITY/REQUIREMENT) BETWEEN REQUIREMENT (GRAMS/CAPITA/YEAR) AND AVAILABILITY WITHOUT INEVITABLE WASTE (GRAMS/CAPITA/YEAR) OF FRUIT AND VEGETABLES FOR 2013, BASED ON THE WHO RECOMMENDATION OF 400 GRAMS/CAPITA/DAY, BY COUNTRY.

	g/capita/day				
Country	Requirement	Availability without inevitable waste	Production without waste	Ratio Disponibilidad	Production ratio
Antigua and Barbuda	371.2	510.3	270	1.37	0.73
Argentina	370.9	319.7	600	0.86	1.62
Bahamas	375.4	893.0	472	2.38	1.26
Barbados	378.1	367.9	117	0.97	0.31
Belize	361.4	471.1	2.600	1.30	7.19
Bolivia (Plurinational State of)	361.6	221.8	284	0.61	0.79
Brazil	373.6	318.2	518	0.85	1.39
Chile	375.7	298.2	1.130	0.79	3.01
Colombia	371.6	412.9	541	1.11	1.46
Costa Rica	373.6	402.5	2.876	1.08	7.70
Cuba	381.1	624.1	803	1.64	2.11
Dominican Republic	365.0	682.7	830	1.87	2.27
Ecuador	365.8	276.3	1.093	0.76	2.99
El Salvador	366.5	255.2	142	0.70	0.39
Grenada	369.1	410.6	394	1.11	1.07
Guatemala	357.0	256.8	867	0.72	2.43
Guyana	365.1	312.1	307	0.85	0.84
Haiti	360.1	187.0	233	0.52	0.65
Honduras	360.7	292.0	597	0.81	1.65
Jamaica	372.1	453.4	450	1.22	1.21
Mexico	367.6	359.1	553	0.98	1.50
Nicaragua	364.4	117.3	131	0.32	0.36
Panama	367.3	260.5	445	0.71	1.21
Paraguay	364.4	256.3	279	0.70	0.77
Peru	367.3	405.4	613	1.10	1.67
Saint Lucia	376.6	260.7	363	0.69	0.96
St. Vincent and the Grenadines	371.5	499.7	885	1.35	2.38
Suriname	368.4	381.9	640	1.04	1.74
Trinidad and Tabago	376.2	328.5	137	0.87	0.36
Uruguay	375.3	288.0	375	0.77	1.00
Venezuela (Bolivarian Republic of)	367.0	294.2	318	0.80	0.87

Source: Prepared by the authors based on FAOSTAT data. (FAO, online); DAES, online. Population Databases; Siegel, K., et al., 2014 and De Laurentiis, V.; Corrado, S. and Sala, S., 2018.

growth (GDP grew by 4% per year on average).[42] Over this period, there was an increase in average income, the distribution of income saw moderate improvement, and, consequently, there was a significant reduction in poverty and extreme poverty in Latin America and the Caribbean. In addition, as shown in Figure 21, a reduction in hunger was achieved (ECLAC, 2018b). In the period from 2008 to 2014, which was one of economic slowdown (with an average annual growth rate of 2%) poverty and hunger continued to fall and, according to evidence from ECLAC (2018b), the changes in income distribution had a greater effect on poverty reduction. In other words, the change in income of the poorest households was explained mainly by income transfers.

A process of economic recovery in Latin America and the Caribbean is expected in the next few years. However, growth rates will be much slower than those of the decade following the millennium (DESA, 2018). Indeed, in 2017 it was already possible to see growth rates of 1% (the highest rate since 2013) and, in the next few years, a greater recovery is expected, with projected rates of 2.1% and 2.5%. This growth will be driven mainly by improvement to the economic outlook in South America (Table 9). This more positive economic context is an opportunity to improve people's incomes and living conditions, which increases the possibilities of improving food security.

In Latin America and the Caribbean (FAO and PAHO, 2017 b) poverty (particularly extreme poverty and hunger) are closely linked. For example, since 2014 an economic slowdown has been experienced that has resulted in an increase in the rates of poverty, extreme poverty and undernourishment, for the first time in more than a decade of sustained reduction. Poverty has risen from 28.5% in 2014 to 30.7% in 2017, which represents an increase of 19 million in poverty. Of particular concern is that this rise is almost entirely accounted for by an increase in those living in extreme poverty by 14 million people. Bearing in mind that the threshold of extreme poverty is determined by the cost of the basic food basket, the people who are below this line are those who do not have enough income to cover the basic costs of food. Currently, 62 million people are in this situation in Latin America and the Caribbean (ECLAC, 2018b).

However, it must be taken into account that these averages hide the wide range of situations present in Latin America and the Caribbean. In some countries, the proportion of people facing poverty is significant (Figure 22). In fact, the situation is of particular concern in countries where there is a high proportion of extreme poverty. In addition, although the long-term trend of falling poverty in the region holds true for most countries, the recent increases observed in the regional average can mainly be explained by rising poverty in the countries of South America (ECLAC, 2018b).

2.2.2 Rural population are more vulnerable to food insecurity

Poverty restricts people's access to adequate food. But rural poverty can also mean higher vulnerability due to the particularities of the territory, related to the volatility of income (temporary employment is much more common than in urban areas), and the risks of natural disasters that can affect the main economic activities that are pursued in rural territories.

In Figure 21 a significant decrease is observed in the variation of rural poverty and extreme rural poverty, above all, during the periods of greatest growth in Latin America and the Caribbean. Additionally, in the periods after 2008 and up to 2014, the reduction of rural poverty and extreme rural poverty was greater than the decreases in poverty, years in which, as noted above, the distributive changes had a greater impact on poverty reduction.

However, in the recent years of economic stagnation and contraction, extreme rural poverty was the one that increased the most. It is estimated that, at present, 41% of those living in extreme poverty in the region live in rural areas. In addition, the prevalence of extreme poverty in these areas (22.5%) remains significantly higher than overall extreme poverty (10%) at the regional level (Figure 23).[43] In the case of rural poverty, the gap with respect to regional poverty

42 World Bank, online. World development indicators.

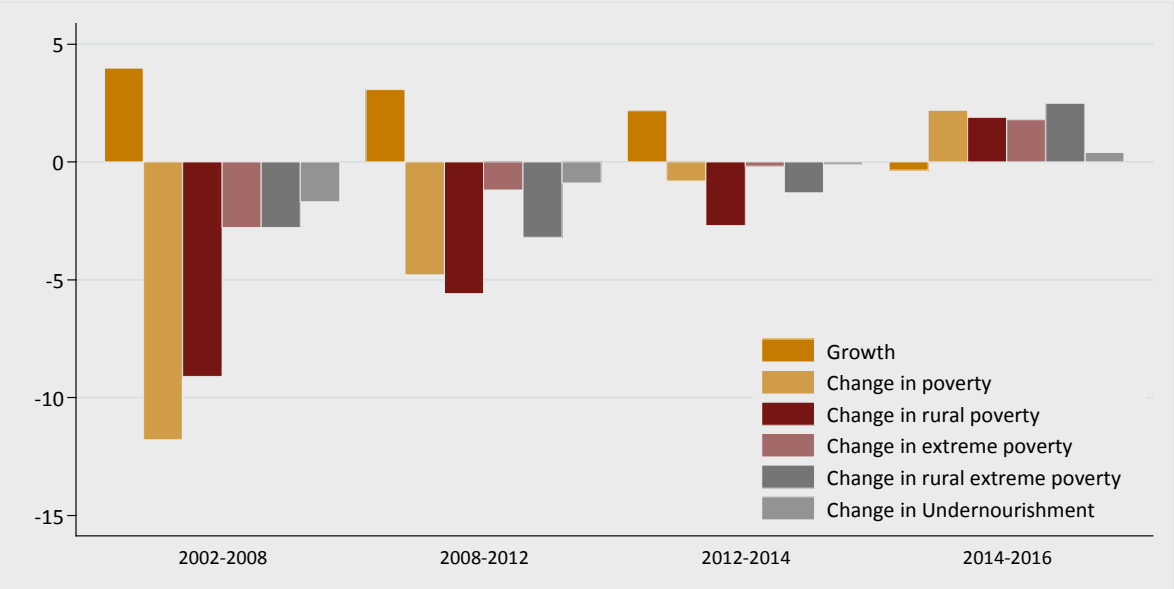
43 See chapter 3 for further discussion on this topic.

TABLE 9
GDP GROWTH RATES IN SUBREGIONS OF LATIN AMERICA AND THE CARIBBEAN AND THE WORLD, PERCENTAGES (%), ESTIMATES AND PROJECTION, 2015-2019

Region	2015	2016	2017a	2018b	2019b
Latin America and the Caribbean	–0.6	–0.9	1	2,1	2,5
South America	–1.9	–2.4	0,6	1,9	2,5
Mesoamerica	3,1	3,0	2,3	2,5	2,6
The Caribbean	0,2	–0,5	0,3	2,0	2,2

Source: DESA, UNCTAD, CEPA, CEPE, ECLAC, ESCAP and ESCWA, 2018.
a) Estimate.
b) Projection.

FIGURE 21
GDP GROWTH RATES AND VARIATIONS IN PERCENTAGE POINTS OF POVERTY, EXTREME POVERTY AND UNDERNOURISHMENT, FOR LATIN AMERICA AND THE CARIBBEAN 2002-2016



Source: ECLAC, 2018b; DESA, UNCTAD, CEPA, CEPE, ECLAC, ESCAP and ESCWA, 2018; World Bank (online). World development indicators; FAO, IFAD, UNICEF, WFP and WHO, 2018.

is close to 18 percentage points, as it was in the early 2000s. This means that 29% of all poor people in Latin America and the Caribbean live in rural areas.

The higher incidence of poverty in rural areas is directly reflected in different forms of malnutrition that affect traditionally excluded population groups. In this sense, as shown in chapter 1, in the rural environment stunting disproportionately affects the indigenous population, food insecurity affects women more and anemia in women of childbearing age is higher in the lower quintiles.

2.2.3 Income inequalities as determinants of malnutrition

The high level of inequality in the region is an indication that the benefits of the economic growth do not distribute equally among the population. On average, the richest decile in Latin America and the Caribbean concentrates about 38% of revenues in contrast to the poorest decile of the population which accumulates only 1.3%.[44]

High levels of inequality may accentuate the problems caused by different forms of malnutrition, something that has long-term effects (FAO, 2013a). In addition, this leads to nutritional problems affecting the groups that lag furthest behind even more, passing between generations, and staying hidden in regional and national averages.[45] In fact, several studies (Devaux, M. and Sassi, F., 2011, Bilger, M., Kruger, E., and Finkelstein, E., 2017, Van de Poel, E., et al., 2008) have linked the existence of social and economic inequalities with higher prevalences of malnutrition. By contrast, reducing these gaps favors growth and, when accompanied by distributive policies, significantly decreases poverty, helps reduce the problems of food insecurity and malnutrition, and allows the development of people.

Indeed, this type of policy plays a fundamental role in enabling growth to improve the incomes of the poorest households. That is, growth must be accompanied by the reduction of inequality to achieve greater reductions in poverty (ECLAC, 2018a). On the other hand, high rates of income inequality hamper development, since they determine people's access to skills and opportunities, limiting their individual development and generating inefficiencies for the development of the country and hindering growth (FAO and PAHO, 2017 b; ECLAC, 2018a).

Figure 24 shows how undernourishment in Latin America and the Caribbean has decreased in tandem with inequality.[46] Between 2002 and 2008, the most pronounced decrease is observed Gini coefficient, a period in which the prevalence of hunger also showed a significant reduction. Likewise, in recent years there has been a stagnation of inequality as well as undernourishment.

The challenge, in the context of economic recovery and consistent with the SDGs, is to ensure that growth reaches all sectors of the population, reducing gaps and paying special attention to the sectors that have historically been most marginalized.

2.3 UTILIZATION

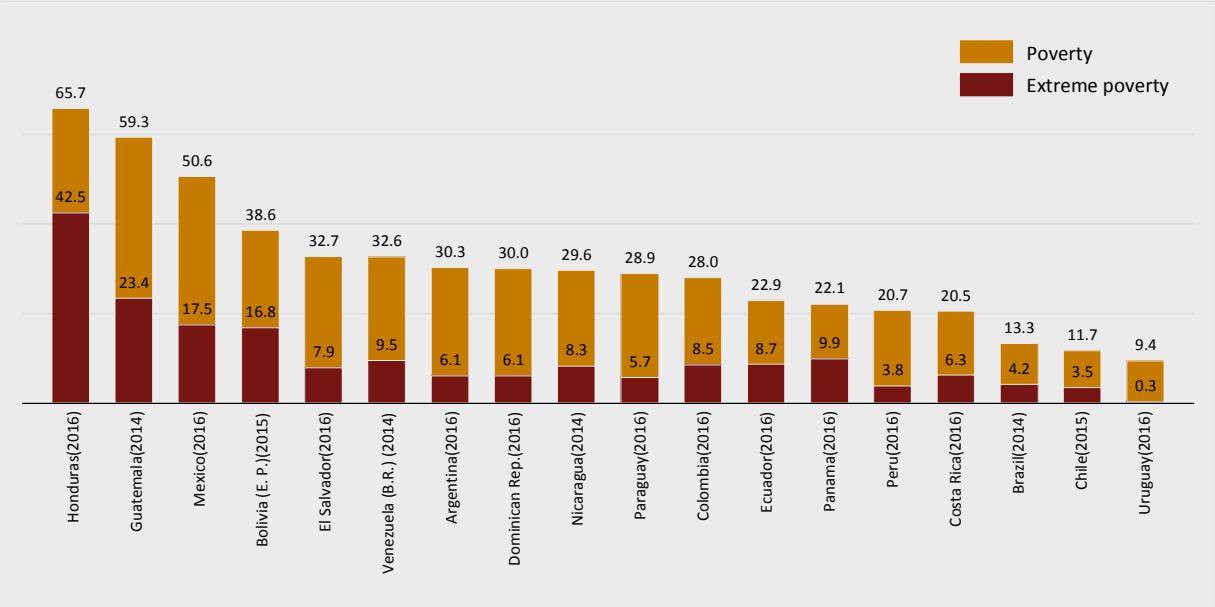
Food utilization is the result of the quality, quantity and transformation of the foods consumed and the biological absorption and incorporation of nutrients they contain, which determine people's health. That is, it can provide a healthy and active life, or can lead to diseases or either form of malnutrition.

44 According to ECLAC figures for the year 2014, online. CEPALSTAT.

45 Chapter 3 discusses how the different forms of malnutrition affect population at the bottom of income distribution and other vulnerable groups.

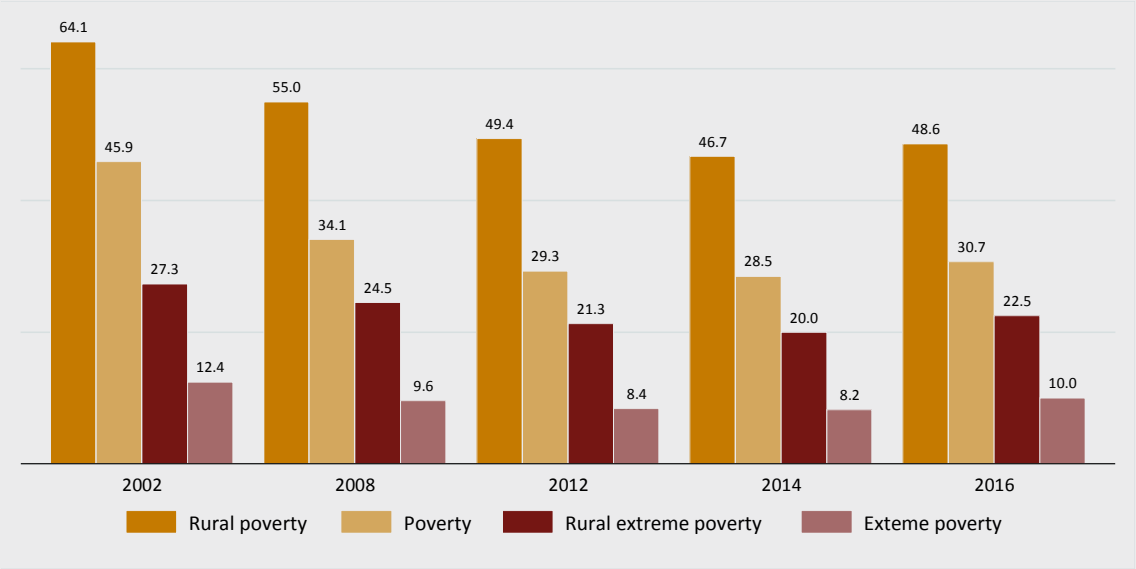
46 Inequality as measured by the Gini coefficient of per capita income, where values closer to 1 imply high inequality, and closer to 0 low inequality.

FIGURE 22
POVERTY AND EXTREME POVERTY RATES IN LATIN AMERICAN COUNTRIES, PERCENTAGE (%), 2014-2016



Source: ECLAC, 2018b. *Panorama Social América Latina 2017.*

FIGURE 23
TOTAL VS RURAL POVERTY AND EXTREME POVERTY RATES IN LATIN AMERICAN COUNTRIES, PERCENTAGES (%), 2002-2016



Source: ECLAC, 2018b. *Panorama Social Ameérica Latina 2017.*

2.3.1 Determinants of malnutrition

In its conceptual framework of the determinants of child malnutrition, UNICEF (2013) defines nutritional status as determined by two immediate causes: inadequate food intake and diseases. In turn, these are determined by three factors: *household food security, inadequate care and feeding practices, and an unhealthy domestic environment and inadequate health services*. That is, optimal nutritional status results when children have access to diverse, nutrient-rich food, appropriate maternal and child-care practices, adequate health services and a healthy environment that includes safe water, sanitation and good hygiene practices. Economic, social and political factors determine access to the three causes of nutritional status.

UNICEF states that, from a life-cycle perspective, the first 1 000 days (from gestation to 2 years) is the most crucial time to meet a child's nutritional requirements. During this time, the child has increased nutritional needs to support rapid growth and development, is more susceptible to infections, and is totally dependent on others for nutrition and care. The consequences in the short term of these shortcomings are associated with mortality, morbidity and disability[47] (UNICEF, 2013). La consecuencia más común del retraso en el crecimiento intrauterino es el bajo peso al nacer, siendo uno de los índices predictivos más importantes de la mortalidad infantil (CEPAL y WFP, 2017).

The importance of reducing stunting is also related to its long-term impact, which is associated with problems of height, cognitive ability, economic productivity, productive performance and metabolic and cardiovascular diseases. As a result, health and nutrition in the first years of life play a major role in the future both of the individual and of the nation (UNICEF, 2013). If the growth retardation begins during pregnancy and continues until the age of two, the deficiency never recovers and has long-term consequences (Victora, C., et al., 2010).

On the other hand, the nutritional status of the mother prior to conception is also important, since this is one of the determining factors for intrauterine growth restriction (ECLAC and WFP, 2017). Maternal diseases can prevent the absorption of nutrients and poor nutrition hinders the development of the fetus, contributing to low birthweight. Therefore, the nutritional care of women of childbearing age is fundamental for the life of the newborn. As such, it is important to promote child and maternal health, including before pregnancy, considering that pregnancy increases the need for nutrients and that deficiencies of macro and micronutrients are frequent (UNICEF, 2013, ECLAC and WFP, 2017).

In addition, there are intergenerational consequences. Undernourished girls are more likely to be undernourished as pregnant women, and to giving birth to low birthweight children (UNICEF, 2013).

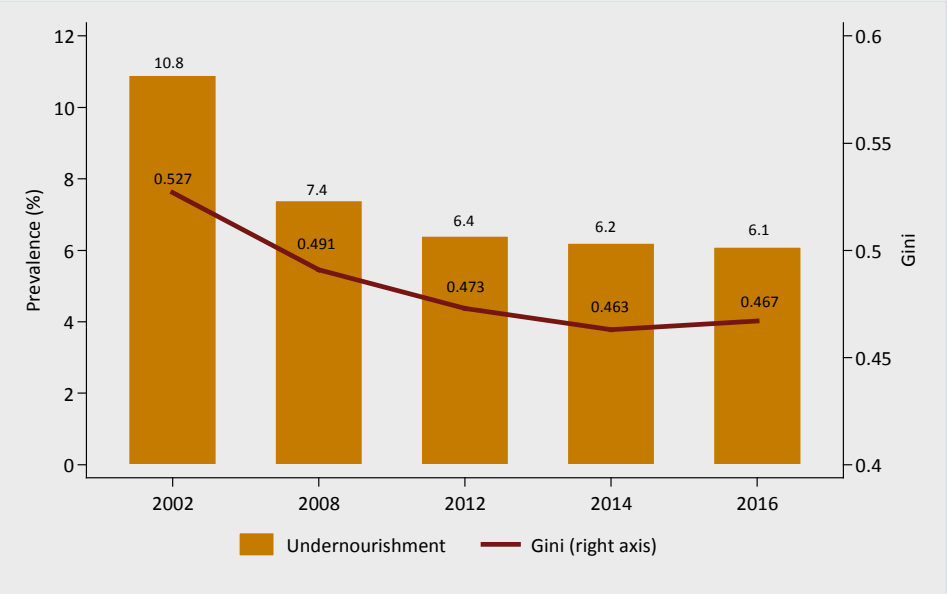
In the conceptual framework, the underlying causes include *household food insecurity*, that is, the lack of access to affordable, diverse and nutritious food. This is largely addressed in the two previous sections devoted to the dimensions of availability and access. The other two underlying causes, inadequate care and feeding practices, and an unhealthy domestic environment and inadequate health services, are related to the utilization of food and will be addressed below.

Inadequate care and feeding practices

Education has a fundamental role to play to address this cause of malnutrition (and it also applies to other forms of malnutrition). Strategies and actions to promote nutritional education, communication and information aimed at improving maternal health and the development of the fetus contribute to healthy eating practices and lifestyles from early in life. In addition, to prevent malnutrition, it is also necessary to provide training to primary health care workers

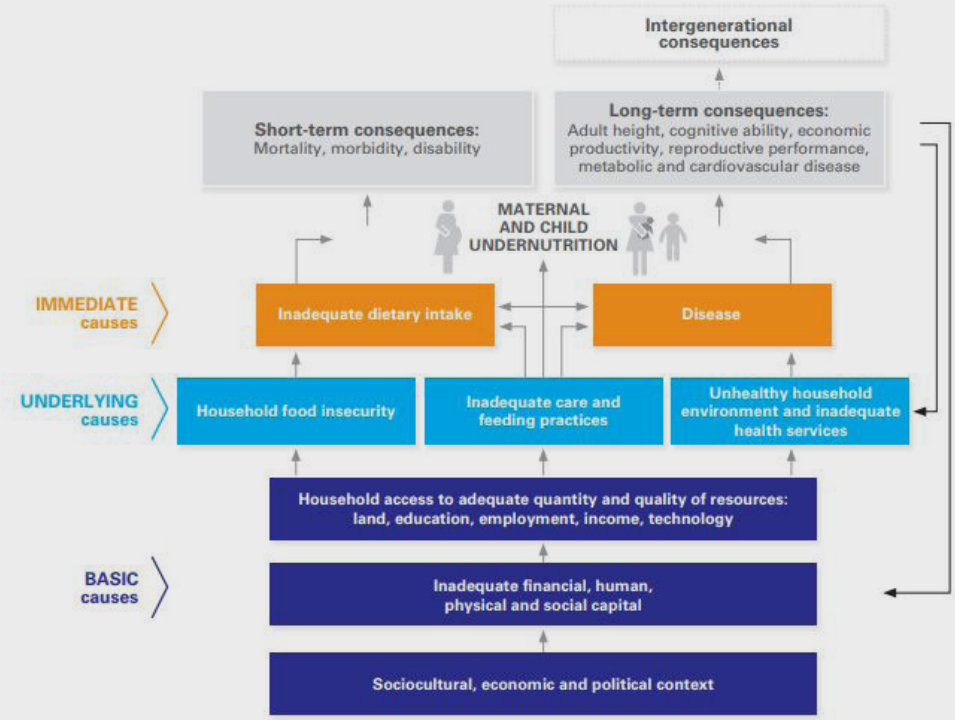
47 For further discussion on mortality, see chapter 1.

FIGURE 24
EVOLUTION OF THE GINI COEFFICIENT OF PER CAPITA HOUSEHOLD INCOME AND OF UNDERNOURISHMENT FOR LATIN AMERICA AND THE CARIBBEAN, 2002-2016



Source: Elaborated by the authors based on data from FAO, IFAD, UNICEF, WPF and WHO, 2018 and ECLAC, 2018a.

FIGURE 25
CONCEPTUAL FRAMEWORK OF THE DETERMINANTS OF CHILD MALNUTRITION



Source: UNICEF, 2013. Improve child nutrition. The imperative for the global progress that can be achieved.

in nutrition issues during the first years of life. Improving children's education and creating opportunities for them and their families can improve the nutritional status and development of subsequent generations (UNICEF, 2013).

Education and guidance for childcare could be achieved through interventions in public health systems and community-based health programs.

Prenatal care consultations are useful to promote optimal feeding practices and carry out specific interventions, for example by offering guidance on breastfeeding (UNICEF, 2013).

Optimal breastfeeding practices during the first year of life and complementary feeding are two practices that, carried out together, can prevent almost one-fifth of the deaths of children under 5 (UNICEF, 2013).

Breastfeeding is crucial not only because children receive the nutrients they need, but also because it leads to a lower risk of dying from diarrheal diseases or pneumonia. Both are diseases that cause the highest number of deaths among children under 5 (UNICEF, 2013).

Figure 26 shows that most of the countries in the region have increased the prevalence of exclusive breastfeeding during the first 6 months. Nevertheless, there are still countries like the Dominican Republic and Suriname, where the percentage is very low, while others have even shown a decrease (Cuba and Guyana).

Regarding complementary feeding after six months, according to UNICEF (2013) studies have shown that children who eat safe, appropriate, diverse and sufficient complementary foods present a better health status. Table 10 shows the minimum food diversity rate according to WHO.

Unhealthy domestic environment and inadequate health services

The type of access to basic services determines, in part, whether the domestic environment is unhealthy or not. This is a determining factor in the avoidance of diseases. Drinking water plays an important role in the adequate preparation of food and adequate sanitary services are crucial to maintaining a healthy domestic environment suitable for maternal and childcare. Both factors are of great importance for the adequate nutrition and development of children under 5 years old.

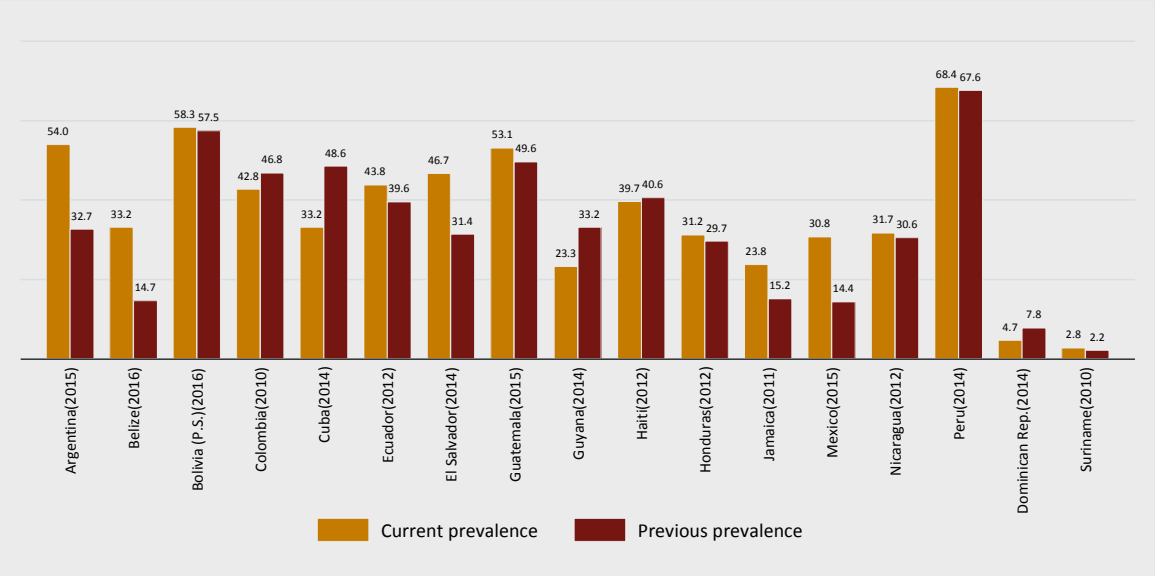
Significant differences can be observed in the region between urban and rural areas. Thus, 77% of the urban population has access to safe water services and a further 22% to basic water services. However, in rural areas, 86% have access to "at least" basic water services, without identifying what percentage of these sources are safe services. Regarding the use of other water sources, the percentage of the urban population using limited services (0.2%), unimproved sources (0.8%), or surface water (0.2%), is relatively low; while in rural areas the use of both unimproved sources and surface water exceeds 5%.

In terms of sanitation services, access is more limited. Access to safe services in urban areas is only 26.6%, while 63.5% have access to basic services. In rural areas, 68% of the population has access to "at least" basic services, while 15% have unimproved health sources and 11% practice outdoor defecation (Table 11).

Access to adequate health services is essential to prevent malnutrition. Attention to the needs of newborns and children under five years old is particularly important, while encouraging good practices, through health services ready to respond in case of diseases.

In this sense, a major indicator for the countries' health systems is public expenditure on health. In Latin America and the Caribbean, in 2011 average public spending on health was less than 4% of GDP. This percentage is significantly lower than the countries that are part of the Organization for Economic Cooperation and Development (OECD). Although spending has increased in 21 countries of the region, only Costa Rica, Cuba and Uruguay allocate more than 6% of GDP to health (PAHO, 2017).

FIGURE 26
EVOLUTION OF THE PREVALENCE OF EXCLUSIVE BREASTFEEDING UNTIL 6 MONTHS IN COUNTRIES OF LATIN AMERICA AND THE CARIBBEAN, SEVERAL YEARS.



Source: Prepared by the authors based on official information from the countries.

TABLE 10
MINIMUM FOOD DIVERSITY RATE* IN COMPLEMENTARY FOOD IN VARIOUS COUNTRIES OF LATIN AMERICA AND THE CARIBBEAN, PERCENTAGES (%), 2012-2016

Country	Year	Months	With breastfeeding	Without breastfeeding
Belize	2016	6-23	56.9	78.4
Colombia	2010	0-23	70.4	83.5
Cuba	2014	6-23	77.6	82.1
Ecuador	2012	6-23	63.8	81.9
El Salvador	2014	6-23	74.8	88.3
Guyana	2014	6-23	79	55.3
Haiti	2012	6-23	22.8	45.6
Mexico	2015	6-23	66.9	82.1
Dominican Republic	2014	6-23	56.6	74.3

Source: Prepared by the authors based on official information from the countries.
*Note: Consume food from 4 or more food groups as defined by the WHO.

According to PAHO, the region has reached high levels of health protection, which does not always translate into high levels of use of preventive care services. In addition, the direct costs remain high in most of the countries of the region. This means that the use of preventive care services is conditioned by income inequality (PAHO, 2017). According to the World Bank's coverage index for essential health services (which includes reproductive, maternal, neonatal and infant health, infectious diseases, non-communicable diseases, service capacity and access) coverage stands at 74.4% at the regional level. Figure 27 shows the coverage in some countries of the region, with the lowest level in Guatemala, at 57%, and the highest in Uruguay, at 79%.

2.3.2 The multiple burdens of malnutrition

Malnutrition is present in its several forms and affects a considerable proportion of the region's population. As discussed in chapter 1, the region has made great progress in terms of child malnutrition, although there are countries where the prevalence of stunting is considerably high and affects the poorest sectors above all (as will be seen in chapter 3). Regarding overweight and obesity, they are health problems that show a general upward trend, mainly affecting women. In addition, there exists the so called "hidden hunger," which is related to deficiencies in the micronutrients necessary for good health and development. Iron deficiency in the mother, for example, can result in anemia, which increases the risk of hemorrhage, infection, premature birth and maternal mortality and low birth weight, among others.[48]

48 UNICEF, online. Micronutrients.

TABLE 11

LEVELS OF ACCESS TO BASIC SERVICES IN LATIN AMERICA AND THE CARIBBEAN, BY RURAL AND URBAN AREAS

Access to drinking water[49]

Geographic area	Unimproved source	Basic service	Limited service	Surface waters	Safe service
Rural	6.4	85.9*	2.1	5.6	
Urban	0.8	21.9	0.2	0.2	76.9
Domestic	2.0	30.8	0.6	1.2	65.4

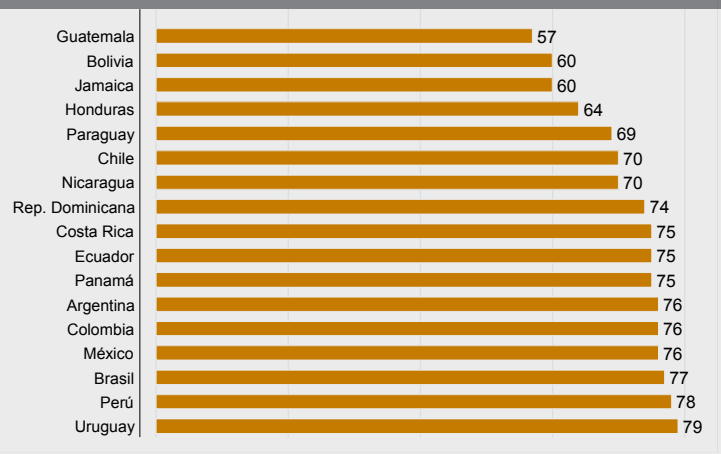
Sanitation services[50]

Geographic area	Unimproved source	Basic service	Limited service	Sanitation services or Outdoor	Safe service
Rural	15.4	68.4*	5.1	11.1	
Urban	3.9	63.5	5.0	1.0	26.6
Domestic	6.2	63.3	5.0	3.0	22.4

*In rural areas this percentage is associated with the population that have access to "at least" basic services. Source: WHO and UNICEF, online. Joint Monitoring Program for Water Supply, Sanitation and Hygiene.

FIGURE 27

COVERAGE INDEX FOR ESSENTIAL HEALTH SERVICES IN COUNTRIES OF LATIN AMERICA AND THE CARIBBEAN, PERCENTAGE (%), 2015.

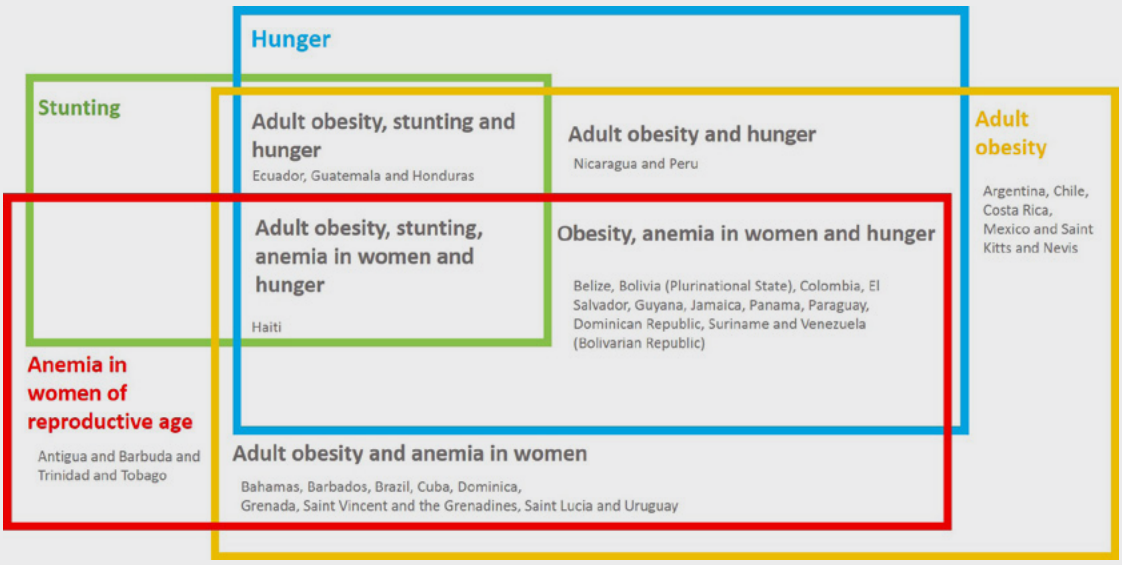


Source: World Bank, online. Health Nutrition and Population Statistics.

49 Drinking water services refer to the accessibility, availability and quality of the main source used by households for drinking, cooking, personal hygiene and other domestic uses. The classification used corresponds to: - Safe service: drinking water from an improved water source that can be accessed whenever necessary and is free from contamination. - Basic service: drinking water from an improved source, where the collection time does not exceed a 30-minute round trip. - Limited service: drinking water from an improved source, where the collection time exceeds a 30-minute round trip. - Unimproved source: refers to drinking water from an unprotected excavated well or from an unprotected source. - Surface water: refers to the consumption of water directly from a river, dam, lake, pond, stream, canal or irrigation canal.

50 Sanitation services refer to the management of excreta from facilities used by individuals, by emptying and carrying away. The classification used corresponds to: a) Safe service: use of improved facilities that are not shared with other households and where excreta are safely disposed of in situ or carried away and treated outside the home. b) Basic service: use of improved facilities that are not shared with other homes. c) Limited service: use of improved facilities shared by two or more households. d) Unimproved source: use of pit latrines or similar. e) Outdoor defecation: corresponds to the disposal of human feces in fields, forests, shrubs, open bodies of water, beaches and other open spaces.

FIGURE 28
MULTIPLE FORMS OF MALNUTRITION IN LATIN AMERICA AND THE CARIBBEAN, LATEST AVAILABLE DATA



*Obesity in adults: obesity in people over 18 years with BMI > 30, including those countries where it is greater than 19.5. Stunting in children under 5 years: those countries where it is greater than 19.5 are included. Anemia in women of childbearing age: those countries where it is greater than 19.5 are included. Hunger: undernourishment, including those countries where it is greater than 6.1 (the LAC average).[51]

Source: Prepared by the authors based on official data from countries; WHO, online. Global Health Observatory data repository; and FAO, online. FAOSTAT.

Figure 28 shows how in countries of the region significantly high values for the different forms of malnutrition coexist, in the different stages of the life cycle.[52] Haiti stands out as the only country where major prevalence of undernourishment, stunting in children under 5, obesity in adults, and anemia in women of childbearing age occur in parallel. The three malnutrition problems that coexist in more countries are obesity in adults, undernourishment and anemia in women of childbearing age. Meanwhile, Ecuador, Guatemala and Honduras are notable for the prevalence of undernourishment, stunting in children under 5 and obesity in adults. In any case, this is a classification that uses national averages, which hide subnational or territorial heterogeneity where there are often cases of multiple malnutrition burdens.

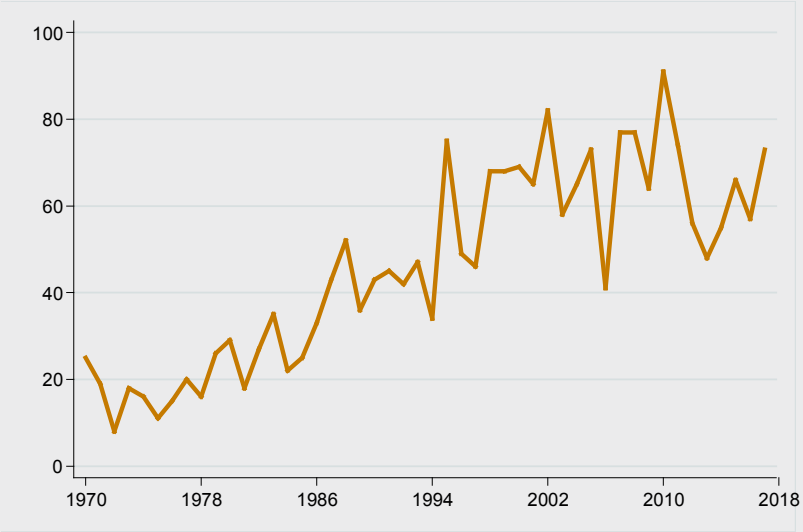
2.4 STABILITY

Stability refers to steady food availability, access and utilization for people and households every day of the year. It means, for example, that the seasonality of production should not affect food availability, access and consumption. Enhancing stability requires climate change resilience, adaptation and prevention, and the development of sustainable food systems. In addition, political and economic stability are essential to ensure access to quality food that provides for people's food security and nutrition.

51 FAO, 2013a. The State of Food and Agriculture. Food systems for better nutrition.

52 FAO, 2013a. The State of Food and Agriculture. Food systems for better nutrition.

FIGURE 29
FREQUENCY OF NATURAL DISASTERSIN LATIN AMERICA AND THE CARIBBEAN, 1970-2017



Source: EM-DAT, online. The International Disaster Database.

2.4.1 Disasters caused by natural causes

Disasters can directly affect food security of families, because they affect various components of food systems, including the production, trade, transport, storage, processing and distribution of food. In the case of families whose diet depends in part on their own production, their food security is threatened when disasters affect their livelihoods, causing damage not only in the short term, but also in medium and long term. In agriculture, when production is affected, farmers suffer economic losses, the supply and prices of food, the growth of agriculture and rural livelihoods are changed (FAO, 2018a).

In Latin America and the Caribbean, natural disasters are becoming more frequent (Figure 29). FAO estimates that their effects on crop and livestock production in the region between 2005 and 2015 caused losses equivalent to US$22 billion, which corresponds to a loss in production of 9% in the Caribbean countries, 4% in South America and 3.5% in Mesoamerica. The most affected subsector in the region was pulses, with losses of almost US$ 8billion between 2005 and 2015, followed by cereals and livestock (FAO, 2018a).

Of the natural disasters[53] reported in the region in the last 5 years (Figure 30), the most frequent are floods (46%) of the total), followed by storms (26%).

53 Wildfires are included, however, data suggests that their causes are mostly anthropogenic and not natural.

However, despite drought represents only 6% of natural disasters between 2013 and 2017, it is the cause that affects population the most (56%). According to FAO (2018a), between 2005 and 2015 drought caused productive losses in crops and livestock in the region close to US$ 13 billion. The losses were particularly high between 2012 and 2014, due to El Niño and La Niña,affecting Argentina and Brazil in 2012 and most of Mesoamerica in 2014, especially El Salvador, Guatemala and Honduras (FAO, 2018a).

Storms accounted for 77% of total damage from disasters between 2013 and 2017. During this period, droughts affected 35 million people with damages valued of almost US$ 6 billion. Storms affected more than 13 million people and caused over US$ 92 billion worth of damage. Hurricanes affected in particular the Caribbean Flooding affected 10.5 million people and caused damages to a value of US$8.4 billion during the same period. Earthquakes affected more than 2 million people and the damage they caused amounted to US$11 billion. Among them are the earthquakes that occurred in Mexico.[54]

According to data for 2016 and 2017, floods in South America are the most frequent adverse natural disasters (Figure 31). During the first half of 2018, overflowing rivers and floods affected 125,000 people in Argentina, Bolivia, Colombia and Paraguay (OCHA, 2018c; OCHA, 2018d).

In Mesoamerica and the Caribbean, storms are the most frequent form of natural disaster, followed by floods. Thus, at the beginning of 2018 flooding affected many hectares of farmland in Guatemala. In Panama, 300 000 families were affected in January 2018 by overflow of rivers, and in Honduras, five departments of the country were affected by heavy rains and floods (OCHA, 2018c).

The Caribbean was hit by two hurricanes category 5 in September 2017. They affected Antigua and Barbuda, Cuba, Dominica, Haiti, Puerto Rico and the Dominican Republic. The entire island of Dominica suffered the effects of Hurricane Maria, and by early 2018 much of the island still lacked electricity, agriculture was still recovering and the tourism sector was badly affected, circumstances that affected the livelihoods of the population. Hurricane Irma had a serious impact on Barbuda, and the entire population of the island was evacuated to Antigua. In Cuba, 3.1 million people had problems accessing drinking water, while the hurricane destroyed homes, and affected schools, health centers and 95 000 hectares of agricultural land (OCHA, 2018c; OCHA, 2017).

In Mexico, an earthquake in February 2018 affected more than 6 000 homes in Oaxaca, a region that was affected again by the September earthquake of the previous year (OCHA, 2018c).

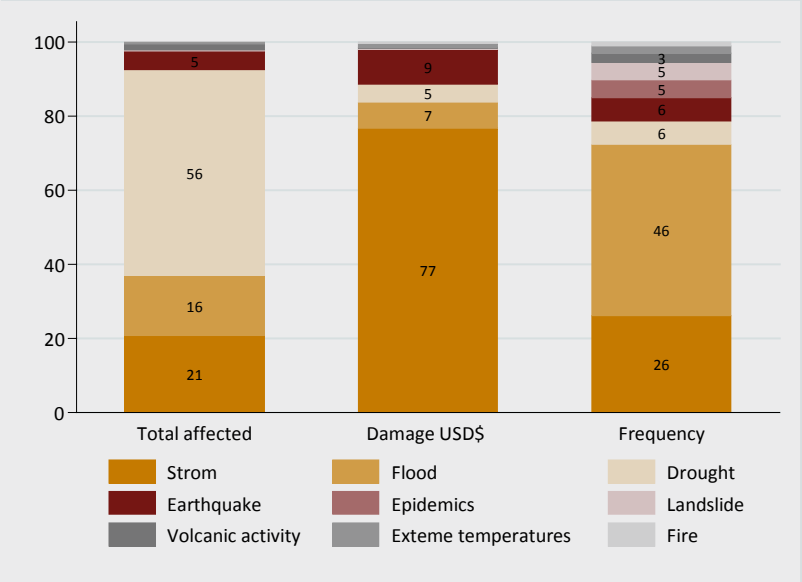
The discussion above shows the effect of natural disasters on food security. Although major disasters (intensive disasters) have a significant social, economic, environmental and media impact, it is the extensive disasters (small scale, but high frequency, and that individually lead to a lower loss of life and less damage to infrastructure), which taken together produce the greatest losses. These disasters affect land, crops and other livelihoods, exposing families to poverty and food insecurity. According to data from 22 countries of the region for the period from 1990 to 2014, for each intensive disaster there were 177 extensive ones, mainly caused by hydrological events (UNISDR, 2016).

In this context, the Fourth Ministerial Meeting on Family Farming and Rural Development of the CELAC approved the Regional Strategy for Disaster Risk Management in the Agricultural Sector and Food Security and Nutrition in Latin America and the Caribbean 2018-2030 in September 2017.[55] The objective of this strategy is to prevent the emergence of new risks and reduce existing ones in the agricultural sector and in food security and nutrition, through value-added regional, sub-regional, multi-country and cross-

54 EM-DAT, online. The International Disaster Database.

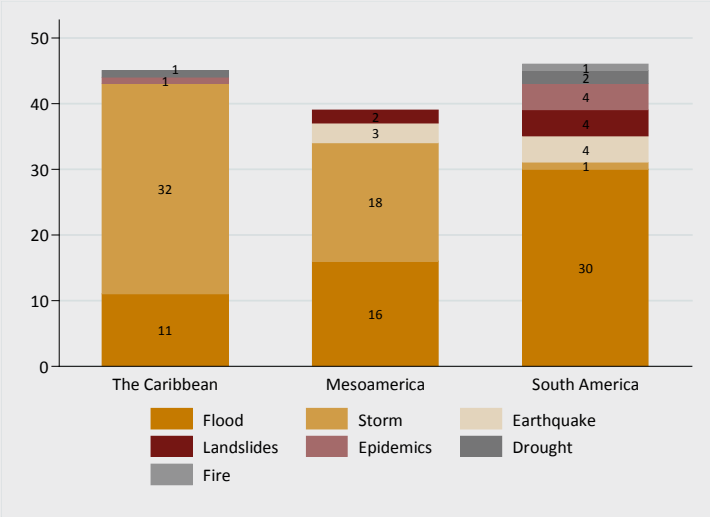
55 CELAC, 2018. Regional Strategy for Disaster Risk Management in the Agricultural Sector and Food Security and Nutrition in Latin America and the Caribbean (2008-2030)

FIGURE 30
FREQUENCY, NUMBER OF AFFECTED PERSONS AND DAMAGE BY TYPE OF NATURAL DISASTER IN LATIN AMERICA AND THE CARIBBEAN, 2013-2017.



Source: EM-DAT, online. The International Disaster Database.

FIGURE 31
FREQUENCY OF NATURAL DISASTERS IN LATIN AMERICA AND THE CARIBBEAN BY SUBREGION, 2016-2017



Source: EM-DAT, online. The International Disaster Database.

border actions that complement the national actions for the implementation of the Sendai Framework[56] in the agricultural sector and food security and nutrition. This strategy highlights the potential role of the agricultural sector to become a model of adaptation and resilience to threats and disasters.

2.4.2 Natural disasters, food security and migration in the countries of northern Mesoamerica

According to a World Bank study (2018b), by 2050 the number of migrants due to climate impacts in the region (as a result of the low availability of water, unproductive crops or areas affected by increases in sea level), could reach 17.1 million people, that is, 2.6% of the population of Latin America and the Caribbean.

Migration trends in Mesoamerica are due to several causes that are often interrelated, such as the lack of economic opportunities, violence and climate change. In the so-called Dry Corridor (zone of dry tropical forest that runs from the Pacific coast of Mexico to the west of Costa Rica and western provinces of Panama), the deterioration of livelihoods is associated with high environmental vulnerability.

In general, the population of the Dry Corridor is affected by unemployment, low and irregular wages. With a few job options, because of the crises of subsistence agriculture due to prolonged droughts, they have also seen reduced the options of agricultural employment outside the area because a disease that affects coffee crops known as "coffee rust". Surveys conducted by WFP[57] in the Dry Corridor identified the lack of food as the main cause of migration (IDB, IFAD, IOM, OAS and WFP, 2017).

The study Hunger without Borders (OIM, LSE, OAS and WFP, 2015) identified poor economic conditions and desire for improving living stadards as main causes to. The analysis shows a positive correlation between food insecurity and migration in the three countries mentioned, confirming that the higher is food insecurity, the greater the likelihood that people will emigrate seeking better living conditions (IOM, LSE, OAS and WFP, 2015).

As mentioned above, between 2012 and 2014 the losses caused by droughts associated with the El Niño affected El Salvador, Guatemala and Honduras in particular, and as a result, migration from the Dry Corridor has tended to increase (FAO, 2018a). In the case of families that depend on rainfed agriculture, their crops are even more sensitive to droughts, which encourages them to look for alternatives elsewhere, whether migrating internally to the capital cities of their countries, or migrating to other countries (World Bank, 2018b). It has been shown that there is a positive correlation between the increase in droughts and the increase in migration to United States.[58]

Despite the close relationship between the recent droughts, food insecurity and migration, in general natural disasters such as prolonged droughts are causes of migration in the medium term, and not in the short term. According to the WFP[59],the first thing families do when their income is affected is to decrease spending and change consumption patterns. Next, they compromise their livelihoods (selling assets, borrowing, mortgaging property, etc.) which has the effect of reducing their resilience and making them more

56 The Sendai Framework for Disaster Risk Reduction 2015-2030 "is the successor instrument to the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters. The HFA was conceived to give further impetus to the global work under the International Framework for Action for the International Decade for Natural Disaster Reduction of 1989, and the Yokohama Strategy for a Safer World Guidelines for Natural Disaster Prevention, Preparedness and Mitigation and its Plan of Action, adopted in 1994 and the International Strategy for Disaster Reduction of 1999" (UNISDR, 2015).

57 Emergency Food Security Assessments (EFSA) carried out between 2014-2016, in Dry Corridor households, analyzed in IDB, IFAD, IOM, OAS and WFP, 2017. Food security and emigration Why people leave and the impact this has on the families that remain in El Salvador, Guatemala and Honduras.

58 The United States of America is the main destination for migrants whose origin is Mesoamerica (78% of emigrants live in the United States and 15% in other parts of the region).

59 IDB, IFAD, IOM, OAS and WFP, 2017. Food security and emigration. Why people leave and the impact this has on the families that remain in El Salvador, Guatemala and Honduras.

vulnerable to crisis. As a last option, they migrate, which usually involves selling productive assets or increasing their debt to finance migration.

Migration to other countries is often irregular, so the probability of failure tends to be high. Migrants often hire a trafficker, which requires them to get into debt or to leave the family in debt, increasing the household poverty, especially for women and children left in the country. In this way, migration can also be a cause of food insecurity, especially in cases of failure and when cash remittances are not forthcoming.

To enhance resilience in the Dry Corridor, there is for example a regional project to respond to the effects of El Niño, which ranges from food assistance, actions to increase the resilience of livelihoods in the face of climate hazards and even measures to improve the management of risk.[60]

2.4.3 Migratory flows from the Bolivarian Republic of Venezuela

As noted above, undernourishment in the Bolivarian Republic of Venezuela has shown significant increases in recent years. According to the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), the political and economic crisis in this country affects most of the population, with serious consequences for health, nutrition and security, where there is a shortage of food and medical supplies (OCHA, 2017; OCHA, 2018b).

As a result, in the Bolivarian Republic of Venezuela changes in migration flows have been observed in recent years, which also evidences the relationship between food insecurity and migration. Flows have intensified towards traditional destinations and towards new destinations in the region and around the world. Asylum applications have increased by 2 000% since 2014. According to the latest estimates of the International Organization for Migration (IOM), so far in 2018 there are already more than 2.3 million Venezuelans living abroad. Between 2015 and 2018 the number of Venezuelan migrants in the rest of South America rose from about 86 900 to 1 529 000 people, and more than 400 000 residence permits have been granted to them (OCHA, 2018a; OCHA, 2018b; IOM, 2018b).

The number of Venezuelans living in Colombia increased by 62% in the second half of 2017 (OCHA, 2018c). According to a study by UNHCR Colombia, 90% say they left Venezuela due to lack of food and 82% due to lack of work (OCHA, 2018a). Of the more than 200 000 registered as Venezuelan migrants in Colombia, only 5.7% are enrolled in the health system, only 28% of children and adolescents attend school, and 18% are unemployed. These figures show the situation of vulnerability confronting the Venezuelan migrants and the difficulties faced by the health and education systems of the destination country in assisting people in these irregular situations (IOM, 2018a).

On the border with Brazil, the number of Venezuelan citizens entering through the State of Roraima has increased in the last two years. At the beginning of this year a state of emergency was declared in the zone, with a need for protection, sanitation and hygiene in shelters. In addition, 88 cases of malaria have been reported, of which 55 are Venezuelans. Within the migrant population, the majority are young people who have a high level of education and there is also a presence of indigenous Warao people (OCHA, 2018c; OCHA, 2018c).

The flow of Venezuelans has also diversified to other countries such as Argentina, Chile, Ecuador, the Caribbean Islands, Panama and Peru, and others. Among these, Chile stands out as the country with the fourth-largest registered Venezuelan migrant population, with 120 000 residence permits being granted between 2015 and 2017 (OIM, 2018c).

60 EuropeAid, online. Project PRO-ACT.

The high migration rates from the Bolivarian Republic of Venezuela over a short period have consequences for the countries that receive them. Among other things, they represent a burden for their institutions, they affect the migration services, the health and education systems, in addition to the challenges of insertion of migrants in the target societies in the medium and long term, all in a context of extreme vulnerability of the migrant populations.

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CHAPTER 3
INEQUALITY AND FOOD SYSTEMS: OPPORTUNITIES TO GUARANTEE ADEQUATE FOOD FOR ALL

CHAPTER 3

INEQUALITY AND FOOD SYSTEMS: OPPORTUNITIES TO GUARANTEE ADEQUATE FOOD

KEY MESSAGES

➔ Diets of the population of Latin America and the Caribbean have been transformed over the last three decades as a consequence of growing urbanization, international trade and the greater presence of highly processed foods. This change has caused the population of several countries of the egion to present simultaneously malnutrition, micronutrient deficiency and overweight and obesity.

➔ The transformation of diets has not been homogeneous across population groups, and therefore its consequences have had differentiated effects among vulnerable groups. Recent analyses show that malnutrition affects differently children, women, poor households, rural communities and indigenous peoples. This fact has stimulated the interest of the international community to understand the links between food systems and their effects on the nutritional status of the population, especially among those more vulnerable.

➔ Governments have begun to implement policies that intervene in food systems with the aim of addressing the problems of malnutrition. These policies have different scopes both in terms of timescales and of the populations they reach. Among these measures are policies to boost the productivity of family farming; the insertion of small producers in local and international markets; direct provision of food; nutritional education and regulation of food preparation or advertising, as well as fiscal measures that include direct income transfers or taxes on highly processed foods.

Current dietary patterns bear a close relation to the rapid changes that undergone by food systems in recent decades (HLPE, 2017). These changes have made it possible to improve quality of life and different dimensions of food security and nutrition for a significant number of population. However, these benefits have not been evenly distributed among the whole population and new forms of malnutrition have also come to the fore.

A better understanding of how current food systems work can help to clarify this. It will be useful to look into food systems to understand why child malnutrition and micronutrient deficiencies continue to be concentrated in lower income groups, in children, in women, in the indigenous population and in families that live in rural areas, while the increase in overweight and obesity are also increasingly present in these groups.

This chapter aims to help achieve a better understanding of the relationship between the functioning of food systems today and the different forms of malnutrition present in the most disadvantaged population groups. This section presents space for policy, particularly in relation to the experience of Latin America and the Caribbean. These should allow progress towards food systems that contribute to improve dietary patterns and nutrition. They should also help reduce the gaps experienced by the most vulnerable sectors of the population.

3.1. FOOD SYSTEMS TRANSFORMATION AND NUTRITION IN LATIN AMERICA AND THE CARIBBEAN

A food system is defined as a broad set of activities and actors that have implications for nutritional outcomes, since the availability of the food required for good nutrition depends on them (FAO, 2016a). In sum, they determine the quantity, quality and diversity of food available for consumption (FAO, 2013a).

In recent years, several theoretical frameworks have been developed to characterize current food systems at a global, regional or local level (Faminow, M., 2018). All of these offer interesting insights that show the importance of having a framework that is both detailed and comprehensive and which helps to move forward in the discussion and understanding of these systems (HLPE, 2017).

The present document uses the conceptual framework proposed in the report Nutrition and Food Systems of the High Level Panel of Experts on Food Security and Nutrition (HLPE).[30] The simplified diagram of food systems shown in Figure 32 illustrate the main elements that comprise it. Among them are three constituent elements which form part of the conceptual framework: 1) The food supply chain; 2) Food environments; and 3) Consumer behavior. These three elements determine diets that give rise to the nutritional results and, therefore, to the possibility of suffering from any of the forms of malnutrition (hunger, stunting, micronutrient deficiencies and overweight and obesity, among others).

These elements are influenced by environmental, innovation-related, infrastructural, political and economic, sociocultural and demographic[31] aspects, among others. All of these are defined as drivers of change that affect the functionality of food systems and their ability to provide adequate food (HLPE, 2017).

Under the 2030 Agenda, food systems are expected to be able to provide food for the entire population, but also to be sustainable, so that they ensure adequate food for future generations. This offers different opportunities to design and implement policies that help ensure that food supply chains, food environments and consumer behavior are respectful from an environmental, cultural and social point of view (HLPE, 2017).

3.1.1 Food supply chain

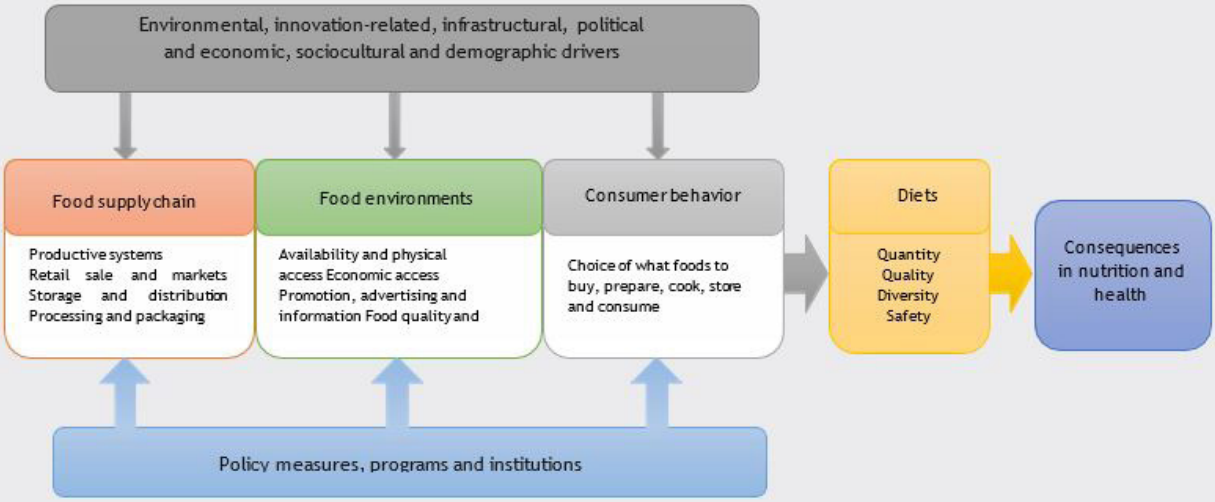
The food supply chain includes the stages from food production to consumption (HLPE, 2017; HLPE, 2014). These stages are production,[32] post-harvest, processing, storage, trade (import and export), distribution, packaging and wholesale and retail sale of food.

30 This document was prepared by a group of recognized experts from different regions of the world. It underwent a broad and inclusive review process and was presented and discussed in the Committee on World Food Security, the main global forum for multi-stakeholder dialogue on the subject.

31 A detailed description of each can be found in the HLPE report (2017).

32 Production also takes into account farming practices that include the use of pesticides and irrigation, which are determinants in the safety of food. It is important to bear in mind that agricultural production defines the quantity and diversity of foods and ingredients. This contributes to the establishment of the relative prices of the foods available for the subsequent stages of the chain and for consumption (World Bank, 2018a; HLPE, 2017).

FIGURE 32
CONCEPTUAL FRAMEWORK OF FOOD SYSTEMS FOR ADEQUATE NUTRITION



Source: Adapted from HLPE (2017). Nutrition and food systems. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security.

Different actors are involved in each of these stages, for example, family farming, medium and large agricultural producers of different types, traders, importers and exporters, transporters, agribusiness, wholesalers, traditional stores, large supermarket chains and, finally, consumers. The actions and decisions made by these actors affect the way food is produced and processed (HLPE, 2017).

Supply chains not only affect the quantity of food, but also its quality, understood as its nutritional content. Especially in the case of perishable foods,[33] its storage and distribution are essential to preserve its safety and quality. Similarly, processing and packaging contribute to preserving food and its nutritional properties, and processing can contribute or reduce nutrients or other components. It is during this stage that highly processed products are produced, such as foods with high fat content, sugar, salt and additives. Also in this phase, part or all of the fiber can be lost, as well as some of the key nutrients of the food, which directly affects its nutritional value (HLPE, 2017).

Production is the foundation of the food supply chain[34] and its growth in Latin America and the Caribbean has mainly been oriented towards products for export (IFPRI, 2018). This has been accompanied by policies of liberalization, privatization and private sector investment. These policies have led to the greater participation of foreign companies and the rapid

33 Examples of perishable foods are fruits, vegetables, meats and other animal products. All of them require cold chains and adequate storage conditions to prevent contamination and to keep them in good condition for consumption. This requires appropriate infrastructures, which are not available in all territories.

34 In previous editions of Panorama of Food Security and Nutrition in Latin America and the Caribbean it was shown that Latin America and the Caribbean is predominantly a producer region of agrifood products in aggregate terms, which allows it to be a net exporter region for these products.

growth of productivity and food production in the region (Popkin, B. and Readon T., 2018).

Investments in technology and innovation have allowed the yields of some products that are in wide use by the food industry and the international market, such as soybeans and sugar, to have experienced an accelerated growth ahead of the global performance (Figure 33). By contrast, the production of other crops oriented towards domestic consumption has received less attention. Their production has shown lower dynamism, below the global performance in recent years.

Productive development, accompanied by the reduction of trade barriers, the integration of markets and technological development, has allowed progress in the preparation and packaging of food, increasing processing and driving greater efficiency in the production and commercialization of certain categories of food, such as in the case of the livestock and dairy industry, a source of proteins and other essential nutrients[35] (Popkin, B. y Readon T., 2018).

Trade is a cross-cutting element of food systems because of its important role in shaping food supply and because it is one of the mechanisms for providing a variety of foods and products to consumers. Trade makes it possible to take advantage of complementarities between countries based on the capacities and advantages of each (IFPRI, 2018).[36] Greater participation in trade can have both positive and negative impacts for a country's food security (FAO, 2015). Hence the importance of having public policies that mitigate the negative consequences of this situation. For example, the Pan American Health Organization (PAHO) (2015) has shown that there is a positive correlation between market deregulation and the sale of highly processed foodstuffs. These measures tend to favor food industry multi-nationals, as it facilitates increases in the production, sale and consumption of highly processed products. A study conducted by Monteiro, C., et al. (2013) comes to the same conclusion. Transnational food manufacturing, retail sales and fast food chains base their model on highly processed products, and thus are able to expand their supply.

The above elements have favored the greater availability of products with different levels of processing, and lower price in comparison with other, more nutritional foods.

This is one of the factors that explain the growing trend of overweight and obesity in Latin America and the Caribbean.

The link between international trade and food security is complex. For example, price is one of the mechanisms that transmits the effects of trade to consumers. Barriers to trade can increase food prices, reducing access to food for families with lower incomes, which threatens their food security. Subsidies to agriculture can place downward pressure on international prices and affect the competitiveness of other agricultural exporters, but at the same time increase access for consumers in importing countries (Clapp, J., 2015).

In this same vein, examining the international prices of some basic products since the beginning of the 1980s and the average values over the last five years (Figure 34) helps to understand the change in the prices of some foods. For example, the price of sugar, cereals and oils has declined in recent decades. These are products that are extensively used in food processing. By contrast, the price of meat and of fruit has increased in international markets. Although the price of chicken meat has increased more than 60% in recent decades, it is still a lower cost meat compared to red meat, which is at least twice the price of chicken, making the latter a source of protein at a lower relative price.

In any case, the experience of the past decade shows that a high level of dependence on imported food can be a source of vulnerability if

35 In parallel to the expansion of food processing, the region has increased its capacity to transform primary products into biofuels. Further, it is expected that the production of biofuels using basic grains, sugar and vegetable oils will continue to expand until the year 2024 (OECD and FAO, 2015). The increasing use of staple foods to produce ethanol and biodiesel can represent a challenge for food security due to the resulting competition in the use of these products with human or animal food. This competition for uses, plus competition for resources such as water and land, is one of the factors identified as a cause of the increase in food prices that has been passed on to other crops (HLPE, 2013).

36 Latin America and the Caribbean is richly endowed with resources and a climatic diversity that has allowed the food and agricultural sector to develop, opening opportunities for the development of intraregional trade as well as with markets outside the region (ALADI and FAO, 2015).

events occur that affect the international price of these imported products. On the other hand, excessive dependence on agricultural exports as the main source of foreign revenues is also a risk in light of falling prices for exported products.

3.1.2 Food environments

The food environment is defined as the physical, economic, political and socio-cultural space in which food is available and accessible, and that offer choices on which basis people make the decisions that determine their dietary patterns (HLPE, 2017; GLOPAN, 2016; FAO, 2016a). These decisions are closely related to personal conditions or preferences (educational level, income, customs, among others) and show a bidirectional relationship between consumer behavior and the food environment (HLPE, 2017).

Food environments influence the way people obtain, prepare and consume food. For this reason, it is recommended to move towards environments that offer and make available to the consumer a wide variety of nutritious, quality food at affordable prices and in adequate quantities to meet their energy and micronutrient needs, considering the life cycle, gender, the state of health and the degree of physical activity (World Bank, 2018a) of people regardless of their social, economic, cultural or demographic characteristics (HLPE, 2017). However, the evidence indicates that food environments can also promote unhealthy choices, either through advertising or through a wide range of unhealthy and even health-damaging food products, yet which are easily consumed at very low prices (HLPE , 2017).[37]

This implies that for nutritious foods to be a real option for all consumers, they must both be available and be physically and economically accessible. Otherwise, the lack of availability of healthy food can result in the consumption of insufficient amounts or of lower nutritional quality food, which can lead to the nutritional problems noted in the previous sections.

In addition, the quality and safety of food are essential attributes when it comes to deciding on their consumption and have direct impacts on people's health.[38]

The determinants of economic access to food are the household level of income and food prices. One of the main drivers of change in the demand for food in Latin America and the Caribbean has been the increase in average income. The gross domestic product (GDP) per capita of the region increased by more than one-third between 1980 and 2016, exceeding $US 9,200 in real terms.

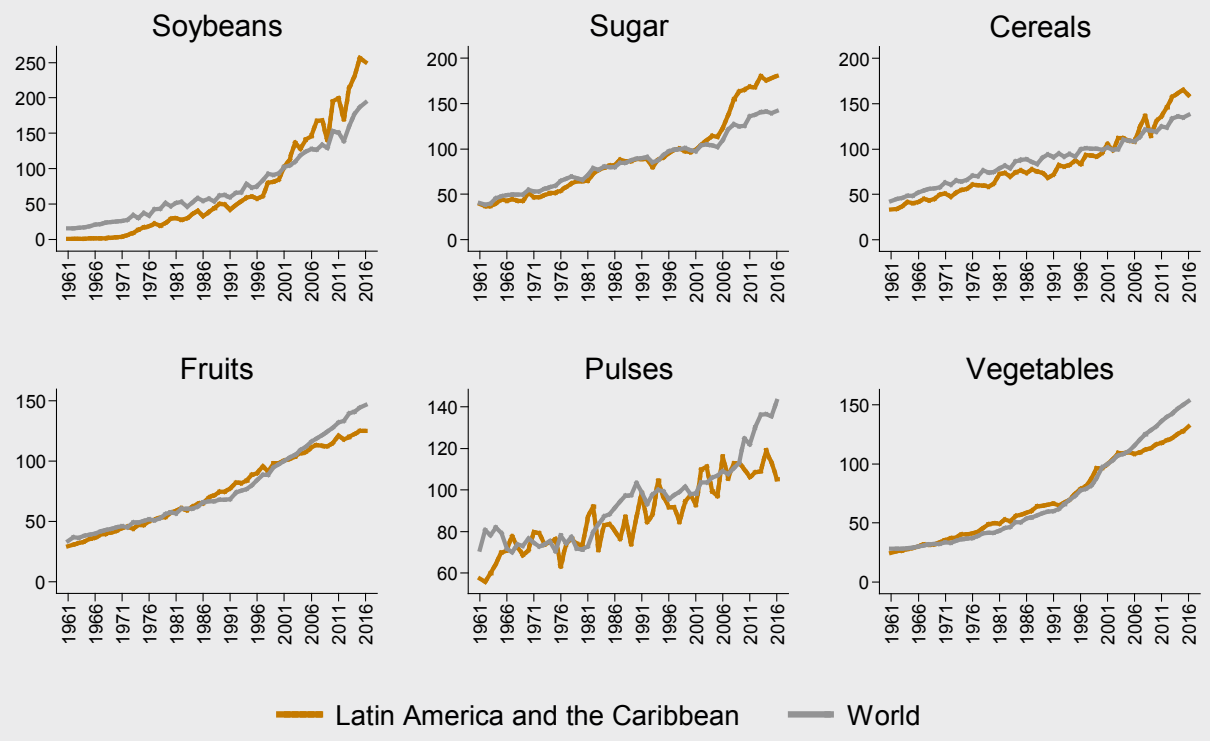
Higher levels of income have led to changes in the demand for food. On the one hand, consumption of animal products such as meats, dairy products, fish, fruits and vegetables has increased (FAO, 2017e). On the other hand, there is also a higher consumption of products with different levels of processing, the prices of which are also usually lower compared to other foods (PAHO, 2015). Consequently, diets have undergone a rapid transition since the 1980s.

Meanwhile, the participation of multinationals in retail and wholesale markets has increased considerably. Along with a rapid urbanization, these factors have created an environment that favors the distribution of food products with higher levels of processing, and for the development of supermarket chains to the detriment of small retail stores. Currently, supermarkets are responsible for the distribution of a large amount of the food consumed in all the countries of Latin America and the Caribbean, including in rural areas (Popkin, B. and Readon, T., 2018, Popkin, B., 2006). This has facilitated both economic and physical access to food and products with

37 There is evidence of the influence of advertising on the preferences, consumption and nutritional status of children. Persuasive techniques have also been identified in child-oriented advertising to promote the consumption of unhealthy foods or with some degree of processing (HLPE, 2017).

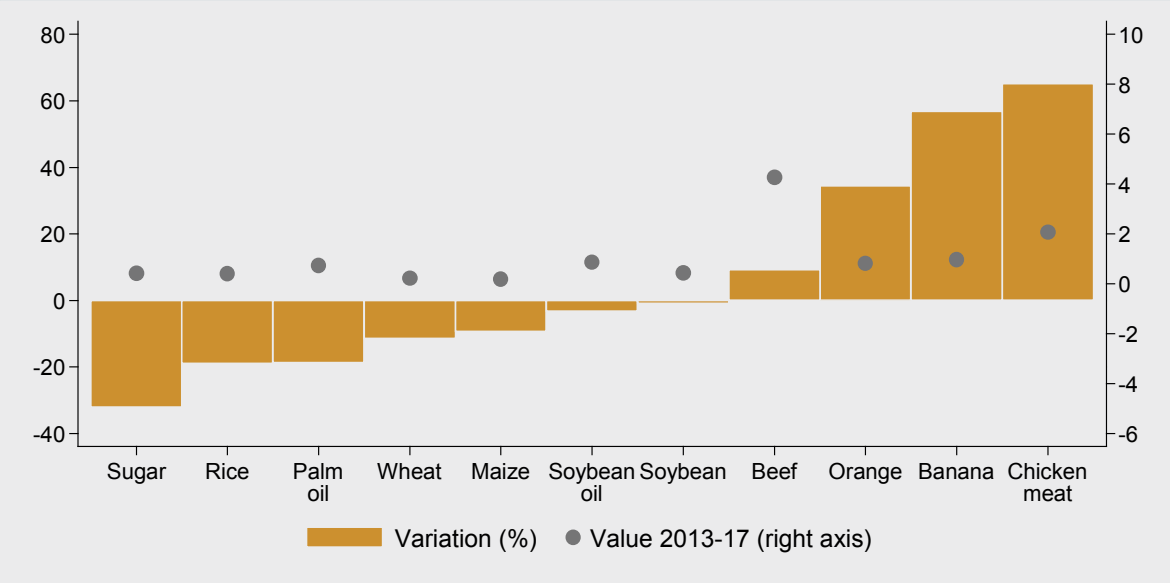
38 Standards and controls are also considered to protect consumers from contamination or lack of good practices, both in the different phases of the food supply chain and in household handling. Although a large part of the population in Latin America and the Caribbean enjoys access to health services and drinking water infrastructures, the population living in rural areas and the most impoverished are those who face the greatest difficulties in accessing basic services.

FIGURE 33
EVOLUTION OF THE PRODUCTION OF SELECTED FOOD PRODUCTS, INDEXES BASE 100, 2000-2002



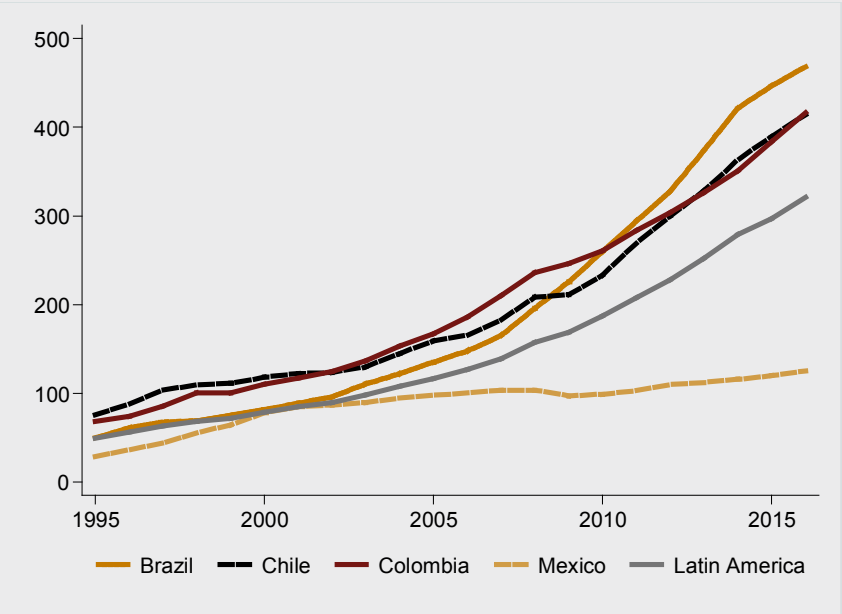
Source: Prepared by the authors based on FAO data, online. FAOSTAT.

FIGURE 34
AVERAGE CHANGE IN THE REAL INTERNATIONAL PRICES OF COMODITTIES (%) AND AVERAGE VALUE PER KILO (DOLLARS), 1980-1984 AND 2013-2017



Source: Prepared by the authors based on World Bank data, online. Commodity Markets.

FIGURE 35
FOOD AND NON-ALCOHOLIC BEVERAGES EXPENDITURE AWAY FROM HOME, US DOLLARS PER CAPITA WITH FIXED EXCHANGE RATES FOR 2017, 1995-2017



Source: Popkin, B. and Readon T., 2018. Obesity and the food system transformation in Latin America.

different levels of processing (OPS, 2015).[39] The change experienced by retail sales has been one of the main factors responsible for the transformation of diets in Latin America and the Caribbean (Corvalán, C. et al., 2017). The large supermarket chains have improved access to many nutritious foods, but also to sugary drinks and highly processed foods with little or no nutritional value (Corvalán, C. et al., 2017).

In addition, food away from home in fast food chains is the daily norm for a large share of the population (Popkin, B. and Readon T., 2018; PAHO, 2015). Figure 35 shows that the annual expenditure on food and non-alcoholic beverages consumed away from home has been increasing steadily in Brazil, Chile, Colombia and Mexico.

Another characteristic typical of the functioning of food systems today is advertising, which plays a fundamental role when it comes to orienting consumer preferences towards certain types of food (Popkin, B. and Readon, T., 2018, PAHO, 2015). Large companies are increasingly allocating resources to promote their products, using specialized techniques and studies into consumer behavior in order to generate beliefs and desires with regard to their consumption (PAHO, 2015). Advertising directed towards children is a cause for great concern. In Latin America, it is particularly oriented to promoting products with a high fat, sugar or salt content, and tries to establish emotional relationships with children by using animated characters and promotions with collectibles to promote their loyalty to the brand (PAHO, 2011).

In the food environments of Latin America and the Caribbean, the greatest public efforts are focused on addressing the accelerating levels of overweight and obesity. One example of such efforts are the actions to promote front-of-pack nutritional warning labeling,[40] advertising regulation policies, fiscal policies, portion limitation for certain products high in critical ingredients and the restriction of the sale of products with high levels of sugar, fat, salt and/or calories in schools and other spaces (the above is discussed in more detail in section 3.3).

3.1.3 Consumer behavior

Consumer behavior refers to the choices and decisions about the acquisition and subsequent utilization of food made by individuals, which determines the quality of their diets (GLOPAN, 2016). These decisions are determined by personal preferences, previous experiences, values, culture, social pressure and life styles, among other factors, as well as availability, accessibility, affordability and marketing. Similarly, knowledge about food and its preparation can have an influence when it comes to choosing products with a higher degree of preparation or processing (HLPE, 2017).

There is a close relationship between consumer behavior and food environments, and both affect each other. Therefore, actions to educate, promote and provide information about food and nutrition can contribute to healthier consumption patterns (HLPE, 2017).

Urbanization related-processes are responsible for major changes in lifestyles. These include a greater participation of women in the labor market, changes in how people travel, in forms of work, in the interior of the home and in the labor market, in addition to transformations in leisure time activities, which have become more sedentary (Popkin B., 2006). In general, these changes have increased the opportunity cost of the use of time, favoring the consumption of foods with high levels of processing.

39 According to Popkin, B. and Readon T. (2018), in Latin America and the Caribbean the market share of supermarkets in wholesale and retail sales has increased significantly between 1990 and 2000, going from an average participation of 10-20% to 50-60%, respectively. In this regard, food sales of the chains increased from 43 billion dollars in 2002 to 137 billion in 2016, registering a faster growth than that of GDP per capita over the same period. Processed, canned, dried and packaged foods such as rice, noodles and edible oils account for a significant proportion of sales, making about two-thirds of these.

40 Front-of-pack nutritional warning labeling is one of the means by which consumers may be informed about the content of critical nutrients or of persuasive factors that can influence not only individual decisions, but can also modify the behavior of the industry, for example, by encouraging the reformulation of a product to reduce its content of certain critical ingredients, such as fat, sugar or salt (FAO and PAHO, 2017a).

One of the trends is the increase in the availability of processed foods in diets. Processing has been extended to a large number of products and has facilitated their rapid preparation and consumption, which contributes to their more widespread use (Popkin, B. and Readon, T., 2018, PAHO, 2015). Evidently, these changes in consumer behavior also present substantial differences according to income level, gender, ethnicity, educational level and place of residence. In general, socially excluded population groups have more difficulty accessing healthier consumption options.[41]

Finally, it is interesting to observe how the main source of protein varies as the income level of countries increases. Figure 36 shows that proteins from cereals tend to decrease as the income level of countries increases, because they are replaced by a greater consumption of meat. By contrast, legumes tend to be more important in poorer countries than in richer ones.

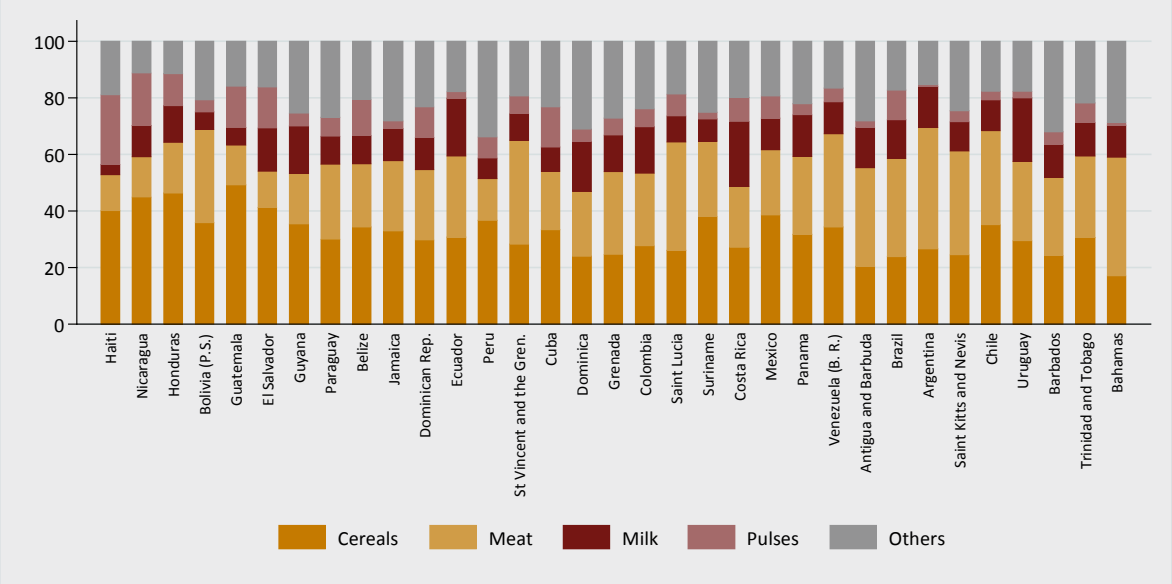
3.1.4 Dietary patterns and consequences on health and nutrition

The interaction between the elements of the food systems described in the previous sections determine dietary patterns. That is, the characteristics of people's food consumption, which are related to quantity, quality and the combinations of these.

Healthy eating patterns not only meet energy needs. They also provide safe foods of good nutritional quality, which contain the necessary nutrients to achieve a healthy nutritional status, responding to the needs and characteristics of each society or community.

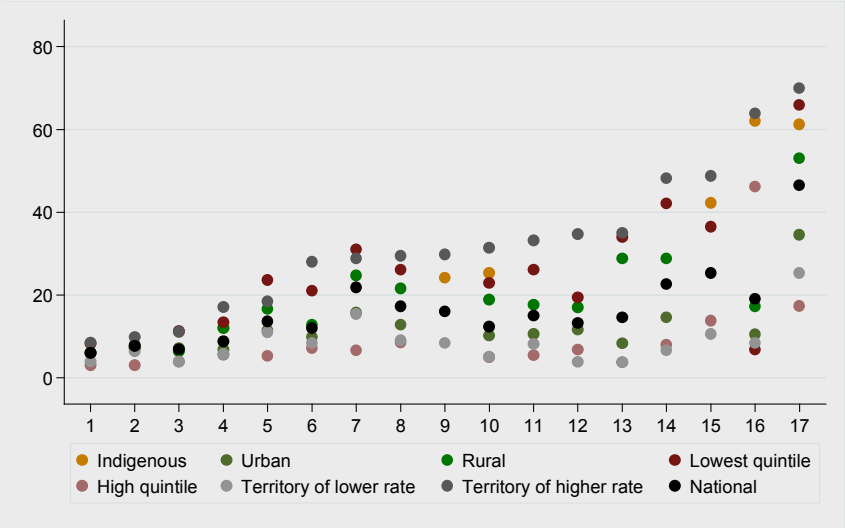
41 Section 3.2 discusses in detail the difficulties faced by the population groups identified to achieve an appropriate diet. For example, the latest figures indicate that 10.2% of the population of Latin America and the Caribbean lives in extreme poverty. This means that they lack the income to access the food basket established as the extreme poverty line.

FIGURE 36
SOURCES OF PROTEIN BY INCOME LEVEL (%), COUNTRIES OF LATIN AMERICA AND THE CARIBBEAN FROM THE LOWEST (HAITI) TO HIGHEST INCOME (BAHAMAS), 2011-13



Source: Prepared by the authors based on FAO data, online. FAOSTAT; and World Bank, online. World development indicators.

FIGURE 37
INEQUALITIES IN STUNTING RATES IN LATIN AMERICA AND THE CARIBBEAN COUNTRIES, PERCENTAGE (%)



Source: Elaborated by the authors based on official information from the countries.
Note: * In Brazil: according to the information available, the quintiles were replaced by the strata of household income, income equal to or less than a quarter of the minimum wage and income above five minimum wages per capita.
** In the Plurinational State of Bolivia: stunting among indigenous population corresponds to the simple average between the Aymara and Quechua populations.
*** In Panama: according to the available information, the quintiles were replaced by the extreme poor (lower quintile) and the non-poor (upper quintile). The territories correspond to the second administrative level of the country.

BOX 5

PRINCIPLES AND RECOMMENDATIONS FOR ACHIEVING HEALTHY DIETS ACCORDING TO INDIVIDUAL NEEDS AND THE CULTURAL CONTEXTS IN WHICH PEOPLE DEVELOP

The High Level Panel of Experts on Food Security and Nutrition (HLPE, 2017) defines four characteristics that shape sustainable dietary patterns: i) the quantity must be commensurate with the needs of the life cycle, must provide enough micro and macro nutrients, and the consumption of low-nutrient products with high levels of processing must be reduced; ii) incorporate enough diversity of foods to obtain the necessary nutrients;[42] iii) the quality is related to the nutritional content of the foods consumed, so that they favor an active and healthy life; and finally, iv) food must be safe, that is, its consumption must be safe for human health.

In order to create a favorable environment and improve nutrition in all sectors, the Framework for Action of the Second International Conference on Nutrition (ICN2) makes 60 recommendations organized into 15 policy measures. The Framework for Action is based on a set of already existing goals and objectives (improving the nutrition of mothers, infants and children, and those related to non-communicable diseases by 2025) to offer a set of policy options that governments can adopt when they judge appropriate (FAO and WHO, 2015). WHO has a set of recommendations regarding nutrients intake that can serve to formulate policies for reducing food-related diseases and contributing to better nutrition (WHO, 2003). Therefore, mechanisms for inter-sectoral coordination are required, with emphasis on investments in favor of nutrition, and to improve the coherence of public policies in order to fulfill the global nutrition agenda.

3.2. EFFECTS OF FOOD SYSTEMS TRANSFORMATION ON VULNERABLE GROUPS

After describing the principal transformations experienced by the food systems of Latin America and the Caribbean in recent decades, it is necessary to understand why these changes do not affect everyone equally, and how they have a special impact on the food security and nutrition of specific population groups.

3.2.1 Children

Children and adolescents require priority attention to achieve the food and nutrition targets of the 2030 Agenda. Their physical and cognitive development depends on their appropriate nutrition and on the nutritional habits they develop before they become adults, together with a large part of their developmental possibilities and also those of their own children. In addition, this group needs special protection because they depend physically and economically on third parties for their development.

As noted above,[43] the first 1 000 days of life (from gestation to 2 years) are decisive for the development of the individual.

42 Bear in mind that food diversity also depends on geographical location.

43 Chapter 2, section 2.3, Utilization.

During this period, infants depend entirely on others for their care and it is very important to meet their nutritional needs. Therefore, this group is especially susceptible to malnutrition, which has effects in both the short term and the long term. In fact, the different forms of malnutrition are associated with low birth weight and nutritional status during childhood (Hossain, N. 2017). Specifically, childhood malnutrition affects cognitive development and affects lifelong health status, in addition to increasing the risk of death (ECLAC, 2010b).

In the region, a large proportion of children and adolescents live in poor conditions regarding economic access and inequality of access to public and private services, since they are exposed to several limitations and abuses (ECLAC and UNICEF, 2009). In fact, children under 18 are the most affected by poverty and extreme poverty (ECLAC, 2010b). In addition, this age group simultaneously suffers different inequalities determined by income, gender, territory and ethnicity. These prevent them from exercising their rights, and reinforce situations of inequality, which in turn hinders the development of the subsequent generation, perpetuating poverty and its effects (ECLAC, 2010b).

BOX 6
ADVERTISING DIRECTED TOWARDS CHILDREN

According to the latest estimates, childhood overweight in Latin America and the Caribbean has already reached 7.3% of the population and has been increasing in recent years.[44] Letona, P. (2015) has identified that one of the main factors allowing us to understand this increase is the influence of the advertising of foods high in fat, sugar and salt directed towards this population group, with the consequent risks entailed by the consumption of these products of developing non-communicable diseases in later life.

The food industry uses various channels for the promotion and advertising of unhealthy foods, including schools and the surrounding areas, television, internet and social networks, to stimulate purchase and consumption (Letona, P., 2015). This industry allocates large sums to advertising and the promotion of its products (OPS, 2015), which greatly influences consumer choices, especially those of children (Corvalán, C., et al., 2017, PAHO, 2015, PAHO, 2011, Mallarino, C., et al., 2013).

In a study carried out by Letona, P. (2015), it was observed that promotion and advertising in educational centers is a common practice in half of the schools studied, where food companies have carried out activities in their facilities (special events, product delivery and free trials). Several types of unhealthy foods and drinks are offered at kiosks in schools and nearby, with a high amount of calories but poor in nutrients, in many cases. For example, studies conducted in Brazil and Mexico show that different points of sale in school areas have a certain degree of influence on the nutritional status of the school-age population (Corvalán, C. et al., 2017).

PAHO (2011) reports a high level of exposure to advertising for this type of food, which are far from meeting dietary recommendations. Advertising is cumulative and reproduces the environments in which children interact daily. Its goal is to establish relationships of loyalty with the product through gifts, the use of children's characters and sponsorship of children's events and programs. Television is the mean most frequently used to promote food among minors and to influence their purchase behaviors and consumption patterns. Among the products that are most heavily promoted to children are sugary cereals, candies, soft drinks and fast food, all foods that provide a higher caloric intake and lower nutritional value.

44 Further information is provided in Chapter 1.

For example, it is important to analyze the stunting in children under 5. Although this aspect has already been independently addressed in the previous sections, a joint look at the incidences of stunting in different sectors allows us to better understand the consequences of different forms of inequality on malnutrition.

Thus, there is a greater incidence of stunting in rural areas, in the poorest quintiles and in the indigenous population (Figure 37). This shows how today's food systems deepen preexisting economic and social inequalities (Hossain, N., 2017).

Household poverty is one of the factors that can influence the nutritional status of children and adolescents and consequently their future development. Access to food and other factors within the household have an impact on the nutritional status of its members. However, this is not the only variable that can determine child poverty. It is also important to take into account the lack of access to quality public services and goods, which doesn't allow this group to fully exercise its rights. As a result, they can harm both their current nutritional status and their development, and therefore have an impact on their long-term nutritional status (ECLAC, 2010b).

3.2.2 Population in poverty

Poverty is one of the great limitations to a diet that meets nutritional needs. There is a close relationship between the situation of poverty and malnutrition (WHO, 2017 b).[45] Poverty affects almost a third of the population in the region, and 10% are in a situation of extreme poverty (ECLAC, 2018b).

According to the definition of the Economic Commission for Latin America and the Caribbean (ECLAC), extreme poverty refers to the proportion of people who do not have the resources necessary to afford a basic food basket that allows them to meet their nutritional requirements. Figure 38 shows the proportion of the population living in poverty and in situation of vulnerability. In the great majority of the countries represented in Figure 38, half or more of the population live in extreme poverty, poverty or vulnerability (incomes of less than twice the poverty line). The population that is not poor, but is still vulnerable, is under risk of food and nutrition insecurity due to unexpected events, such as illness, a sudden increase in food prices, unemployment,[46] a loss of purchasing power due to inflation, droughts or hurricanes that affect their livelihoods, and so on.

Along with the socioeconomic characteristics, food prices also determine food choice. (Pickett, K., et al., 2005, Monteiro, C., et al., 2004). Several studies show that foods that contribute to healthier diets, such as fruits and vegetables, are often more expensive on average than less healthy ones, such as processed products with a higher caloric density (FAO and PAHO, 2017a, Wiggins, S. and Keats, S., 2015; Drewnowski, A., 2010). This trend has been increasing in the last 30 to 40 years (Popkin, B., and Reardon, T., 2018). Similarly, the cost of fresh foods has increased in low- and middle-income countries, which has a greater impact on poor consumers and countries that are net importers of food (WHO, 2017 b).

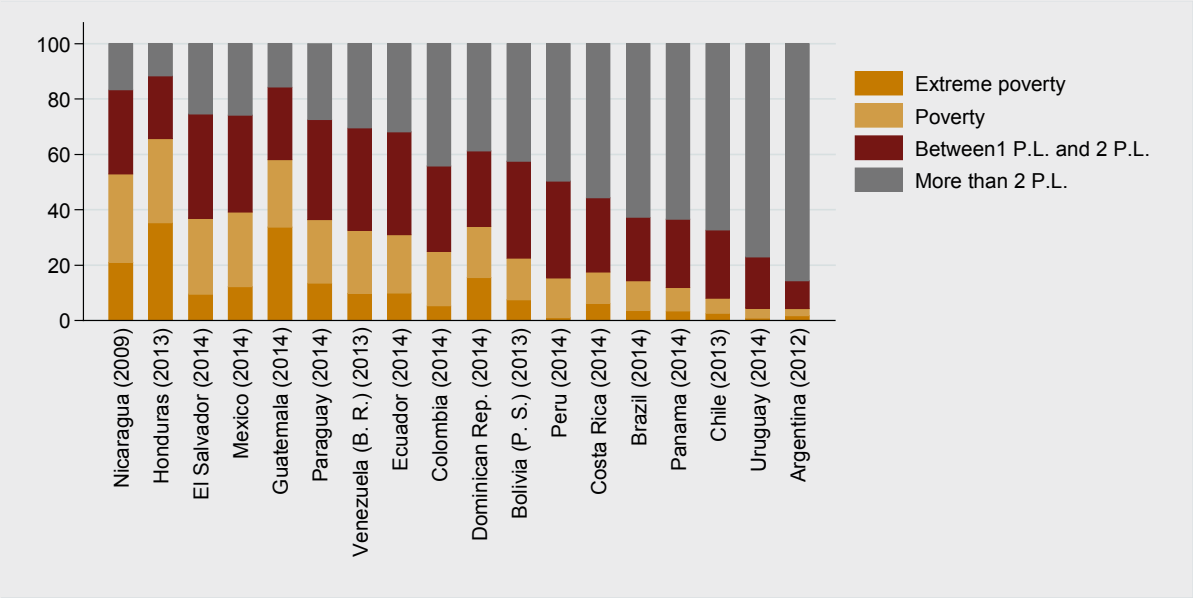
Wiggins, S. and Keats, S. (2015) underline that a reason for higher relative price of fresh foods over processed foods is that food industry has developed low-cost ingredients. In the same vein, Popkin, B., and Reardon, T. (2018) highlight that the development of economies of scale by companies in the food sector has contributed to this situation. In this sense, the authors stated that the food industry has made products with high energy densities and low density of nutrients available to all consumers.

At the national level, inequalities in economic access to nutritious food are evident, which reveal the difference between a diet that only meets energy requirements and one that is nutritionally appropriate. For example, in the cases of El Salvador and Guatemala, a

45 See for example Figure 21 on the relationship between average regional GDP growth and the percentage point changes in poverty, extreme poverty and undernourishment.

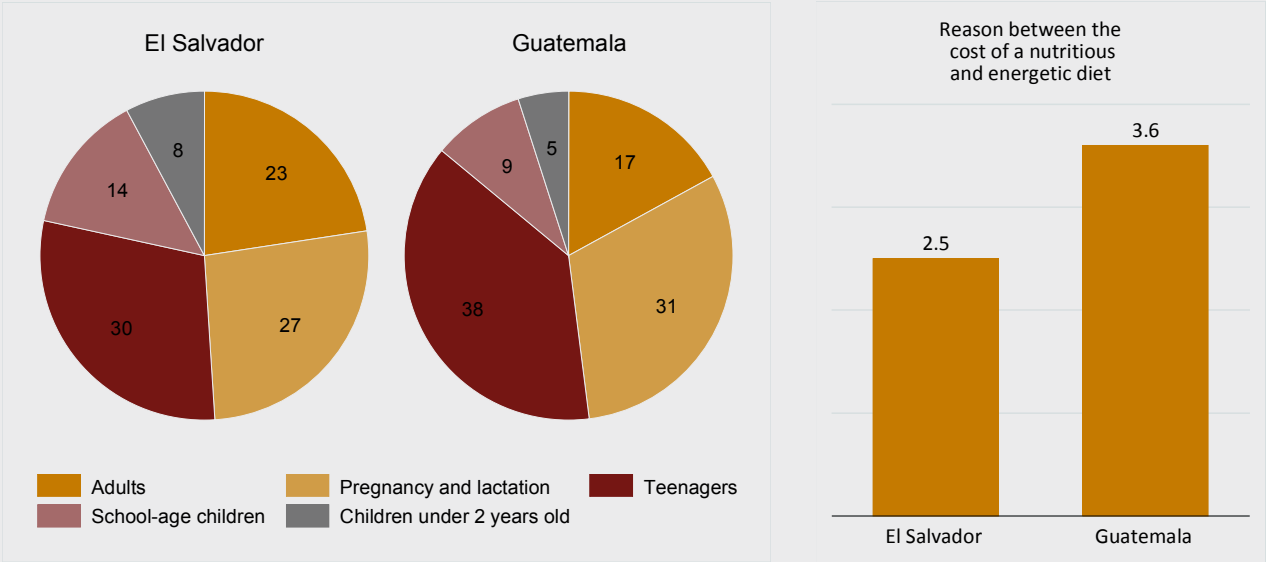
46 According to ILO (2018), the regional unemployment rate increased from 6.1% in 2014 to 6.6% in 2015.

FIGURE 38
DISTRIBUTION OF THE POPULATION ACCORDING TO PER CAPITA INCOME BRACKETS BASED ON THE POVERTY LINE (PL) IN COUNTRIES OF LATIN AMERICA, SEVERAL YEARS



Source: ECLAC, online. CEPALSTAT.

FIGURE 39
PROPORCIÓN DEL COSTO DEL HOGAR EN ALIMENTACIÓN POR TIPO DE INTEGRANTE PARA UN HOGAR DE 5 PERSONAS.



Fuente: WFP, 2016a. Fill the Nutrient Gap El Salvador: Full Report.

nutritious diet exceeds by 2.5 and 3.6 times, respectively, the cost of food that only meets the energy requirements. In addition, we must consider the nutritional needs of each member of the household and, in some cases, meeting their nutritional requirements means higher costs. Figure 39 shows the cases of Guatemala and El Salvador, where the nutritional requirements of adolescents, pregnant women and breastfeeding women represent between 30% and 40% of the cost of appropriate food for a household composed of five people. Hence the importance of having different interventions to improve access to appropriate food for different population groups in vulnerable situations (see Box 7 for more details on the tool).

As countries develop, obesity shifts to the poorest sectors (Dinsa, G., 2012). Different studies (Kim, T., and Knesebeck, O., 2018) have found a negative correlation between income level of the population and the probability of suffering from obesity, which has given rise to the so-called paradox of obesity and poverty (Zukiewicz-Sobczak, W., et al., 2014). As countries reach a higher level of development and increase their income level, the average obesity rate also increases.

The lower income population allocates a larger share of its income to food (Figure 40). As such, when a family spends between 40% and 90% of its income on food, it can rarely choose to buy fresh and healthier foods, which are generally more expensive, even if it has the information and perhaps the education necessary to identify the various choices and their different consequences. Low-income families tend to buy foods with greater energy density, such as cereals and tubers, as well as products with high levels of sugars, oils and fats, which are insufficient to provide the necessary nutrients for an appropriate diet (FAO and PAHO, 2017a; Drewnowski, A., 2010).

This is consistent with Figure 41, which shows the differences in the consumption of some foods according to the level of income for a selected group of countries in Latin America and the Caribbean. It shows that cereals and, to a lesser extent, sugars, oils and fats, have a greater weight in the energy intake of households in the lower quintile. Although the difference varies according to the country, fruits and vegetables, dairy products and meats are more prevalent in the food basket of the richest quintile.

Wages are one of the main sources of income for families. According to the International Labor Organization (ILO) (2018), in Latin America, salaried workers represented around 65% of those employed in 2015,[47] which suggests the importance of wages to the welfare of the population. Although the trend in the minimum wage in Latin America has been increasing (by 3.6% per year in real terms) over the last decade (ILO, 2018), it continues to represent an amount that, although it is established to cover minimum needs, is often insufficient to guarantee an adequate quality of life in terms of basic consumption and opportunities (FAO and PAHO, 2017b).

A comparison between the amount of the minimum wage and the poverty line reveals its actual potential to meet the needs of the family (Figure 42). In many of the countries, the minimum wage exceeds or is very close to the equivalent of two poverty lines. Considering that an average household in the poorest quintile in Latin America consists of 4.5 people, one minimum wage would not be enough to meet the basic needs of the family.

It is important to remember that food prices may vary from day to day. Meanwhile, updates to the minimum wage is carried out less frequently (ILO, 2018). This highlight the importance of policies to control inflation, a factor that, when it reaches high rates, have negative effects on the food security and nutrition of the majority of the population.[48]

47 Urban population over 15 years.

48 In the previous edition of *Panorama of Food Security and Nutrition in Latin America and the Caribbean*, the relationship between the minimum wage and the Basic Food Basket (BFB) was discussed in detail, where the minimum wage often does not cover the needs of the family. In some cases, covering the cost of a family BFB requires more than double the minimum wage and in others, the BFB represents a significant fraction of the minimum wage.

BOX 7

FILL THE NUTRIENT GAP (FNG): AN ANALYSIS OF THE SITUATION AND A TOOL FOR DECISION-MAKING

The Fill the Nutrient Gap (FNG) tool is used to identify which nutrition-specific and nutrition-sensitive interventions are most appropriate in a given context to improve nutrient intake, one of the two direct causes of malnutrition, the other being diseases. Any intervention should result in an improvement in nutrient intake.

The tool has been developed by WFP and its partners to provide a framework for strengthened analysis of the situation for multisectoral decision making. The tool identifies the barriers of the specific context for adequate nutrient intake among specific target groups. This tool has been used in more than ten countries to date.

The FNG tool combines the review of secondary data and information with the Linear Programming (LP) analysis using the CotD software developed by Save the Children United Kingdom.

The FNG analysis considers several factors that reflect or affect dietary intake. These include the local characteristics of the malnutrition, the type and availability of nutritious foods in local markets, the accessibility of nutritious foods, the intake of nutrients, local practices, cost optimization and areas for intervention.

The consolidated information is analyzed and the results are reviewed by a multi-sectoral group of all stakeholders, at the relevant levels, to arrive at a common understanding of the problems, context and solutions. Through this consultation process, the optimal policies and the actions of the programs for specific contexts are identified. Potential areas for intervention are included, jointly for different sectors such as health, social protection and all food systems, as well as public and private sector stakeholders.

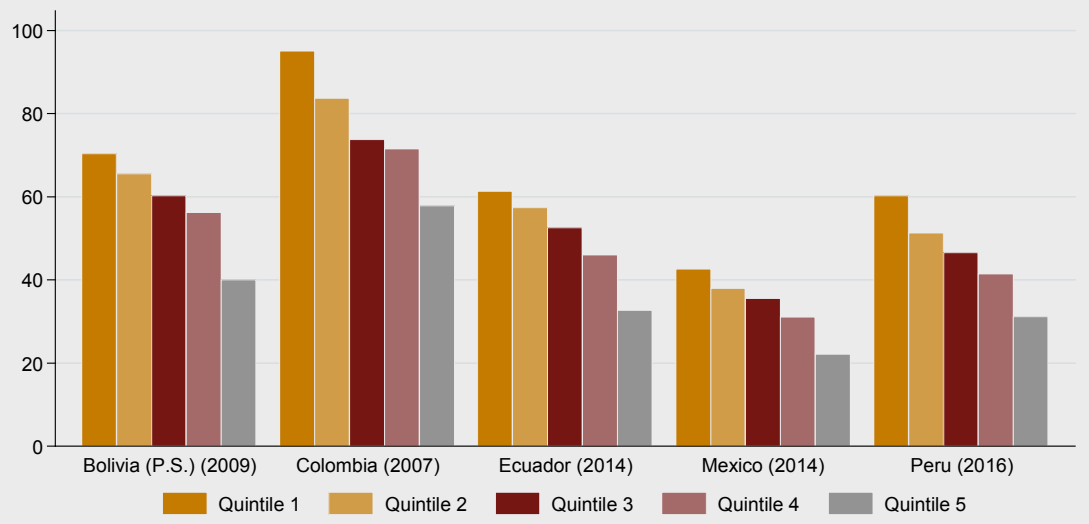
3.2.3. Women

In Latin America and the Caribbean, the traditional gender roles place women in the domestic space and make them responsible for domestic tasks. These include agricultural production destined for household consumption, and the acquisition and preparation of food (FAO, 2011a, FAO, 2017a, FAO, 2013a). Gender roles place men in paid work and productive actions that translate into monetary income for the home. This arrangement affects access to resources and the characteristics of female employment in the form of gender gaps, and thereby household food security and nutrition.

The increase in women's participation in the labor market has not translated into a reduction in the welfare gaps between both sexes. Women still face inequalities in access to productive resources, services and employment opportunities (FAO, 2017a). The disparities and unfavorable conditions for women translates into a feminization of poverty. The femininity index of poverty has tended to increase in recent years (Figure 43). This is exacerbated in the case of extreme poverty, which suggests that as precarious conditions become more prevalent, women are affected more.

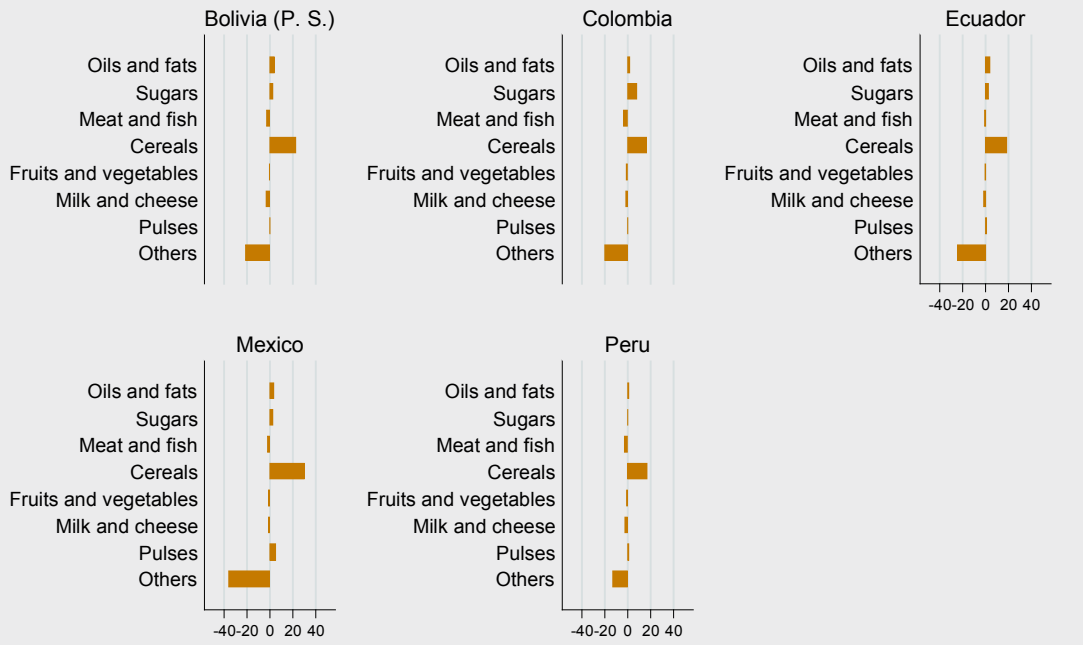
In addition to the fact that women's agricultural work is not usually visible, they have limited access to resources, with restrictions on access to credit, inputs and markets, which limits their livelihoods (HLPE, 2017; 2017a). In situations in which the livelihood of the household depends

FIGURE 40
SHARE OF FOOD ON TOTAL HUSEHOLD EXPENDITURE BY INCOME QUINTILE (%), LATIN AMERICAN COUNTRIES, SEVERAL YEARS



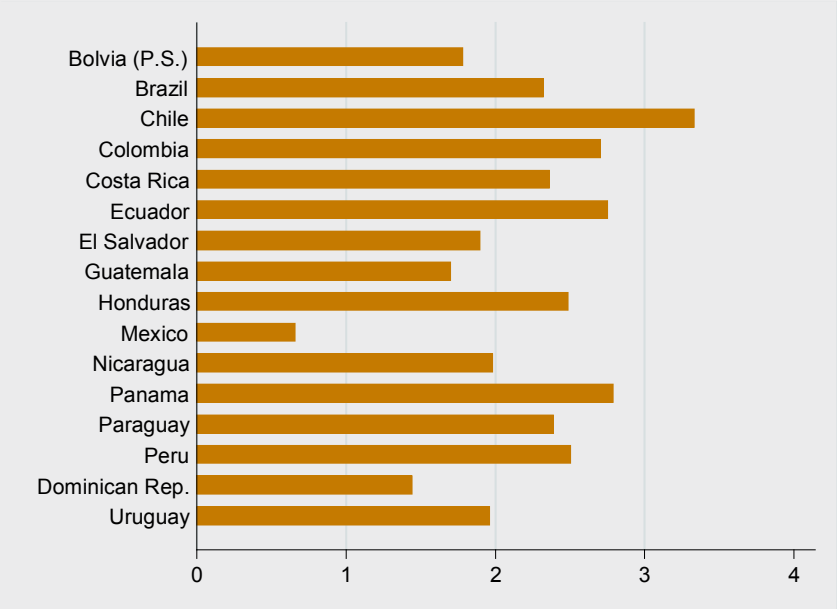
Source: FAO and PAHO, 2017a. Panorama of Food Security and Nutrition in Latin America and the Caribbean 2016.

FIGURE 41
DIFFERENCES IN THE DISTRIBUTION OF FOOD CONSUMPTION MEASURED IN CALORIES BETWEEN THE POOREST AND THE RICHEST QUINTILE, IN PERCENTAGE POINTS



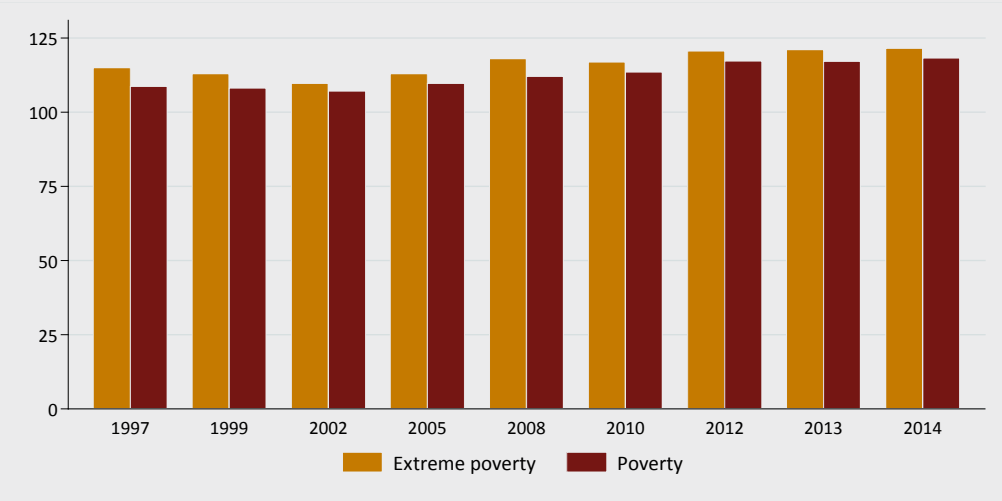
Source: Elaborated by the authors based on official information from each country.

FIGURE 42
RELATIONSHIP BETWEEN MINIMUM WAGE AND PER CAPITA POVERTY LINE, LATIN AMERICAN COUNTRIES, 2013



Source: Elaborated by the authors based on ITO data, online. ILOSTAT; and ECLAC, online. CEPALSTAT.

FIGURE 43
FEMININITY INDEX OF EXTREME POVERTY AND POVERTY IN LATIN AMERICA, SEVERAL YEARS



Source: ECLAC, online. CEPALSTAT.

on agriculture, the nutritional situation of mothers and children is particularly vulnerable to seasonal work, as it affects their income or part of it (FAO, 2013a).

Thus, it is not surprising that a considerable proportion of women in Latin America and the Caribbean do not generate their own income. In 1997, about half of women over 15 years of age lacked an income. Although the proportion has been decreasing, in 2014 almost 30% of women were still in the same situation, which was more than twice as high as the proportion observed in men. This situation is worse among rural women, where 39% do not have their own income.[49]

In addition, the domestic and care tasks traditionally performed by women are not usually remunerated or redistributed when they enter the labor market, which translates into an overload of work. Women in Latin America and the Caribbean face a very unequal workload, with longer hours, with higher degrees of informality and lower wages than men, despite having the same number of years of education (ILO, 2018; ECLAC, 2010a; ECLAC, 2018a).

The time spent on housework and care is significant. In the countries of Latin America and the Caribbean shown in Table 12, it can be seen that an important proportion of women fulfill this role, that it increases in the case of women with lower incomes and tends to be higher in rural areas.

The above implies that unpaid everyday household tasks are predominantly done by women. The unequal distribution of household chores limits women's access to the labor market and, consequently, access to resources, limiting their possibilities for development (ECLAC, 2018a).

In rural areas, between 66% and 85% of the hours worked by women are not paid, while in the case of men it is between 10% and 35%,[50] lwith repercussions on women's income. Consequently, women tend to have a reduced influence on the family budget, which has a direct impact on the nutritional status of the household members (Wells, J., et al., 2012). As a result, the current distribution of gender roles means that women's time has a greater and more direct impact on the nutritional status of household members, particularly children (FAO, 2011a).

The gender inequalities that affect women are expressed throughout food systems, starting with the supply chain, where female agricultural work is less visible, greater difficulties when participating in value chains where they have less access to productive resources, to credit, markets and technical assistance.

The feminization of poverty means that women face greater limitations when seeking to access foods of better nutritional quality. The functioning of the food systems means that the different forms of malnutrition are expressed to a greater extent in women compared to men, from micronutrient deficiencies to excess weight (HLPE, 2017).[51]

Poverty impacts on obesity differently according to gender (Wells, J., et al., 2012), and these differences in obesity by gender are greater in countries with a low average income.

There are several reasons to explain higher rates of obesity in women. These include the physiological characteristics of each sex. Differences have been observed in preferences for some foods at the neuronal level. Women tend to prefer foods with higher caloric density (Manippa, V., et al., 2017). In fact, a number of studies conducted in developed countries show that women tend to consume more frequently products with a high sugar content, including highly processed products, such as cookies, chocolates, ice cream and sugary milk-based products, compared to men, who have a stronger preference for more protein foods (Kanter, R., and Caballero, B., 2012). In addition, metabolic factors favor weight gain in women more than in men (Kanter, R., and Caballero, B., 2012)[52] and there are biological factors that contribute to higher

49 ECLAC, online. CEPALSTAT.

50 ECLAC, online. CEPALSTAT.

51 Section 1.3 of Chapter 1 presents some indicators of malnutrition and provides evidence that they tend to affect women more.

52 The way in which women metabolize carbohydrates produces a higher concentration of triglycerides, so the more rapid increase in overweight women may be due to the increase in the consumption of refined carbohydrates in developing countries.

TABLE 12

PROPORTION OF WOMEN OVER 15 YEARS OF AGE EXCLUSIVELY ENGAGED IN HOUSEHOLD WORK BY INCOME QUINTILE IN LATIN AMERICA, ACCORDING TO GEOGRAPHICAL AREA

	National			Urban areas			Rural areas		
	Total	Quintil 1	Quintil 5	Total	Quintil 1	Quintil 5	Total	Quintil 1	Quintil 5
Bolivia (2013)	20.4	17.8	14.3	21.4	28.7	12.8	17.9	11.4	19.9
Chile (2013)	17.1	22.9	10.8	15.6	20.2	9.9	27.7	31.9	22.6
Colombia (2014)	28.1	42.5	17.4	24.1	34.2	16.7	44.7	51.9	31.9
Costa Rica (2014)	28.5	44.4	13.2	24.6	37.2	12.0	40.7	56.2	23.4
Ecuador (2014)	30.9	41.5	15.8	29.9	43.4	14.4	33.1	38.3	18.8
El Salvador (2014)	35.1	56.7	18.0	27.5	43.7	13.4	49.5	67.2	33.1
Guatemala (2014)	45.0	66.5	24.2	34.9	52.8	19.0	56.6	71.6	39.9
Honduras (2013)	41.4	65.2	21.9	30.7	41.4	17.0	53.0	72.3	35.5
Mexico (2014)	39.7	54.4	25.7	36.1	48.7	23.9	46.3	59.8	33.3
Nicaragua (2009)	39.9	56.7	23.9	29.9	38.6	19.8	56.1	68.7	45.1
Panama (2014)	29.4	46.2	10.5	24.7	45.3	9.7	41.3	42.5	27.1
Paraguay (2014)	17.3	22.8	12.0	13.9	17.7	9.6	23.4	27.5	21.7
Dominican Republic (2014)	24.5	33.4	17.6	20.8	28.7	14.7	32.6	39.7	27.0
Uruguay (2014)	13.1	27.7	5.0	12.9	27.1	5.0	18.9	40.5	7.7

Source: ECLAC, online. CEPALSTAT

accumulation of fat in women than in men (Power, M., and Schulkin, J., 2008).[53]

That the difference in obesity rates between women and men has increased over time, suggests that biological, genetic and metabolic differences are insufficient to fully explain the gap observed.[54] Therefore, other reasons must be examined.

For example, increasing urbanization may have different nutritional impacts on men and women. In general, the decrease in physical activity is more pronounced in women than in men[55] living in cities, which, together with the marked increase in the availability of heavily processed foods in urban areas, has consequences on overweight and obesity (Kanter, R., and Caballero, B., 2012; Popkin B. and Readon, T., 2018).

In addition, some qualitative studies (Alves, V., and Rosana, M., 2005, Energici, M., et al., 2016, Cárdenas, A., Sánchez, G., and Maza, L., 2014) reveal how cultural factors impact on the higher prevalence of overweight and obesity in women. Among these are the overload of domestic work that hinders female self-care, the excessive social value given to images of femininity that seem out

53 In women, fat and reproduction are directly related, because their reproductive function involves pregnancy and lactation, and therefore is nutritionally more demanding than for men. This means that women accumulate more adipose tissue than men and at birth tend to have a higher percentage of fat than men. In fact, their ovarian function is related to excess weight at birth.

54 Based on WHO, online. Global Health Observatory data repository.

55 In developing countries, sociocultural factors have contributed to women's access to physical activity being more restricted compared to men. An example is the situation in Mexico, revealed by the most recent National Health and Nutrition Survey 2006 (ENSANUT). Adult men not only perform more physical activity than women, but physical activity was inversely associated with overweight and obesity only among Mexican men (Kanter, R., and Caballero, B., 2012).

of reach for women and leads to resignation, or the sense of insecurity about the use of public space to engage in more physical activity (Franch, C., et al., 2012).

Therefore, the unfavorable conditions faced by women, which are often invisible, reduce access to healthy food that contributes to nutrition.de labores domésticas que dificulta el autocuidado femenino, la excesiva valoración social de imágenes femeninas que aparecen como inalcanzables a las mujeres, lo que las lleva a la resignación, o la sensación de inseguridad que afrontan respecto al uso del espacio público para realizar mayor actividad física (Franch, C. y otros, 2012).

Therefore, the unfavorable conditions faced by women, which are often invisible, reduce access to healthy food that contributes to nutrition.[56] This is key for their own health, and if they are mothers, also for that of their children, from the moment of pregnancy and throughout the life cycle.[57]. Figure 44 shows that in some countries in the region, stunting in children is correlated to the lower educational level of the mother.

The quality and quantity of food consumed before and during pregnancy affect immune function, cognitive development and regulation of energy expenditure of descendants (HLPE, 2017, FAO, 2013a, WHO, 2017b). In addition, excess weight during this period increases the risk of gestational diabetes and greater weight of the child at birth, being a risk factor for the development of obesity in the future (WHO, 2017b).

56 The previous section addresses how income and poverty constraints make access to appropriate food difficult, and that foods with a higher caloric density tend to be relatively cheaper. As we have seen in this section, these difficulties are greater for women since the proportion of poor women is greater than that of men and, on average, their number of paid hours of work is lower, among other factors.

57 During pregnancy and lactation, the nutritional requirements of women are higher, meaning they require reserves and the consumption of specific food that provides adequate nutritional requirements (HLPE, 2017). In fact, inadequate nutrition before and during pregnancy increases the risk of anemia, premature delivery and low birth weight. In addition, a child born with low birth weight is more likely to develop abdominal fat later in life (WHO, 2017b). As seen in Figure 14 in Chapter 1, a significant proportion of women of childbearing age suffer from anemia, which indicates that there is a significant proportion of women in a situation of poor nutrition.

There is evidence that indicates a strong association between the socioeconomic status of parents and obesity, which affects women the most. Similarly, living in poverty in the early stages of life correlates with a greater probability of suffering obesity in adulthood (Wells, J., et al., 2012; Heraclides, A., Witte, D., and Brunner, E., 2008).

Evidence suggests that greater female autonomy in the management of household resources and income is directly related to benefits in the health and nutritional status of both children and adults in the household, given that more income and resources are usually allocated to food and health (FAO, 2013a).

3.2.4. Rural territories

Latin America and the Caribbean have made important social and economic progress, as well as improvements in connectivity and infrastructure, among other aspects. Some of these aspects are discussed in different sections of this document. However, these advances have not occurred equally across all territories, and there are still large territorial gaps between urban and rural areas (RMISP, 2017).

Rural areas have a lower population density and historically have faced a series of structural gaps and a greater incidence of social problems. They are usually home to socially marginalized groups that live in a vicious circle of hunger, malnutrition, poverty and environmental vulnerability, and they are areas that public policies have faced difficulty reaching.

Malnutrition is higher in rural areas. For example, stunting is higher[58] due in large part to a series of conditions such as low incomes, the low educational level of mothers, and more limited access to infrastructures (Paraje, G., 2009). In other words, rather than reflecting the geographical area itself, malnutrition is mainly explained by the inequalities between territories in access to services and opportunities.

58 See Figure 13 of chapter 1.

BOX 8

ENGAGING ADOLESCENTS FOR NUTRITION, HEALTH AND SUSTAINABLE DEVELOPMENT

The study *Engaging adolescents for nutrition, health and sustainable development* was carried out in Guatemala as part of formative research carried out together with Cambodia, Kenya and Uganda at the global level. The objective of the study was to contribute to the global evidence on nutrition in adolescents, making it possible to assess their needs regarding nutrition in order to guide policies and programs that meet their needs.

In the case of Guatemala, six interconnected themes were identified with regard to adolescent nutrition: agricultural work and climate change, income generation, education, migration, violence and drug abuse, and sexual and reproductive health. This period of life involves significant changes and social and cultural challenges, but also challenges to the nutrition and health of adolescents who live in agricultural communities that depend on harvests. The diet of these young people is usually based on consumption of typical foods based on corn, but they also usually consume fruits and vegetables, unlike in urban areas.

Gender roles in preparing and allocating food are also highlighted. Although income is pooled at home, it is always the women and the girls who buy the food and prepare meals. As soon as they reach adolescence, girls must help their mother to find and prepare food.

In rural areas, men and boys receive larger portions and "better" food "to be strong," including "special" food that girls do not receive.

In all places, regardless of ethnicity, there is a distinction between "good" and "bad" foods, foods from the "earth" are perceived as good for the health while those that are purchased are perceived as "unnatural." Even so, there is a high level of consumption of processed products: canned foods, soft drinks and energy drinks, among others. Adolescents face many other challenges that are often not visible. It is essential to effectively involve them, considering that they would like to get involved in programs and be heard, and not just "tell them what to do".

Interventions directed towards adolescents must adopt a multifactorial approach that ensures the availability of healthy, natural, diverse and low-cost food. They must also limit the promotion and availability of unhealthy food. They must also consider factors of inequality and gender to promote the importance of good nutrition and diet for girls and young women, to focus on their strengths and on the roles they play in the family economy, as well as the importance of their health for the next generation

Elaboration based on WFP, 2018. Bridging the Gap: Engaging Adolescents for Nutrition, Health and Sustainable Development.

Extreme poverty (defined by ECLAC as the minimum level of income to buy a BFB) clearly reveals the gap between urban and rural territories (see Figure 45). In Latin America and the Caribbean, extreme poverty in rural areas has remained at twice the level for urban areas for more than 20 years . Given this situation, the region has exhibited a significant migration flow from rural to urban areas, which has led to it becoming one of the most urbanized regions in the world. Currently, just over 80%[59] of the population lives in urban areas, which implies a rural population of 126 million in 2018, and it is expected that the trend of a decreasing number of inhabitants in rural areas will continue in the coming years.[60] Of these figures, a significant proportion corresponds to young people who migrate to urban areas (Dirven, M., 2016). This situation, revealed by the aging of the Latin American countryside, poses an additional challenge to the ability of food systems to offer healthy products to future generations in the long term in a sustainable and inclusive manner. Likewise, as it has been pointed out in previous sections, the accelerated urbanization of Latin American and Caribbean societies has had implications that include an increase in population groups with higher vulnerability that live in cities today.

Paradoxically, although rural areas maintain the potential to supply more fresh and nutritious produce to food systems, households in these territories experience a high level of poverty and greater difficulties in accessing markets, infrastructures, services, natural resources and other assets. All this is reflected in a lower productivity of economic activities (Dirven, M., 2016). Additionally, access to basic services such as water, sanitation and education, among others, is essential to ensure an adequate food environment and diet. Such access is not only reduced in quantitative and coverage terms in rural areas (FAO and PAHO, 2017b), but also in terms of quality. Also, access to basic infrastructure may be interrupted more frequently in rural areas, for example, because of natural disasters (ECLAC, 2018a).

3.2.5. Indigenous and Afro-descendant peoples in the region

Although it is unclear the total number of indigenous population in Latin America and the Caribbean, ECLAC estimated that in 2010 it reached 45 million people or 8.3% of the total population. This population is distributed in 826 reachable peoples and 200 more in isolation. The Afro-descendant population is estimated at around 105 million (Angulo, R., Solano, A., and Tamayo, A., 2018).[61]

It is important to note that the indigenous population has recorded an increase of 50% in just 10 years. This increase is explained in part by population growth. But in addition, and in a much more significant way, it is due to a progressive process of designation and self-identification as an indigenous population that statistical censuses have increasingly recorded in the region's countries.[62]

These advances in the self-designation of inhabitants in Latin America as indigenous peoples have been accompanied by their progressive recognition in the constitutions of many of the countries that make up the region. The case of El Salvador illustrates this trend, having modified its constitution in 2014 to recognize the existence of indigenous peoples in the country.

The region is a world reference in terms of the constitutional recognition of the rights of

59 The figure greatly exceeds the global average of 55.3%. The percentage has been obtained from estimates of the Population Fund for the year 2018.

60 It is projected that by 2030 the number and amount of rural population will fall both in terms of the number of people and the proportion, and that this population group will reach around 16% of the total for Latin America and the Caribbean.

61 These figures are based on data available for 11 countries in Latin America around the year 2010. It must be taken into account that Brazil concentrates 92% of the Afro-descendant population of Latin America (Angulo, R., Solano, A., and Tamayo, A., 2018).

62 This has been very particularly the case of Argentina, Chile, Costa Rica, Mexico and Panama, where self-identification has affected the percentages recognized as an indigenous population with respect to previous censuses, doubling in many cases the previously self-designated indigenous population.

indigenous peoples, with all of its countries having supported the United Nations Declaration on the Rights of Indigenous Peoples in 2007, and as the region of the world where the largest number of countries have ratified the ILO Convention 169.[63]

The explicit recognition of the rights of indigenous peoples has taken place along with a process of economic growth in the region that has generated a dynamism in which the indigenous peoples of the continent have participated, affecting in different ways the food security and nutrition of indigenous women and men in Latin America and the Caribbean.

The current result of this dynamism is a changing and heterogeneous situation. This, together with the absence of regional studies on food security and nutrition and the lack of comparable data, makes it difficult to form an opinion on the situation of indigenous and Afro-descendant peoples in the region. In the countries where more specific studies have been carried out on the poverty situation broken down by population group, as in the case of Guatemala, it is observed that the maps of extreme poverty and food insecurity coincide with the indigenous territories. Sometimes, the differences between the poverty indicators for the indigenous and non-indigenous population are several points lower for the latter. As progress are made in the collection of new data in countries such as Guatemala and Paraguay, the rates of poverty and child malnutrition tend to be higher among the indigenous population.

It is often easier to characterize the nutritional status of indigenous and Afro-descendant peoples through other indicators that make visible the inequality more clearly, such as poverty, gender equity or differences between urban and rural areas. Thus, for example, if extreme poverty is considered as an indicator of the measure of access to food, it can be seen that, according to ECLAC data, the levels of extreme poverty among non-indigenous populations are lower than those of indigenous people, which suggests greater difficulty in accessing food (see Figure 46). Several studies and analyses at local level confirm higher levels of malnutrition and lack of micronutrients among these populations, especially among those living in more isolated territories.

The food environments of indigenous and Afro-descendant populations living in rural areas or particularly isolated territories face unfavorable conditions in terms of public services. Likewise, the coverage ofsocial programs that help to reduce different forms of malnutrition is very limited, and infrastructure and food management systems available make it difficult to guarantee the safety of food.

Despite the limited number of studies available on the food and nutrition security of indigenous and Afro-descendant peoples, a series of trends stand out that can provide partial information.

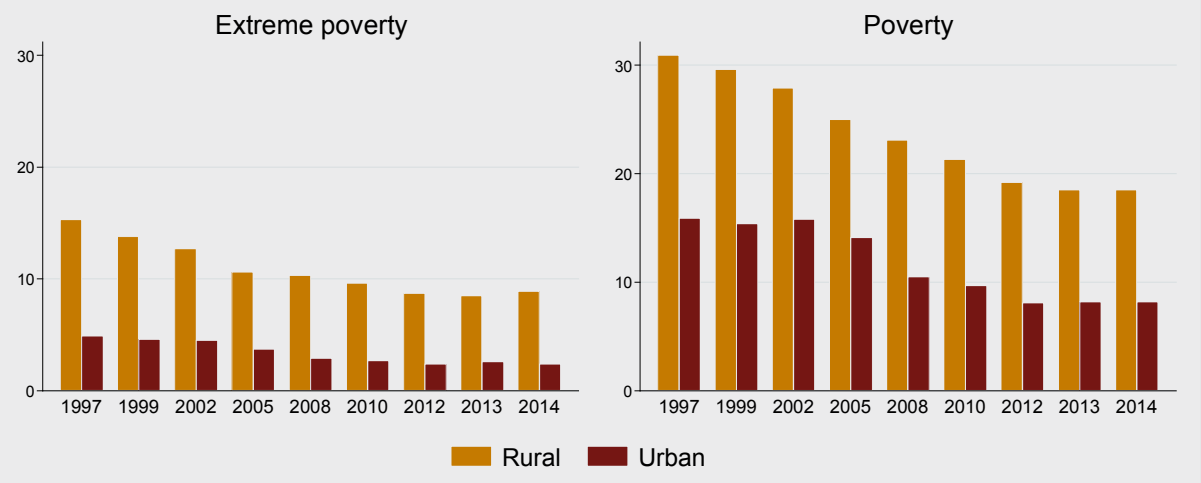
• **Migration from the countryside to the city in the form of significant flows of indigenous people to urban and peri-urban centers.** Although indigenous population is still mostly rural (61% in Brazil and 79% in Colombia and Ecuador), it has not been unaffected by the urbanization process (see Table 13). According to ECLAC (2014b), close to 60% of this population lived in rural areas around the year 2000, while by 2010 this figure had fallen to almost 50%.[64] At the same time, the Afro-descendant population living in rural areas stands at almost 20%, which represents one third of the rural population of Latin America. Brazil is the only country where the majority of people of African descent live in rural areas, with 61% (Angulo, R., Solano, A., and Tamayo, A., 2018).

While increasing migration from the countryside to the city can give rise to new job opportunities and better health or education conditions, it also implies important challenges and possible situations of vulnerability in comparison with other population groups, when it comes to

63 The 15 countries of Latin America and the Caribbean that have ratified ILO Convention 169 are: Argentina, Plurinational State of Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominica, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Paraguay, Peru, Venezuela (ILO, online. NORMLEX Information System on International Labor Standards).

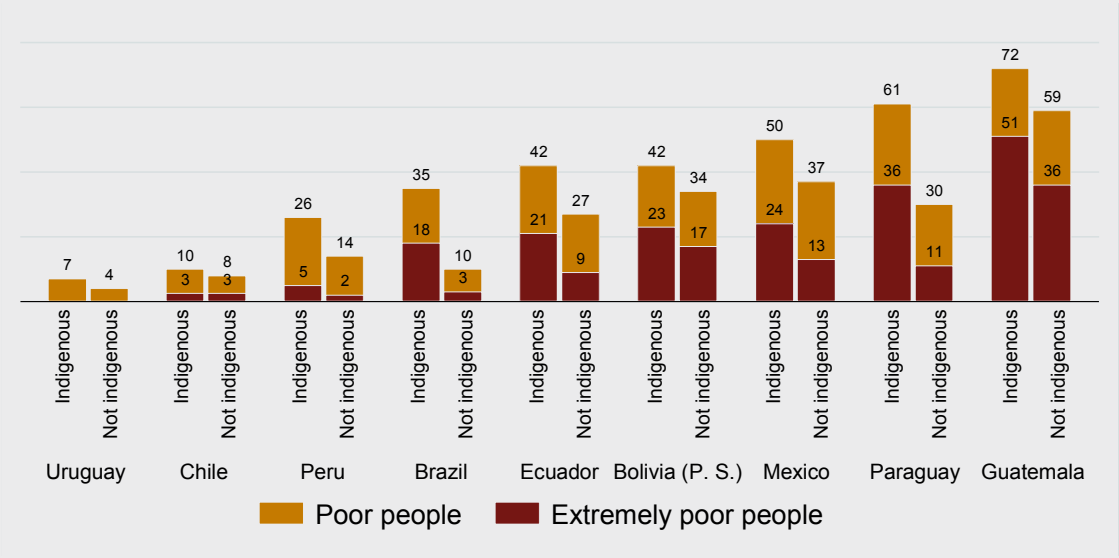
64 Caution is advised in interpreting this information because to a large extent it could be due to greater self-identification in the 2010 round.

FIGURE 45
POVERTY AND EXTREME POVERTY GAPS BY AREA IN LATIN AMERICA, SEVERAL YEARS



Source: ECLAC, online. CEPALSTAT.

FIGURE 46
INDIGENOUS VS NON-INDIGENOUS POVERTY RATES IN LATIN AMERICA COUNTRIES, 2014



Source: ECLAC, 2016. The matrix of social inequality in Latin America.

TABLE 13
PROPORTION OF INDIGENOUS POPULATION RESIDENT IN RURAL AREAS IN LATIN AMERICA (%), SEVERAL YEARS

País	Total	Población urbana (%)	Población rural (%)
Brasil (2010)	821 501	39.2	60.8
Colombia (2005)	1 392 623	21.4	78.6
Costa Rica (2011)	104 143	40.8	59.2
Ecuador (2010)	1 018 176	21.5	78.5
México (2010)	16 933 283	53.7	46.3
Nicaragua (2005)	311 704	29.7	60.3
Panamá (2010)	417 559	23.9	76.1
Perú (2007)	6 489 109	55.8	44.2
Uruguay (2011)	76 452	96.4	3.6
Venezuela (2011)	724 592	63.2	36.8

Source: ECLAC, 2014b. Based on data from population censuses.

integrating into urban economies or living in decent conditions. In the case of the indigenous population, the territory plays a fundamental role in the preservation of its collective identity (ECLAC, 2016). This means that migration can have major implications for the way of life, and therefore, for the dietary patterns, of these populations.

Migration, which also greatly affects indigenous youth, may also lead to growing difficulties with ensuring the transmission of intergenerational knowledge. Furthermore, it can have a direct effect on indigenous food systems in the region, with progressive abandonment of practices and foods that may have nutritional value.[65]

• Changes in the models of food production, trade and consumption.
Indigenous food systems in Latin America and the Caribbean have also been affected by other factors. Among them are the extensive development of roads and means of communication, the increase in the trade of technologies, inputs and knowledge between countries and populations, and consequently changes in the form of production and greater access to food and processed products that are different from those that were traditionally consumed.

The current food systems of indigenous and Afro-descendant populations incorporate more products from the exchange between diverse cultures. At a global level, there is a notable and accelerating loss of the food systems that developed in isolated and remote territories. Although there are not enough nutritional studies to determine the food and nutritional quality of the indigenous food systems, micronutrient analyses developed by the International Network of Food Data Systems (INFOODS), as well as the two global studies conducted by FAO together with McGill University, point to the wealth and nutritional diversity of many of the indigenous food systems analyzed.

Nomadic silvopastoral systems, jungle fluvial systems and hillside multi-complementary hillside systems, among others, in some cases represent a wealth of knowledge in terms of resource management and, at the same time, provide a source of food of great nutritional value, a reality that contrasts with the current problems of micronutrient deficiencies, overweight and obesity. The convergence of diets, especially in urban areas, and the increase in the consumption of processed foods with a high content of fat, salt and sugar, further draw the

65 A significant proportion of the products designated as "healthyfood" that are available in supermarkets and stores in cities come from indigenous food systems, such as stevia, quinoa, amaranth or kiwicha, among others.

attention to better understand the contributions that many indigenous systems can make to nutritional status and food diversity[66] in Latin America and the Caribbean.

The production of food based on territorial and environmental principles that in many cases preserves the resources in which is sustained, it is now under threat due to processes of deforestation, livestock farming and extensive agriculture, in addition to the pressure of extractive industries. In the case of itinerant forest agriculture, for example, the reduction of size of indigenous territories, as well as the deterioration in the transmission of traditional knowledge, has affected the sustainability of farming practices.

It should also be noted that the rapid transformation of food systems has important implications for at least two of the traditional claims of indigenous peoples, namely food sovereignty and their systems of tenure and governance of land, natural resources and territories.

The current models of production and supply of food are a challenge for the inclusion of indigenous and Afro-descendant producers. Public policies focused on the expansion of agricultural systems that make intensive use of inputs and energy and cover large areas of land lead to the deterioration of indigenous food systems that require a differentiated approach based on more comprehensive studies of their value in nutritional and environmental terms and as a generator of resources.

It should also be pointed out that the indigenous and Afro-descendant peoples of Latin America and the Caribbean find their rights violated on repeated occasions. These groups are particularly excluded from access to opportunities, services and assets that would guarantee them a nutritionally appropriate diet according to their concepts of interculturality and a non-anthropocentric vision. The increase in violence against indigenous leaders is of particular concern. The fundamental cause of this is the proliferation of large-scale private investments in indigenous territories and the lack of respect for their right to free, prior, and informed consent. Likewise, the concessions given to mining or agricultural companies on collective indigenous lands is one of the causes identified as a source of conflict and violence in the region. The result is a regional dynamic that operates at different speeds, where the opportunities and possibility of exercising their rights differ significantly between countries and give rise to situations of vulnerability. The recent Escazú treaty, signed by the region's governments in Costa Rica, seeks to halt violence against indigenous leaders (HRW, 2017).

3.3 POLICIES TO OVERCOM ALL FORMS OF MALNUTRITION AMONG VULNERABLE GROUPS

This section presents the main policies that the Latin American and Caribbean governments are promoting to address all forms of malnutrition among the most vulnerable groups (children, people living in poverty, women, indigenous peoples and inhabitants of rural territories). This section sets out a series of policies, some of them of an innovative nature. All of these policies need further development in order to evaluate their impacts, which reduce inequality gaps and promote more sustainable and nutrition-sensitive food systems.

To this end, this section uses the elements of the food systems described in section 3.1:

1. Policies that influence food supply chains.

2. Policies for food environments.

3. Policies that influence consumer behavior.[67]

66 As has occurred with quinoa, amaranth and stevia, for example, expanding the range of consumable plants to meet the increases in food demand expected by 2050 requires integrating indigenous foods into the diets of the region.

67 Although some of the policies presented here can be classified into more than one element of food systems, we have tried to classify them into the most appropriate category, based on their definition and main objectives.

BOX 9

WHY IS GOVERNANCE IMPORTANT TO ACHIEVE EFFICIENT, INCLUSIVE AND SUSTAINABLE AGRICULTURAL SYSTEMS?

Governance refers to the formal and informal rules and processes by which the various public and private actors (the state, civil society, the private sector, consumers, international cooperation, etc.), articulate their positions and interests for taking and implementing decisions.

As noted in previous chapters, food systems in Latin America and the Caribbean have undergone profound changes in recent decades. These transformations have had both positive and adverse effects in terms of economic growth, social inclusion, environmental impact and, finally, also on the dietary patterns of consumers (HLPE, 2017). Part of the unintended consequences of these rapid changes in food practices are the growing prevalence of overweight and obesity, in addition to non-communicable diseases. As recognized in the Framework for Action of the Second International Conference on Nutrition (ICN2, 2014), states should make it easier for the different actors with responsibility for the functioning of existing food systems to prioritize the right to health and to food. This public responsibility in the promotion of systems of food production, transformation, marketing, sale and consumption that are more sustainable and nutrition sensitive, offer an opportunity for the development of new policies, legal frameworks, spaces for consultation and public-private partnerships for healthier diets.

3.3.1 Policies that influence food supply chains

This element of the food systems incorporates public policies related to production systems, retail and market, storage and distribution, processing and packaging.

Productive systems

Family farming with an emphasis on the inclusion of women

In Latin America and the Caribbean, family farming is a key sector to guarantee food security and to eradicate poverty. It comprises about 81% of farming activities and provides between 27% and 67% of the total production of food in the different countries, in addition to generating between 57% and 77% of agricultural employment (FAO and IDB, 2007, FAO, 2014a). For instance, family farming in Argentina is responsible for 82% of the production of goats and 26% of cattle; in Brazil, 87% of the supply of cassava and 70% of the supply of beans in the country, while in Uruguay it amounts to 80% of the supply of vegetables; in Chile, 54% of vegetables and in Ecuador, 70% of corn production and 64% of potato production (FAO, 2014a).

Family farmers are both producers and consumers. This implies that they may be in a situation of food insecurity due to insufficient production, crop losses, lack of access to certain food groups, insufficient income and employment opportunities, or other factors.

For this reason, the implementation of targeted policies in support of family farming have a positive impact on the generation of agricultural employment, the alleviation of poverty, and the conservation of biodiversity and cultural traditions (FAO, 2014a). Likewise, these policies can be especially important to ensure adequate nutrition of the populations most affected by inequalities in food systems: inhabitants of rural territories, people in a situation of poverty, women and the indigenous population. For example, the public purchase programs for family farming are recognized as an instrument to generate employment and income in rural areas, as well as for their ability to guarantee diversity and quality in the food supply chain. They also help to meet the demands of governments, on the one hand, while improving the availability of fresh and healthy food such as fruits and vegetables for populations with greater of vulnerability (FAO, 2017g).

Public purchases have been integrated into the food security and nutrition policies of some countries in Latin America and the Caribbean, since by focusing on actors that provide fresh, diverse and nutritious food, they enable a change in the dietary patterns of the beneficiary population. Moreover, by complementing the public purchase programs for family farming with food and nutrition education, the relationship between the consumer and food can be optimized, encouraging the consumption and increase the acceptance of certain foods. This type of measures can help prevent overweight, obesity and NCDs in the population by increasing the consumption of healthy foods and decreasing that of highly processed products (FAO and PAHO, 2018).

Countries such as Brazil, Guatemala, Honduras, Paraguay and Uruguay have laws that establish mechanisms for the purchase of products from family farming. Law 11 947/2009 of the National School Meals Program (PNAE) of Brazil establishes that, of the total resources transferred by the Education Development Fund (FNDE) to the PNAE, at least 30% should be used to make purchases from family farming. Meanwhile, the School Meals Law of Guatemala (Decree 16-2017) allocates at least 50% of the total financial resources assigned to each educational center to buy products from family farming, as long as there is the necessary supply in the local market. Decree 125-2016 of Honduras establishes the School Meals Law. It states that the PNAE must prioritize the local supply of products from family farming. In Decree 3 000/2015, Paraguay prioritizes products from family farming in public purchases with the establishment of the complementary acquisition modality known as the simplified purchasing process. Meanwhile, in its Law 19 292/2014 declaring family farming and small-scale fisheries of general interest, Uruguay establishes a regime of state purchases in benefit of family farmers and small fishermen. In addition, the Law establishes a market reserve of 30% for centralized purchases and 100% for non-centralized purchases. In the case of Brazil, a higher production and diversity of food have been observed, especially fruits, vegetables and pulses. 70% of schools purchased fruit at least once a week, while 21% bought more than three days a week, and 50% offered vegetables more than three days a week (FAO, 2017g).

There are other types of policies that are equally necessary to strengthen family farming and its contribution to the increase of sustainable food production for food security and appropriate nutrition. For example, the new technical assistance and training programs, the facilitation of access to productive assets, financing, insurance and support for the conservation and commercialization of their products. The Agrarian Insurance of Bolivia is a grant to protect the livelihoods of family farmers from the damage caused by climate events and natural disasters. Meanwhile, through the Program for the Promotion of Food Production from Family Farming in Paraguay technical assistance is provided for organization, production and marketing, and rural education and transfer of incentives to families.

Productive inclusion of rural women. As seen in previous chapters, rural women are responsible for more than half of food production and play an important role in the preservation of biodiversity and in guaranteeing food security.[68] However, they are affected disproportionately by poverty

68 FAO, online. Policy notes on rural women.

and other inequalities compared to men in aspects such as access to land, to credits, to training, to agricultural inputs and markets or supply chains. Also, the access of women to public services is much lower than men's. This unequal reality is repeated in relation to indigenous populations.

When talking about female participation among the economically active population in agriculture in Latin America and the Caribbean, countries like Barbados stand out at the top of this list with 50%, followed by the Dominican Republic (31.2%), Jamaica (27.7%), St. Vincent and the Grenadines (27.3%), Haiti (24.8%) and Brazil (24.5%). At the opposite extreme, the countries with the lowest rates of women participating in agricultural production include Belize (3.2%), Panama (3.6%), Puerto Rico (5.9%), Venezuela (6.4%) and Paraguay (7.7%). However, it is important to note that the percentage in Latin America as a whole has increased notably over the last decade, rising from 32.4% in 1990 to 48.7% in 2010 (FAO, 2017a).

Economic autonomy and equal rights for rural women is one of the main ways to improve their socioeconomic conditions, food security and nutrition. A series of policies have been put in place to improve access to productive resources, markets, financial services, training and education, while promoting the organization of rural women, among others. Public programs have also been implemented to support farming by indigenous peoples, although to a lesser extent. One example is Law 338/2013 on Peasant Farmer Economic Organizations (OECAS) and of Community Economic Organizations (OECOMs) in the Plurinational State of Bolivia, the objective of which is to integrate the sustainable family farming promoted by the OECAS and the OECOMs.

Regarding the different initiatives promoted by governments to empower rural women, the case of Paraguay stands out, with the enactment of a specific law. Law 5 446/2015 on Public Policies for Rural Women seeks to promote and guarantee the economic, social, political and cultural rights of rural women, which are considered fundamental for their empowerment and development.

To reduce inequality between rural women and men, Brazil launched the National Documentation Program for Rural Women Workers (PNDTR), which facilitates access to documentation to improve access to public policies that offer benefits to female rural workers. Previously, in order to access different benefits, women had to use the documents of their parents or husbands. Since the implementation of the PNDTR in 2004, 207 439 women were provided with documents. The most recent monitoring of this program was carried out in 2014, a year in which 1 140 547 documents were issued, of which 559 241 corresponded to women.[69] There are important gaps between men and women regarding the right to land and to land tenure (HLPE, 2017). This is an issueof enormous importance in the case of indigenous populations, which is further complicated as a consequence of the different forms of tenure existing among these populations. In Latin America and the Caribbean, around 18% of holders of farm land are women.[70] In general, their farms have a smaller area and their agricultural potential is lower. In the case of indigenous people, the size of the farming land is usually larger and it may be held under community or collective ownership models, and litigation is often undertaken to demarcate the boundaries of farms.

In this context of differences in land ownership, a country with a high proportion of indigenous population like the Plurinational State of Bolivia has set a precedent by modifying the Law of the National Agrarian Reform Service and the Law on the Renewal of Agrarian Reform, which has facilitated women's access to land on a basis of equality. The difference before and after this amendment is striking, leaping from 9% of women landowners in the year 1996 to 46% in 2014 (FAO, 2017a), making land ownership almost equal between the genders.

A study (Pezza Cintrão, R., 2018) has analyzed the national systems of public purchases of food from family farming from a gender perspective in five countries across the region (Colombia, Honduras, Paraguay, Peru and the Dominican Republic). The study found that, of these, only the Dominican Republic has measures in place to

69 Secretaria Especial de Agricultura Familiar e do Desenvolvimiento Agrário, online. Documentação das Trabalhadoras Rurais.

70 FAO, online. Gender and Right to Land Database.

favor the participation of women in public purchases through preferential treatment in the framework of micro, small and medium enterprises (MSMEs).

In Brazil, the National School Meals Program has contributed to the participation of women by promoting productive inclusion and the strengthening of gender relations (ActionAid, 2016), and since March 2018 has promoted a stamp to identify the participation in family farming by rural women, called the SIPAF: "Aqui tem Mulher Rural" ("here are rural women").

Financial inclusion[71] also forms part of the set of national strategies to fight poverty as a complementary tool to compensate for occasional adverse situations that aggravate the situation of vulnerability of affected families (Holzmann, R., and Jorgensen, S., 2000). However, in general, the population excluded from access to financial services includes people on low incomes, women and, especially, those living in rural areas, due to a series of factors that hinder access to and use of financial services, such as lack of financial infrastructure, inadequate range of financial products on offer, misinformation, etc.

Different initiatives have been developed to facilitate the financial inclusion of populations that face these difficulties, as is the case of Colombia, with the Bank of Opportunities Program, the Financial Inclusion in Border Areas with Venezuela, or the Special Natural Disasters or Productive Units of the National Government of Colombia. On the other hand, the Rural Woman Forwards Program: Credit Financing Program for Rural Women in Chile finances working and investment capital for rural women so that they can develop economic and productive activities. The credit offers a preferential interest rate and includes an interest reduction of 30% if they pay promptly.

In addition, capacity-building is a key element to promote livelihoods, improve income opportunities, employability, productivity and food security, among other aspects. Therefore, with the objective of empowering rural women, several countries have developed training and education programs with an emphasis on this population group. For example, the Training and Education Program for Farming Women in Chile.

Finally, it is important to note that the combination of these programs with food and nutrition education help to promote adequate nutrition both in production and at household level.

Retail and markets

Trade policies

Trade plays an important role in all stages of the food supply chain, from production to consumption. Trade can affect the composition of agricultural production, its productivity, its variety, its quality and the safety of food products, and therefore the composition of diets. In a context of increasingly open and interconnected food systems, any policy measure that may be implemented may entail a range of impacts on the food security and nutrition of vulnerable groups .

Thus, for example, trade policies can directly affect the availability of food, balancing deficits and surpluses between countries and ensuring the necessary supplies for the population. Likewise, they can facilitate the supply of sufficient products, buffer potential shocks totional production and contribute to the supply of food at affordable prices for different population groups. Policy instruments can also be used to promote the availability of a wider and more diverse range of food at lower prices for consumers.

Trade is expected to gain progressively more relevance as the demand for food grows in regions where supply is insufficient, due to the changes in agricultural production arising from the greater number and severity of meteorological events and the effects of climate change (FAO, 2018b). Food trade represents an important source of employment and income for

71 Financial inclusion implies the access to and use of comprehensive financial services (savings, credit, insurance, payments, transfers), including the capacity-building aimed at the appropriate use of these services and taking informed decisions about them.

many countries that facilitates the development of public policies, including social protection and measures to ensure that low income population have access to food. However, food trade can have negative impacts on nutrition. Trade can increase the availability and affordability of processed products with a high salt, sugar or fat content.

In addition, the commercial and nutritional results may vary over time and space. In case of emergencies or food shortages, trade can have positive results, but in other contexts it can also undermine local markets.

The relationship between trade and malnutrition can also differ according to the type of malnutrition. Population in acute or moderate malnutrition or facing an emergency can benefit from trade. By contrast, people at risk of overweight, obesity and NCDs may not benefit (FAO, 2015c). In addition, trade influences the availability and the access of consumers to food, which can cause excessive consumption of products of low nutritional quality that may represent a greater share of total caloric intake (FAO, 2018b).

A study (Guardiola, J., Rivas, J., and Red Mel-CYTED, 2010) shown that while trade and economic growth can fight malnutrition, they must always be linked to structural and complementary policies. Food trade alone does not guarantee that the nutritional status will improve. For this reason, it is essential to have redistributive policies in place that ensure the entire population participates of the benefits originated by trade.

Short food circuits[72]

In short supply chains or farmers' markets, farmers sale fresh or seasonal products such as fruits and vegetables directly to consumers, with little or no intermediation between producers and consumers. As a result, the sale price of the produce is lower. In addition, by bringing farmers closer to the consumer (geographical proximity), the products do not need to be transported over long distances or packaged, so they usually do not contain preservatives or additives such as salt, sugars and fats, and their impact on the environment is lower (ECLAC, 2014a).

Besides promoting equity in trade, short circuits may give rise to other indirect benefits in populations with higher degrees of vulnerability. These include the strengthening of social capital and greater autonomy among the actors and, with it, greater sustainability and social integration (ECLAC, 2014a, p. 7).

On the other hand, urban and peri-urban agriculture[73] has also shown to be a viable option in different countries to improve food security and household nutrition, by allowing people access to food for their own consumption. In this way, producers may reduce their purchase of food and have the possibility of selling surpluses and increase their income. It also makes it possible for families in situations of vulnerability to access a wider range of food, in such a way that their diet is improved and diversified, and they modify their eating habits. In turn, urban and peri-urban agriculture is a tool to combat urban poverty and promote social inclusion, as a source of income and employment that helps to integrate traditionally marginalized populations (people living in poverty and extreme poverty, rural migrants, indigenous people, women) and strengthen their capacities, thereby improving their living conditions. This type of production can also give rise to microenterprises, such as those dedicated to the processing and sale of different food. In addition, it helps to improve the sustainable management of urban space, increase urban resilience and mitigate the effects of climate change (FAO, 2011b). Therefore, local food chains can improve food and nutrition security in territories where they are established. This includes not only consumers but also agricultural producers, their families and their communities (ECLAC, FAO and IICA, 2014).

72 Also known as local food systems.

73 FAO (n.d., p. 2) defines urban and peri-urban agriculture as "a multifunctional and multi-component activity that includes the safe production or transformation of agricultural and livestock products in intra- and peri-urban areas, for self-consumption or commercialization, efficiently and sustainably (re)using local resources and inputs, respecting local knowledge and promoting gender equity through the use and coexistence of appropriate technologies and participatory processes to improve the quality of life of the urban population and sustainable urban social and environmental management of cities."

"Free fairs", itinerant and neighborhood markets

In Latin America and the Caribbean, markets of fruit and vegetables, fish and other fresh products proliferate. These markets facilitate access to food in the neighborhoods of large urban centers, mid-size cities and rural towns and communities. This form of direct exchange between individuals helps provide access to products with a high nutritional value at prices generally more affordable for low income population. In recent years, public initiatives have proliferated to facilitate the creation and improvement of the operation of this type of fairs or markets.

For example, in Chile, "free fairs" are an "important territorial actor, which in addition to contributing to local economic circuits, constitute a factor of social integration for the population and form part of the solution for a healthier diet" (ECLAC, FAO and IICA, 2014). The National Cadastre of Free Fairs (SERCOTEC, 2016) indicates that there are 1,114 free fairs in various municipalities and regions up and down the country. It is estimated that they supply 70% of the national market for fruits and vegetables and 30% of the fish market in Chile (ECLAC, FAO and IICA, 2014).

A study conducted by Evans, A., et al. (2012) measured the impact of the introduction of farmer's markets on the consumption of fruits and vegetables in low-income communities with limited access to these products, before and after their implementation. The results revealed that the population consumed more fruits, fruit juices, tomatoes, green leafy vegetables and other vegetables. In addition, the proportion of people who considered the intake of fruits and vegetables to be important also increased.

Storage and distribution

Food loss and waste, and food banks

Food loss and waste correspond to the decrease in the mass of food for human consumption that occurs in any part of the production chain. Losses occur during production, post-harvest handling, processing, storage and transport. By contrast, waste occurs during distribution and consumption, and is directly related to the behavior of wholesalers and retailers, food-related services and consumers who discard foods that are still edible (FAO, 2017 b)

In Latin America and the Caribbean, countries like Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico, Peru and Uruguay have draft laws and regulations to reduce food loss and waste. However, these measures reveal substantial differences. In some of these countries this is a still an emerging issue that is only beginning to acquire prominence on the public agenda. In others, however, tools have already been put in place to reduce loss and waste of food (FAO, 2017 b).

Food banks are one of the most widespread tools in the region to address the problem of waste and loss of food. In general, food banks are not-for-profit organizations that contribute to reducing hunger and malnutrition by receiving surplus food from the agricultural, industrial, commercial or hotel sectors, restaurants or individuals, for subsequent distribution among the vulnerable population. These products usually have blemishes or have short expiration dates, so they must be consumed quickly, and also have a low turnover.[74]

nd waste. For example, Colombia is a remarkable case because of its National Guidelines for the Prevention and Reduction of Food Loss and Waste, which is the result of joint work between the public and private sector and civil society. Progress has also been made in the development of a methodology to quantify food loss, with initiatives such as the Zero Waste Program and the #YoNoBotoComida campaign, which seeks to raise awareness through social networks, among other initiatives (FAO, 2017 b).

74 ABAC. (online). What is a food bank?

Processing and packaging

Initiatives to reduce the quantity of salt, sugar or fat[75]

Several countries in Latin America and the Caribbean have promoted initiatives to reduce salt and eliminate fats[76] on processed food. These include Argentina, Brazil, Chile, Costa Rica, Ecuador, Mexico, Paraguay and Uruguay. Most of these measures focus on reducing excessive consumption of such products in order to meet global recommended daily intake standards.

In 2009, Argentina promoted voluntary agreements with the food industry to reduce the quantity of salt in bread, and in 2011 extended this initiative to different categories of processed food. In 2013, it became the first country to enact a national law to reduce salt intake among population (Law on Reduction of Sodium Consumption). In addition to reformulation of processed food, the Law also contemplates different interventions, such as prohibiting salt shakers at restaurants, which must also offer food without added salt, offer salt in sachets of less than 0.5 grams, salt with reduced or no sodium content, and the implementation of awareness campaigns. Discussions are currently underway on the promotion of new targets for salt and on the inclusion of new food categories in packaged food.

In Brazil, agreements for food reformulation initiated in 2007. Although the salt content of processed products was reduced by between 8 and 34% between 2011 and 2017, it is hoped that the transition to regulatory targets enforces the existing voluntary salt limits throughout the food supply chain (Nilson, E., et al., 2017). The country has a National Strategy to reduce salt consumption. Its target is an intake of 5 grams per person per day by 2020, and dialogue has been held with the food industry to establish a reduction in added salt every six months, supported by education and information campaigns.

In 2009, Chile set limits for the content of trans fats in food, stating that they cannot exceed 2% of the total fat content. In 2011 a voluntary agreement was reached with bakers to reduce salt in bread. With this agreement, total salt concentration should not exceed more than approximately 600 milligrams per 100 grams of bread.

Meanwhile, in 2011 Costa Rica created the National Plan for the Reduction of Salt/Sodium Consumption in the Population of Costa Rica 2011-2021, within the framework of the National Policy on Food Security and Nutrition 2011-2021. The objective of the Plan is to reduce the consumption of salt/sodium in the population to 5 grams per person per day. Implementation began in 2012 through voluntary agreements with the food industry to reduce salt in bread. In March 2014, a public-private alliance was created between the Ministry of Health and the Costa Rican Chamber of Food Industries, and national salt reduction targets were established in six categories and 23 subcategories of key food products.

Ecuador has a national program for reducing salt consumption, which includes voluntary agreements with manufacturers of breads and sausages. In addition, in 2013 limits were set on the amount of trans fats in edible oils, margarines and pastry products, both for those sold directly to the consumer and for those used as raw materials by the food industry.

In 2012, the Ministry of Health of the Government of Mexico signed an agreement for the voluntary reduction of salt in bread with the Bread Industry (CANAINPA), the National Supermarket Association, department stores and Bimbo SA, the largest Mexican bakery company. This agreement aims to achieve a 10% salt reduction in five years. In 2013, an initiative was launched in Mexico City to reduce salt consumption. This is a voluntary agreement between the city government and the commercial association that represents restaurants to provide salt shakers only if customers request them.

In 2013, Paraguay established an obligatory reduction of 25% in the salt content of wheat flour used in bread making and popular flour-based products from 2 grams of salt per 100 grams of flour to 1.5 grams per 100 grams. Implementation began in June the same year.

75 Information compiled from WCRF, online. NOURISHING database.

76 Including trans fats.

Meanwhile, in Uruguay the reduction of salt consumption is part of several national programs led by the Ministry of Health aimed at improving the health of the population. These initiatives include the promotion of healthy eating in schools, and the removal of salt and other condiments with high sodium content from restaurants. Additionally, in September 2013, an agreement was signed with the bakery industry to gradually reduce the sodium content in bread products.

Food supplementation and fortification programs

Several interventions in Latin America and the Caribbean have aimed at counteracting malnutrition and micronutrient deficiencies. These include programs to fortify foods and to include micronutrient supplements.

At least 18 countries have food fortification and enrichment policies in place (Tirado, M., et al., 2016). Some examples include regulation for the iodization of salt and the fortification of wheat flour with thiamine, riboflavin, niacin, folic acid and iron. Regarding the micronutrient supplementation programs, the most frequent are supplementation with iron and folic acid (for pregnant women), iron supplementation (for children 6-59 months) and the supplementation with vitamin A (for children 6-59 months), present in 90%, 80% and 75%, respectively, of the countries of Latin America and the Caribbean (FAO and PAHO, 2017a). In addition, as shown in a WFP publication (2017), all countries have at least five micronutrient delivery programs at national level. However, gaps in the delivery and use of these programs limit their impact on vulnerable groups.

A report (WHO and FAO, 2006) that reviewed several impact studies on food fortification in the Bolivarian Republic of Venezuela showed the benefits of wheat and corn flours fortification with iron, vitamin A and several B vitamins. A comparison of the prevalence of iron deficiency anemia before and after the intervention revealed a significant decrease in the prevalence of iron deficiency and anemia in children after the intervention. In Chile, the fortification of milk with iron and vitamin C rapidly reduced the prevalence of iron deficiency in children and infants. In the same country, a national flour fortification program with folic acid revealed an increase in folate concentrations in a group of older adults. Iron deficiency is one of the most common and widespread nutritional disorders. In fact, 50% of anemia cases are due to this deficiency. Therefore, food fortification with iron is a useful tool to reduce anemia due to iron deficiencies, especially in children, pregnant women and mothers who are breastfeeding.

Food fortification has proven to be a cost-effective intervention, compared to other public interventions intended to achieve the same nutritional result, such as supplements (FAO and PAHO, 2017a). Governments have a fundamental role to play to ensure that food fortification is effective for the population groups most prone to micronutrient malnutrition. Food laws, quality control systems and related measures are the main tools that authorities have at their disposal to establish an appropriate level of food control.

3.3.2. Policies for food environments

This category includes public policies that influence the physical, economic, political and sociocultural environment where consumers interact with food systems to make decisions about the purchase, preparation and consumption of food.

Availability and physical access

Public systems of food supply and commercialization.

Public systems of food supply and commercialization are key instruments when it comes to providing a stable supply of food and facilitating access to food for vulnerable populations.[77] These systems play a fundamental role in guaranteeing food security and nutrition for the most vulnerable populations, supplying them with staple and other food at lower

77 FAO, online. Regional Network of Public Food Supply and Commercialization Systems.

prices than those find in traditional markets. In addition, these systems can reach places where traditional markets do not reach, such as some rural and low-income areas, by providing

food that are part of a healthy diet and, at the same time, benefiting the small agricultural producers of the different countries.

With respect to physical access to food, public systems of food supply and commercialization can play a fundamental role in addressing so-called food deserts or food swamps. The former are geographical areas where physical access to fresh and healthy food is practically non-existent. The latter are zones where the presence and commercialization of unhealthy foods is dominant (UN, 2014b). It must be added that those who live in these spaces are mostly people with low incomes, so their food purchasing decisions are guided mainly by low prices (Ramos Truchero, G., 2015). Therefore, public systems of food supply and commercialization aim to bring a healthy food supply to places where the supply of this type of food is scarce or non-existent, at an affordable price for lower income populations.

More than half of the countries in Latin America and the Caribbean have such systems in place to facilitate access to food. Sometimes they have made it possible to shorten the production chain for farmers, especially smaller producers. For example, the National Institute of Agricultural Commercialization (INDECA) of Guatemala, which has seven stations across the country, coordinates and directs actions related to food assistance (storage, conservation and distribution of food), with the purpose of contributing to the food security policy. The focus of this policy is to reduce stunting in children under 5, to support breastfeeding mothers, improve nutrition in primary schools and provide care for families affected by natural disasters.[78] Mexico, meanwhile, has DICONSA, the largest public supply network in Latin America and the Caribbean. It has the capacity to reach remote areas, operating with the Rural Supply Program, which has at its disposal more than 27 000 fixed and 300 mobile stores throughout the territory. It also has 302 rural and central warehouses, in addition to almost 4 000 vehicles to distribute food among the Mexican population and to offer low prices in localities with very high levels of marginalization.[79] In Cuba, the Municipal Supply Program's main objective is to secure the BFB for the entire population of a municipality through the monthly delivery of 30 pounds per capita of multiple vegetables, grains and fruits of good quality.

In 2015, CELAC and FAO created the Regional Network of Public Food Supply and Commercialization Systems (Red SPAA). Its purpose is to strengthen national capacities, facilitate partnerships and the development of strategies for joint action, and technical cooperation projects among the public institutions for the commercialization and supply and of food in Latin America and the Caribbean (FAO, 2017h).

School meals programs

School meals programs have a long history and are present in all countries of Latin America and the Caribbean This type of programs provide food to students within schools with three objectives:

1. Respond to social needs and provide a safety net.

2. Improve learning and educational outcomes.

3. Improve nutrition (World Bank, 2009).

School meal programs in the region are one of the most important social protection policies. The reason for this is that it is a large-scale and wide-ranging intervention for populations with higher degrees of vulnerability. In addition, as the children receive food in schools, families save the resources they would otherwise spend on buying food. In this way, families can access different goods and services, which allows them to save and invest in productive activities (WFP, 2016b).

These programs are one of the public policies most frequently used to reduce hunger and malnutrition. They can also improve diets and nutrition knowledge and practices of schoolchildren and their

78 INDECA, online. National Institute of Agricultural Commercialization

79 DICONSA (online). DICONSA.

communities, by complementing them with other actions. Some examples are food and nutrition education, school gardens, the promotion of physical activity and deworming campaigns. They can also become policies that help to provide access to decent employment for women, provided that they are treated as paid workers through the school meal programs.

As pointed out in a WFP report (2017), school meals programs have evolved. Today they must respond to the double burden of malnutrition, and promote good nutrition and healthy eating habits. At the same time, they must prevent and address micronutrient deficiencies. To this end, the countries have tried to reformulate and redesign their school meals programs to diversify the food they offer, especially through purchases from family farming. Countries such as Brazil, the Plurinational State of Bolivia, Guatemala, Haiti, Honduras and Paraguay, among others, have linked their school feeding programs to public purchases. In Brazil, the National School Meals Program (Programa Nacional de Alimentação Escolar, PNAE) has managed to increase the amount of fresh fruits and vegetables used in schools, reduce the amount of canned and processed foods consumed, and decrease the amount of sugar and salt in the meals that are served. School gardens are another component of the program, where students are taught to plant, tend and harvest healthy produce (FAO, 2015b).

At present, the countries of Latin America and the Caribbean generally consider that school meals are a key instrument for ensuring access to nutritious and healthy food, as well as to promote healthy eating habits. The increase in the childhood overweight and obesity rates is a new factor that has led governments to focus on the quality and composition of school meals (WFP, 2017).

Arsenault, J., et al. (2009) carried out a study to measure the impact of the School Snack program of the Bogota Education Department on the health and nutritional status of 3 202 boys and girls between 5 and 12 years of age who attend primary schools. The beneficiaries were provided with a free daily serving of food mid-morning to supplement between 30 and 50% of their daily energy and iron needs, respectively. The results showed that after 3 months, the boys and girls who received the snack increased their concentration of vitamin B12 compared to those who did not. In addition, the former had fewer symptoms of morbidity (the number of days with symptoms of cough and fever was reduced by 57%, days with diarrhea by 30% and days with diarrhea and vomiting by 55%) and doctor visits were reduced by 44%.

Economic access

Fiscal policies to promote or discourage the consumption of specific food

A typical policy to promote higher or lower consumption of certain products are taxes and tax exemptions. In Latin America and the Caribbean, there are numerous examples of this type of measures to facilitate the access of certain groups of the population to food with the aim of improving their food security or the intake of certain micronutrients. Following this same logic, a more recent policy is the application of taxes to highly processed food. As already mentioned in the previous edition of the *Panorama of Food Security and Nutrition in Latin America and the Caribbean* (FAO and PAHO, 2017 b), there are differences between the cost of many foods considered healthy and those that are not. This determines the demand for food, especially in vulnerable and low-income populations.

Barbados, Chile, Dominica and Mexico have increased taxes on certain food products considered harmful to health. In Chile and Mexico, the tax on sugary drinks came into effect in 2014 and 2013, respectively, and in Barbados and Dominica in 2015. Dominica also taxes sugary foods (FAO and PAHO, 2017a).

A study carried out by Colchero, M., Popkin, B., Rivera, J., and Ng, S. (2015) indicates that in 2014 (the first year of application of the tax in Mexico), the population reduced purchases of sugary drinks by 6%. By December of the same year the fall reached 12%. And over the same period, the average reduction in the poorest households was 9%, reaching 17% at the end of 2014. Similarly, purchases of non-taxed beverages, such as water,

increased by 4% in the same year. A complementary study (Colchero, M., Rivera-Dommarco, J., Popkin, B., and Ng, S., 2017) indicates that during the second year of implementation, the reduction was still higher, at an average of 9.7% and a reduction of 5 liters on average per person per year. On the other hand, the consumption of untaxed beverages increased to 11.8%. Other studies[80] affirm that this tax had most effect on the poorest households in the country (62% of the revenues of the Special Tax on Production and Services [IEPS]) since their consumption of soft drinks was higher. However, it is still too soon to say that the increase in prices has had an impact on the obesity rates of the Mexican population.

In the case of Chile, two studies conducted by Nakamura, R. et al. (2018) and Caro, J. et al. (2018) indicate that the purchases of sugary beverages have declined and that households with higher incomes have shown higher decreases than those with lower incomes. According to Nakamura, R. et al. (2018) there was a 21.6% decrease in the monthly volume purchased of sugary soft drinks with higher taxes. On the other hand, Caro, J. et al. (2018) indicate that households reduced per capita monthly purchases of beverages with a high sugar content by 3.4% in volume and 4% in calories.

Another study (Mytton, O., Clarke, D., and Rayner, M., 2012) shows that this type of taxes initially have a regressive impact on the more vulnerable population, since they must pay a greater proportion of their income compared to the population with a higher income. However, the health benefits are progressive for the more vulnerable population, since this sector is more responsive to price changes, and therefore, can improve their dietary patterns and avoid expenses associated with health problems resulting from the consumption of sugary products. It was also concluded that small changes in prices due to taxes would not have a significant impact on the prevalence of obesity. However, the evidence suggests that for the tax to have a significant effect on the health of the population, it should lead to an increase of 20% or more in the price of the product. Finally, it is recommended that together with the application of the tax, a subsidy should be applied to healthier food to alleviate the financial impact on the population with higher degrees of vulnerability.

Regarding food subsidies, the Food Mission of the Bolivarian Republic of Venezuela stands out in Latin America and the Caribbean. Its objective is to sell food products and other basic products on a permanent basis, both wholesale and retail, maintaining quality at prices subsidized by the state, and focused on the population with higher degrees of vulnerability in the country.[81] The Food Mission runs throughout the country delivering food or products door to door or by deploying free fairs in different locations. It also has the support of other institutions or local authorities, thus promoting access to food for the population.

Social protection programs

Social protection comprises "a set of policies and programs that address the economic, environmental and social vulnerabilities of food insecurity and poverty through the protection and promotion of livelihoods" (FAO, 2017f, p. 6). It includes safety nets (non-contributory), social insurance (contributory) and labor market policies that are put in place to establish minimum levels of welfare, to contain the risks inherent to the life cycle and economic activity, and to promote sustainable livelihoods. Social protection influences the four dimensions of food security and nutrition. With respect to improving people's access to food, social protection increases food consumption directly by increasing household income, which allows families to increase the amount of food purchased. It also improves the availability of food by allowing households to increase investments in agriculture and alleviate credit constraints. In addition, it stimulates local supply/production through an increase in demand. When social protection is regular, anticipated and periodic, it also improves the stability of access to, availability and utilization of food, helping to overcome seasonal and cyclical crises and tensions, and strengthening the planning capacity of households. In the same

80 ITAM; COLMEX; UANL; INSP, online. Caloric taxes.

81 FAO, online. "Mision Alimentación"

way, it improves household resilience by promoting income-generating activities and the creation of an environment conducive to this. Likewise, it influences the utilization of food and nutrition, promoting healthier consumption patterns that meet dietary needs in terms of quantity, quality and diversity of foods.

Furthermore, it helps to address malnutrition, micronutrient deficiencies, overweight and obesity (FAO, 2017i).

For example, Progresando con Solidaridad is the principal social protection program of the Dominican Republic. It is a targeted social

BOX 10
BREASTFEEDING

Forty five percent of child deaths in Latin America and the Caribbean are associated with malnutrition. However, it has been possible to reduce the mortality rate in children under 5 years thanks to the implementation of maternal and child care programs. Their objective is to reduce maternal and neonatal mortality during the first year of life, as well as to reinforce immunization and promote breastfeeding (FAO and PAHO, 2017b).

Breastfeeding plays a fundamental role in the development of individuals throughout their lives. In fact, if optimal breastfeeding practices were universal, 823 000 deaths per year of children under 5 years of age could be prevented, in addition to 20 000 deaths per year due to breast cancer (PAHO and WHO, 2018). That is, breastfeeding not only positively influences children, but also mothers, preventing their death from a highly invasive and dangerous disease. Starting breastfeeding from the first hour of life to 6 months, and continuously up to 2 years or more, combined with appropriate nutrition, is one of the most powerful practices for child survival and welfare (UNICEF, 2018).

The impacts and benefits of breastfeeding are multiple, as well as decisive to child development. With respect to gastrointestinal infections, one study (American Academy of Pediatrics, 2012) has shown that breastfeeding decreases the risk of suffering such infections (64% reduction). Regarding overweight, it is believed that each extra month of breastfeeding is associated with a 4% decrease in the risk of obesity. This is the conclusion of a case-control study conducted in Chile (Jarpa, C. et al., 2015), which states that breastfeeding during the first 6 months of life is a protective factor against overweight and obesity in pre-school children.

There is also evidence that breastfeeding has an impact on brain development. A cohort study (Horwood, L., Darlow, B .; and Mogridge, N., 2001) conducted an evaluation of 18-year-old adults. The results showed a dose-response relationship between the duration of breastfeeding and all measurements of IQ. Children breastfed for less than a month showed 6.6% points lower on the Wechsler Adult Intelligence Scale (WAIS) than those breastfed for 7 to 9 months.

A major challenge for the region is to ensure breastfeeding for all newborns. Only 38% receive a diet exclusively based on breast milk uninterruptedly until 6 months, when it is recommended for up to 2 years. The figure for this group is only 32% (PAHO and WHO, 2018).

program that consists of conditional cash transfers, socio-educational support and articulation with programs and services. It has the following components: comprehensive health; education; food security, nutrition and income generation; habitability and environment; identification; access to information and communication technologies, and conditional cash transfers. The program involves families in integral development processes through co-responsibilities linked to targeted subsidies. In this way, it contributes to food security and nutrition, fostering the generation of income by families so they can invest in the education and health of their members. Following the implementation of the program, it has been observed that anemia has been reduced by 50% in the target population. Access to immunization and to comprehensive health care in early childhood has also been increased by 15% compared to the rest of the population, and the likelihood of early pregnancy in girls with limited resources has been reduced from 43% to 24% in comparison with the rest of the population.[82] Likewise, greater dietary diversity has been observed among beneficiaries, as well as improvements in nutritional status and food insecurity, mainly in elderly people (FAO and WFP, 2017).

Conditional cash transfer programs (CCT) have consolidated as one of the leading social policies in Latin America and the Caribbean during the last two decades. According to the report of the Overseas Development Institute (ODI, 2016), these programs have different effects on malnutrition. Stunting is the aspect that shows the greatest evidence of positive effects. Out of a total of 13 studies that reported general effects on a indicator of stunting, five identified a statistically significant effect, all of which showed increases in the Z-score on height-for-age, or a statistically significant reduction in the probability of stunting. The report also notes that CCTs have positive impacts in terms of reducing wasting and in reducing the incidence of underweight children.

However, this type of policy can also increase overweight, obesity and associated diseases when trying to reduce malnutrition. For example, a study conducted by Fernald, L., Gertler, P., and Hou, X. (2008) found that Mexico's Oportunidades[83] conditional cash transfer program led to a higher body mass index and an increase in blood pressure in adults among the households studied.

A similar case was observed in Colombia in a study conducted by Forde, I., et al. (2012). According to the study, women who had participated in the conditional cash transfer program More Active Families[84], had a higher body mass index and were also associated with a greater likelihood of obesity.

In part, this could be explained by an increased expenditure on proteins (such as meats and dairy products), as well as fats and oils and cereals. Meanwhile, spending on fruits and vegetables did not see significant changes (Attanasio, O., and Mesnard, A., 2005). For this reason, it is important that social programs that include cash transfers and direct provision of food carry out frequent monitoring and evaluation of food and nutritional interventions to make the necessary adjustments to prevent the appearance of other types of malnutrition among the beneficiaries.

Finally, in Latin America and the Caribbean, social protection policies do not only play an important role in reducing hunger and micronutrient deficiencies, but also in the prevention and reduction of overweight and obesity, addressing all forms of malnutrition. In this regard, some countries are very recently beginning to design new social programs that aim to provide economic access and the necessary knowledge to ensure a healthy diet. The involvement of social protection policies in public efforts to address overweight and obesity among traditionally marginalized population offer a promising space for innovation.

82 Vice Presidency of the Dominican Republic. (online). History.

83 The program was previously known as the Education, Health and Food Program (PROGRESA) and was focused exclusively on rural areas. It changed its name in 2001 and expanded its operation to semi-urban and urban areas.

84 As of 2006, the program became part of the Red Juntos (now Red Unidos), a system that brings together several components to facilitate access to social services.

Promotion, advertising and information

Advertising or regulation of food sales

One of the key conclusions of the *Panorama of Food Security and Nutrition in Latin America and the Caribbean* 2016 on advertising is that it is decisive in the demand for food.

It has also been shown to influence the formation of habits in children, and that it can modify the food preferences of the population (FAO and PAHO, 2017a).

However, only a few countries in Latin America and the Caribbean have implemented advertising regulations aimed at promoting a healthier diet.

For example, Chile's Law 20 606 on the Nutritional Composition of Foods and their Advertising establishes that those foods that exceed the level of calories, saturated fats, salt or sugars established by the Ministry of Health must present a warning label "high in..." to indicate this fact, and cannot be sold, delivered free of charge or advertised inside schools, and may not be advertised to children under 14 in any space, or via any medium or support. Any advertising of such products must not use children's characters, cartoons, toys, children's music, people or animals that attract the interest of children, or fantasy stories, voices, language or children's expressions, or scenes from daily life such as school, recreation or children's games. This prohibition is established for platforms such as programs or websites (with an audience greater than 20%) and in advertising spaces during or after the broadcast of programs or on websites intended for children under 14 years of age. In addition, all food advertising carried by mass media should carry a message that promotes healthy lifestyle habits. On the other hand, Law 20 869 on Food Advertising adds to the measures of Law 20 606 on the prohibition of advertising of breast-milk substitutes up to 12 months of age, and the prohibition of any food that is "high in..." advertising on television and cinemas between six in the morning and ten at night (regardless of whether the advertising is aimed at children under 14 or not).

Mexico is one of the countries with the highest rates of obesity in the region. With regard to the regulation of advertising of food with high levels of sugar, fat or salt, the Mexican government approved a guide for foods considered to be nutritious. The food industry utilizes this guide, even though the percentage of sugar allowed in cereals is 30 grams per 100 grams, a figure that is double that of countries such as Chile, Ecuador and Peru, and six times greater than what is allowed in Scandinavian countries, contradicting the agreement signed by the Mexican Ministry of Health (Bacardí-Gascón, M., and Jiménez-Cruz, A., 2015).

As a result, highly processed foods continue to be advertised that are harmful to health, especially for children, with percentages of fats, sugars or salt that exceed recommended levels, and that increase the risk of children suffering from malnutrition by excess. The same study found that there is a direct relationship between exposure to advertising and food consumption, in particularly in mothers and children, with a strong association between educational and economic level and the consumption of unhealthy foods.

Other countries in the region have adopted relevant measures regarding the prohibition of the sale of processed products with high levels of sugar, fats or salt in educational establishments. Countries such as Argentina, Chile, Colombia, Ecuador, Mexico, Peru and Uruguay already have regulations in place governing this issue.

In Uruguay, Law 19 140 on Healthy Eating in Centers of Education is of note. In addition to implementing healthy school stores, it promotes educational campaigns on food and healthy living, and bans advertising of unhealthy foods, and the use of salt cellars within schools or colleges.

Argentina is another country that has regulation on this issue. In 2008, the National Law 26 396 on the Prevention and Control of Eating Disorders was published, which also promotes a healthy school environment.[85]

85 The Law establishes that the Ministry of Health must develop food standards that guarantee good nutrition for the population served by school canteens and national food plans. In addition, stores and canteens located inside schools must offer products that promote a healthy and diverse diet.

Various studies on food consumption in school stores, such as one carried out in the city of Santa Fe in Argentina (Follonier, M., et al., 2013), show that the availability of food in schools can have a significant impact on the dietary habits of children.

In Chile, the use of the Food Grant for Higher Education (BAES) provided by the Ministry of Education has been adjusted since 2018. With the new measures, higher education students can only purchase menus approved by the National Board of School Aid and Scholarships (JUNAEB).
In addition, they are no longer able to buy products in supermarkets that contain more than two "high in..." stamps, as established by the Food Labeling and Advertising Law (front-of-pack nutritional warning labeling).[86] The adjustments seek to ensure healthy eating among higher education students in the country who are part of the population with higher levels of vulnerability.

Front-of-pack nutritional warning labeling

The front-of-pack nutritional warning labeling on food offers consumers information about products with high calorie content, salt, sugar or fat. It provides a visual representation to help consumers make a better-informed decision about which foods to purchase. Chile has implemented, and Peru and Uruguay have approved, front-of-pack nutritional warning labels. For example, Chile has a system consisting of black labels that contain the phrase "high in...," followed by "sugars, saturated fats, sodium and/or calories." This makes it possible to quickly distinguish which foods are less healthy and to choose those that have fewer labels or none at all.[87] Concerning the effectiveness of this policy to modify the dietary behavior of the Chilean population, it can be affirmed that 37% of the surveyed population agree that the stamps have modified their choice of certain foods, while 74% say that they have not stopped consuming any product as a consequence of the presence of the labels (MINSAL, 2017). Another study conducted by the Center for Retail Studies[88] states that, as a consequence of the new labeling, 58% of the respondents decided not to buy certain products and opted for healthier ones instead. Another survey carried out by CADEM (2016) on the Labeling Law revealed that 46% of the respondents said they had stopped buying a habitually consumed product as a consequence of the number of labels that it contained. This change in choice was more evident in men. The study carried out by the Insitu research center revealed that 41% of the sample said they had modified their eating habits thanks to this new Law, and 14% avoided the consumption of food with black labels (Scapini, V. and Vergara, C., 2017).

Similarly, Peru approved the Advertising Warnings Manual[89] within the framework of Law 30 021 on the Promotion of Healthy Eating for Children and Adolescents, together with its Regulation. In The Manual sets out the technical specifications for advertising warnings on processed food whose content in salt, sugar or saturated fats exceeds the values established in the Regulation of Law 30 021. The advertising warning consists of a black and white octagon that includes the text "high in..." followed by sodium, sugar or saturated fats and includes a box that warns "avoid excessive consumption." Meanwhile, products that contain excessive trans fats include the text "avoid consumption."

Uruguay approved the Decree on front-of-pack food labelling of food, which establishes that packaged food to which salt, sugars or fats have been added, and that in its final composition exceeds the content in these ingredients set out by the Decree, must be labeled, comprising octagonal symbols with the warning "excess" of the ingredients mentioned before.

86 JUNAEB. (online). What are the purchase restrictions with the BAES?

87 MINSAL, online. Food Law - New food labeling.

88 CERET, online. Measurement of service quality in the supermarket industry. Labeling Law

89 The Manual will become effective 12 months after its publication in the Official Gazette El Peruano.

Food quality and safety

Drinking water and food safety

Access to drinking water has increased over the past 15 years. However, across Latin America and the Caribbean there are still important differences. Rural areas and low income population have the least access (FAO and PAHO, 2017 b). Access to drinking water is a determining factor in the state of health and nutrition of the population, in particular among children (HLPE, 2015). In addition, ensuring access to drinking water could prevent a tenth of diseases globally (UN, 2014a).

Programs that facilitate access to drinking water can be implemented. For example, even though the Plurinational State of Bolivia still presents significant lags in terms of rural infrastructure, it has programs and policies to achieve greater coverage of this basic service, such as the Water and Sanitation in Rural Communities Program, which is focused on rural communities with a population below 500 inhabitants. A study on the impacts of the program (IDB, 2016), revealed that only 42.1% of the population have access to improved sources of water and that carrying water is still essential to access this resource, a task carried out mainly by women and children under 14 years of age and which takes almost

BOX 11
SOCIAL PROTECTION POLICIES FOR RESILIENCE

Social protection systems in Latin America and the Caribbean were initially conceived as instruments to reduce poverty or provide support over the course of life, and not to support the civil response to emergencies (WFP and OPM, 2016). Despite this, social protection has played an important role in the protection and promotion of livelihoods and subsistence.

Vulnerable people lack the necessary resources to satisfy their basic needs and are very susceptible to external shocks that affect their livelihoods, as they live in a situation of food insecurity. This situation is worsened by risks and crises that are becoming increasingly frequent and complex (see chapter 2). In this context, social protection programs play an important role in promoting resilience, shoring up the vulnerability of people's lives and livelihoods, and thus reducing poverty and food insecurity (HLPE, 2012).

Moreover, the evidence (FAO, 2017c) shows that if agricultural and social protection interventions complement each other they can reduce poverty and hunger in rural areas more effectively, as well as boost economic growth. Through agricultural interventions, access to natural resources, inputs and factors of production, technologies, financing and credits, and markets are improved. In addition, employment opportunities for family farmers are increased. On the other hand, social protection supports vulnerable family farmers through cash or in-kind assistance, allowing them to devote more time and resources to productive activities and strengthen their capacities to better manage risks and hazards.

three hours a day. The Water and Sanitation report for Bolivia states that between 1990 and 2014, the country's infant mortality rate was reduced by 64%. However, childhood morbidity is associated with diseases attributable to the poor bacteriological quality of water in households and poor hygiene practices. In other words, to ensure good health and nutrition, in addition to access to drinking water, emphasis should be placed on sanitation and hygiene practices.

In any case, the safety of food is understood as a series of actions thatseek to ensure the highest possible safety of food for consumption, and which must be addressed throughout the food chain.[90]

The lack of food safety is a problem that puts the health of the entire population at risk. But it affects to a greater degree people in situations of vulnerability and who live in rural areas, since their access to food that provides them with the nutrients necessary for a good quality of life is more restricted. To address this problem, it is necessary to strengthen methods of food production, conservation and distribution (Gonzalez, M., 2013). That is, it is necessary to monitor the entire process. Similarly, food safety is a major challenge in the case of food buy away from home, and as indicated in section 3.1.2 of this chapter on food environments, this represents an ever greater proportion of the food obtained in the region.

All countries in Latin America and the Caribbean have food legislation, however, not all of them have a coordinated control system, which vary widely between countries. It must be remembered that unhealthy foods are the causes of more than 200 types of diseases (from diarrhea to cancer). In addition, it is children under 5 years of age who bear 40% of the burden attributable to diseases due to food contamination, which cause 125 000 deaths of children per year.[91]

90 WHO, online. Health issues. Food safety.

91 WHO, online. Food safety.

3.3.3 Policies that influence consumer behavior

This section covers the policies that influence the choices and decisions made by consumers at the family or individual level about which foods to purchase, store, prepare, cook and eat, and in the allocation of food within the household.

Choice of what food to buy, prepare, cook, store and consume

Food and nutritional education

Today, all the countries of Latin America and the Caribbean have policies, strategies or programs aimed at food and nutrition education, which vary in their level of intervention, and are more or less comprehensive. However, it should be noted that there is a larger number of programs than of policies and strategies dedicated to food and nutrition education. It is necessary to map the programs, policies and strategies to identify gaps and duplications in national and subnational efforts.

When it comes to food and nutrition education, this is understood to provide the necessary knowledge and skills so that all people and their families can feed themselves in an appropriate way, obtain appropriate food at affordable prices, prepare healthy food and meals, and be able to identify food options that are not beneficial (FAO and PAHO, 2017a). However, it should be clarified that effective food and nutrition education is not synonymous with better nutrition knowledge. It reaches a satisfactory level when people, groups or communities improve their practices and eating behaviors permanently over time, and when it permits and pursues social change.[92] In this sense, it is not clear how many of the programs oriented towards food and nutrition education in the countries of Latin America and the Caribbean engage in effective food and nutritional education actions that are focused on changing behaviors.

92 RED ICEAN, online. What is Food and Nutrition Education?

Across the region, countries such as Brazil, Costa Rica, Ecuador, the Plurinational State of Bolivia, Haiti, Nicaragua and Peru have a specific political framework in place for food and nutrition education. In most countries, food and nutrition education is not part of the school curriculum, and is limited to a number of classes during the school year (FAO and CELAC, 2018).

In the fight against child malnutrition and childhood obesity, school meals are a key policy for addressing malnutrition. For this reason, all countries include food and nutrition education measures in their school meal programs. Therefore, the increase in school attendance can have very positive effects on long-term dietary behaviors (FAO and PAHO, 2017b).

The different impacts that food and nutrition education has had on children have yielded positive results. But they should always be combined with other types of activities and it should be a high-quality food and nutritional education centred on shaping behavior. A study conducted by Navarrete, M., et al. (2015) takes the case of Colombia as an example, where interventions addressed issues such as physical activity and nutritional recommendations to parents and adolescents. This resulted in a decrease in waist circumference, and a reduction in body mass index and total body fat. The same study evaluated the impact of the provision of healthy foods in school stores as part of the food and nutrition education strategy in Mexico. The results were a greater availability of healthy foods in stores, increasing the consumption of fruits and vegetables at break times.

Meanwhile, Food-Based Dietary Guidelines (FBDGs) provide food tips with the aim of promoting healthy eating habits and lifestyles (for more details, see Box 13). Brazil is one of the leading countries in terms of FBDGs, and in 2006 the country published the first version of its food guidelines, with a revised version launched in 2014.

In terms of decision-making at household level, it is estimated that in developing countries, one in three married women has no say over the main household purchases, and that one in ten is not consulted about how their own income is spent in cash (DAES, 2015). This shows that even when they secure their own incomes, women are excluded from economic decision-making in their own homes. This reality affects the food security and nutrition of the whole family, since when women have control over household income, they are more likely to invest in improving the living conditions of their families, spending on health, nutrition and child education (FAO, 2017).

According to FAO (2017i), reducing the gender gap related to education has a positive impact on the socioeconomic status of women. It improves their access to employment and opportunities to generate income, thus increasing their ability to access food. In addition, the educational level of women has a positive correlation with better health and nutrition in children.

BOX 12

HOW TO PROTECT THE FOOD ENVIRONMENT OF CHILDREN AND ADOLESCENTS?

The double burden of malnutrition is a problem that affects all groups of population in Latin America and the Caribbean, particularly the child population. Stunting stands at 9.6%, equivalent to 5.1 million boys and girls, while the rate of overweight children is 7.3%. This makes it a priority to protect the food environment of children, since all people must have access to nutritious and safe food that is appropriate for individual needs (UN, 2016).

The School Meals Programs play a fundamental role in providing adequate food for children, since children spend a significant part of their day in schools. These programs provide healthy and nutrient-rich food for the development of children, in addition to forming and encouraging healthy eating habits and carrying out actions for food and nutrition education.

Advertising and front-of-pack nutritional warning labeling of food is another tool to protect children's food environments. Most countries in Latin America and the Caribbean have some type of legislation in this regard. These measures are crucial, since they can modify food preferences and form healthy habits in children (FAO and PAHO, 2017a). Although these tools have demonstrated a positive effect on the health of children, they have not been implemented in all countries, since only six countries in the region have advertising regulations in place to address highly processed foods. As a result, the majority of children are still exposed to constant advertising in different media about food considered harmful to health (see the policy section on food advertising). Regarding front-of-pack nutritional warning labeling, the situation is similar. Several studies have corroborated its impact on consumers' decisions when purchasing food, choosing alternatives that contain lower percentages of sugar, fat, salt or calories. Even so, it is not a measure that has become widespread in Latin America and the Caribbean (see policy section on front-of-pack nutritional warning labeling of food).

Another tool that aims to ensure good nutrition in children is the "healthy kiosks," which ban the sale of food containing high levels of sugar, salt or fat. This complementary measure helps to provide a nutritious and healthy range of food for children who can buy food in their schools, contributing to the consolidation of schools as safe food environments.

Finally, it is necessary to emphasize that governments have the responsibility to ensure that all children have access to nutrient-rich and healthy food that offer them a good quality of life. The tools mentioned contribute significantly to ensuring that children enjoy healthy food environments. However, more is still to be done, since at present there are many countries that are lagging behind on issues of regulation, advertising and laws on front-of-pack nutritional warning labeling of food, so it is necessary to move towards expanding this type of measures that have achieved a positive impact in the countries where they have been implemented.

BOX13
FOODBASED DIETARY GUIDELINES

Food-Based Dietary Guidelines (FBDGs) are an educational tool to improve the patterns of food consumption and nutritional well-being of both the population and the individual. They offer recommendations on the consumption of a combination of foods able to meet nutritional needs and to help prevent diseases associated with poor diet (FAO and PAHO, 2018). In general, the objectives of the guidelines are focused on promoting healthy lifestyles, on preventing overweight and obesity and non-communicable diseases (NCDs), as well as improving eating habits.

In addition, FBDGs are necessary to establish the dietary "vision" of the country. They are also a road map so that different countries can develop public policies related to food, nutrition, health, agriculture and education. Currently, almost all countries in Latin America and the Caribbean use this tool, which helps them define and generate coordinated policies to address the issue of malnutrition.

However, despite the fact that most countries in Latin America and the Caribbean have FBDGs, their impact is not yet clear. Countries such as Argentina, Brazil, Chile, Colombia, Panama, the Bolivarian Republic of Venezuela and Uruguay have evaluated these policies in some way. A study carried out by FAO (2014b) shows that most of these evaluations were carried out in small population groups and that the orientation was aimed at evaluating the process rather than their impact on people. An example of the above is the study for the revision and updating of the Dietary Guidelines for the Chilean population (MINSAL, 2013), which analyzes the process and the knowledge of the population on the impact. In the 24 groups formed by children and young people, there was a high level of knowledge about food and its relationship with chronic diseases. Another noteworthy result emerging from the same group is the distrust with regard to the healthy messages of the FBDGs. The participants in these groups stated that when they read that a food is healthy they think that it is a lie, and that they should not buy it. Most of the groups asked that the messages be accompanied by the benefits they provide. In this way, there is a motivation to act and change certain harmful habits rooted in the population. Regarding the messages, they said that these should be brief, catch people's attention and be understandable without having to stop to read them, since they find it extremely difficult to understand the information due to its complexity and the size of the text.

Other studies (FAO, 2014b) carried out in Argentina on the clarity of the messages revealed a result contrary to that of the Chilean case. The messages were described as positive because they were useful, clear and reliable. On the other hand, the same study indicates that the results in Brazil and Panama were disappointing. In Brazil, only 1.1% of the sample claimed to have followed the messages recommended by the FBDGs, while in Panama it was observed that this tool had not reached some people at all and that its use was null. This shows the need to strengthen both the impact assessment of FBDGs and their development by focusing on behaviors, improving their dissemination and extending their implementation, both to strengthen food and nutrition education, as well as a tool to modify food environments and systems.

Brown, K., et al. (2011) carried out a review of 28 qualitative and quantitative studies. These studies evaluated national FBDGs and food guidelines with regard to the aspects of awareness, understanding and use by the population. For example, one of the studies reviewed pointed out that in Chile school children had seen nutritional pyramids but did not understand the portions. On the other hand, 30% of schoolchildren knew about FBDGs and 60% knew about the nutrition pyramid. Among the general results of the study it was observed that providing information increased their awareness and willingness to change their diet by 80%. The study revealed that consumers had some degree of knowledge and understanding of FBDGs. In addition, the review showed that the promotion of FBDGs was not always accompanied by an evaluation of their effectiveness, or that the research conducted on the successes and failures of FBDGs has not always been widely published or sufficiently disseminated. Finally, the review notes that although FBDGs have existed for years, they appear to not have been as effective as expected in changing consumer behavior or in helping to reduce the incidence of NCDs.

BIBLIOGRAPHY

ABAC. 2018. *What is a food bank?* [online]. https://www.bancosdealimentosdecolombia.com/ que-es-un-banco-de-alimentos

ActionAid. 2016. *Contribuições do PAA e do PNAE à construção da segurança alimentar e nutricional. A experiência brasileira.* Rio de Janeiro: ActionAid Brazil. Retrieved from http://actionaid.org.br/wp-content/files_mf/1493417778relatorioaexperienciabrasileira.pdf

ALADI & FAO. 2015. *Desarrollo del comercio intrarregional de alimentos y fortalecimiento de la seguridad alimentaria en América Latina y el Caribe.* Santiago de Chile: FAO. Retrieved from http://www.fao.org/3/a-i4454s.pdf

Alves, V., & Rosana, M. 2005. *Obesidade e pobreza: o aparente paradoxo. Um estudo com mulheres da Favela da Rocinha.* Saúde Pública, 21(6), 1792-1800. Retrieved from http://www.scielo.br/pdf/csp/v21n6/17.pdf

American Academy of Pediatrics. 2012. *Policy Statement. Breastfeeding and the Use of Human Milk.* Official Journal of The American Academy Pediatrics, 827-841. Retrieved from http://pediatrics.aappublications.org/content/pediatrics/129/3/e827.full.pdf

Angulo, R., Solano, A., & Tamayo, A. 2018. *La pobreza rural en América Latina: ¿qué dicen los indicadores sobre la población indígena afrodescendiente de la región?* Lima: IEP and FAO. Retrieved from http://repositorio.iep.org.pe/bitstream/ IEP/1135/1/Roberto-Angulo_Ang%C3%A9lica-Solano_Ana- Tamayo_Pobreza-rural-America-Latina-indicadores-poblacion- indigena-afrodescendiente.pdf

Arsenault, J., Mora-Plazas, M., Forero, Y., Lopez-Arana, S., Marin, C., Baylin, A., & Villamor, E. 2009. *Provision of a School Snack Is Associated with Vitamin B-12 Status, Linear Growth, and Morbidity in Children from Bogota, Colombia.* The Journal of Nutrition, 1744–1750. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3151021/pdf/nut1391744.pdf

Attanasio, O., & Mesnard, A. (2005). *The impact of a conditional cash transfer programme on consumption in Colombia.* Institute for Fiscal Studies. Retrieved from https://www.ifs.org.uk/edepo/rs_fam02.pdf

Bacardí-Gascón, M., & Jiménez-Cruz, A. 2015. *TV Food advertising geared to children in Latin American countries and Hispanics in the USA: a review.* Nutrición Hospitalaria, 31(5), 1928-1935. Retrieved from http://scielo.isciii.es/pdf/nh/v31n5/05revision05.pdf

World Bank. 2007. *Socio-Economic Differences in Health, Nutrition, and Population (HNP) within Developing Countries.* Retrieved from http://siteresources.worldbank.org/INTPAH/Resources/IndicatorsOverview.pdf

World Bank. 2009. *Rethinking School Feeding. Social Safety Nets, Child Development, and the Education Sector.* Washington D.C.: World Bank. Retrieved from http://siteresources.worldbank.org/EDUCATION/Resources/278200-1099079877269/547664-1099080042112/DID_School_Feeding.pdf

World Bank. 2018a. *An Overview of Links between Obesity and Food Systems: Implications for the Food and Agriculture Global Practice Agenda.* Washington D.C.: World Bank. Retrieved from http://documents.worldbank.org/ curated/en/222101499437276873/pdf/117200-REVISED-WP-Obesity-Overview-Web-PUBLIC-002.pdf

World Bank. 2018b. *Groundswell. Preparing for international climate migration.* Policy note #3. Washington D.C.: World Bank. Retrieved from https://reliefweb.int/sites/ reliefweb.int/files/resources/GroundswellPN3.pdf

World Bank. 2018. *Commodity Markets* [online]. Washington D.C. http://www.worldbank.org/en/research/commodity-markets

World Bank. 2018. *Health Nutrition and Population Statistics* [online]. Washington D.C. http://databank.worldbank.org/data/source/health-nutrition-and-population-statistics#

World Bank. 2018. *World development indicators* [online]. Washington D.C. http://databank.bancomundial. org/data/source/world-development-indicators

Barker, D. 2005. *The developmental origins of adult disease.* Journal of the American College of Nutrition, 23 (6), 588S-595S. Retrieved from https://www.researchgate.net/publication/8089865_Barker_DJ_The_developmental_origins_ of_adult_disease_ J_Am_Coll_Nutr_236_Suppl_588S-595S

IDB. 2016. *Expandiendo Acceso a Agua Potable y Saneamiento en Pequeñas Comunidades Rurales de Bolivia: Resultados de la Encuesta de Línea de Base de una evaluación de Impacto Experimental.* IDB. Retrieved from https://publications.iadb.org/bitstream/handle/11319/7941/Expandiendo-acceso-a-agua-potable-y-saneamiento-en- pequenas-comunidades-rurales-Resultados-de-la-encuesta-de- linea-de-base-de-una-evaluacion-de-impacto-experimental. pdf?sequence=1

IDB, IFAD, IOM, OAS & WFP. 2017. *Food security and emigration Why people leave and the impact this has on the families that remain in El Salvador, Guatemala and Honduras*. Panama City. Retrieved from https://docs.wfp.org/api/documents/WFP-0000019633/download/

Bilger, M., Kruger, E., & Finkelstein, E. 2017. *Measuring Socioeconomic Inequality in Obesity: Looking Beyond the Obesity Threshold*. Health Economics, 26(8), 1052-1066. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5516143/pdf/HEC-26-1052.pdf

Brown, K., Timotijevic, L., Barnett, J., Shepherd, R., Lähteenmäki, L., & Raats, M. 2011. *A review of consumer awareness, understanding and use of food-based dietary guidelines*. British Journal of Nutrition, 106, 15–26. Retrieved from https://www.cambridge.org/core/journals/british-journal- of-nutrition/article/review-of-consumer-awareness-understanding-and-use-of-foodbased-dietary-guidelines/FE3373EE7CBA7AE30F194C338975E3F5

CADEM. 2016. *Studio # 128*. Santiago de Chile. Retrieved from https://www.cadem.cl/wp-content/uploads/2017/06/Track-PP-128-Junio-S4-VF.pdf

Cárdenas, A., Sánchez, G., & Maza, L. 2014. *Prevalencia de obesidad y hábitos alimentarios desde el enfoque de género: el caso de Dzutóh, Yucatán, México*. Estudios sociales (Hermosillo, Son.), 22(44), 64-90. Retrieved from http://www. scielo.org.mx/pdf/estsoc/v22n44/v22n44a3.pdf

Caro, J., Corvalán, C., Reyes, M., Silva, A., Popkin, B., & Taillie, L. 2018. *Chile's 2014 sugar-sweetened beverage tax and changes in prices and purchases of sugar sweetened beverages: An observational study in an urban environment*. PLOS Medicine, 15(7), 1-19. Retrieved from http://journals.plos. org/plosmedicine/article/file?id=10.1371/journal.pmed.1002597&type=printable

CELAC. 2018. R*egional Strategy for Disaster Risk Management in the Agricultural Sector and Food security and nutrition in Latin America and the Caribbean (2018-2030)*. El Salvador. Retrieved from https://reliefweb.int/sites/reliefweb.int/files/resources/I8919ES%20%281%29.pdf

CEPAL. 2010a. *¿Qué Estado para qué igualdad? Conferencia Regional sobre la mujer de América Latina y el Caribe: Brasilia, July 13 to 16, 2010*. ECLAC. Retrieved from https://repositorio.cepal.org/bitstream/handle/11362/16656/S1000327_es.pdf?sequence=1&isAllowed=y

ECLAC. 2010b. *Pobreza infantil en América Latina y el Caribe*. ECLAC and UNICEF. Retrieved from https://repositorio.cepal.org/ bitstream/handle/11362/1421/1/S2010900_es.pdf

ECLAC. 2014a. *Agricultura familiar y circuitos cortos. Nuevos esquemas de producción, comercialización y nutrición: Memoria del seminario sobre circuitos cortos realizado el 2 y 3 de septiembre de 2013. Series Seminarios y Conferencias 77*. Santiago de Chile: UN Retrieved from https://repositorio.cepal.org/bitstream/handle/11362/36832/1/S2014307_es.pdf

ECLAC. 2014b. *Los pueblos indígenas en América Latina. Avances en el último decenio y retos pendientes para la garantía de sus derechos*. Santiago de Chile: ECLAC. Retrieved from https://repositorio.cepal.org/bitstream/handle/11362/37222/S1420521_es.pdf?sequence=1

ECLAC. 2016. *The matrix of social inequality in Latin America*. Santiago de Chile: ECLAC. Retrieved from https:// repositorio.cepal.org/bitstream/handle/11362/40668/4/ S1600946_es.pdf

ECLAC. 2018a. *La ineficiencia de la desigualdad. Trigésimo séptimo período de sesiones de la CEPAL*. Santiago de Chile: ECLAC. Retrieved from https://repositorio.cepal.org/bitstream/handle/11362/43566/4/S1800302_es.pdf

ECLAC. 2018b. *Panorama Social América Latina 2017*. Santiago de Chile: ECLAC. Retrieved from https://repositorio.cepal.org/ bitstream/handle/11362/42716/7/S1800002_es.pdf

ECLAC. 2018. CEPALSTAT. In: CEPAL [online]: Santiago. http://estadisticas.cepal.org/cepalstat/WEB_CEPALSTAT/estadisticasIndicadores.asp

ECLAC & UNICEF. 2009. *Maltrato infantil: una dolorosa realidad puertas adentro. Boletín Desafíos*. ECLAC and UNICEF Retrieved from https://www.cepal.org/es/publicaciones/35986-maltrato-infantil-dolorosa-realidad-puertas-adentro

ECLAC & WFP. 2017. *El costo de la doble carga de malnutrición: impacto social y económico. Síntesis del estudio piloto en Chile, Ecuador y México*. ECLAC. Retrieved from http://es.wfp.org/sites/default/files/es/file/espanol_estudiopiloto_abril_2017.pdf

ECLAC, FAO & IICA. 2014. *CEPAL-FAO-IICA Bulletin. Fomento de circuitos cortos como alternativa para la promoción de la agricultura familiar*. ECLAC, FAO, IICA. Retrieved from https://www.cepal.org/en/publicaciones/37152-fomento-circuitos-short-as-alternative-the-promotion-the-agriculture-family

Ceret. 2018. *Measurement of service quality in the supermarket industry. Ley de etiquetado* [online]. Santiago. http://www.ceret.cl/wp-content/ uploads/2016/09/ Etiquetado-08292016.pdf

Clapp, J. 2015. *Food Security and International Trade: Unpacking Disputed Narratives*. Rome: FAO. Retrieved from https://www.researchgate.net/publication/292315342_ Food_Security_and_International_Trade_Unpacking_ Disputed_ Narratives

Colchero, M., Popkin, B., Rivera, J., & Ng, S. 2015. *Beverage purchases from stores in Mexico under the excise tax*. BMJ, 352(h6704). Retrieved from British Medical Journal: https:// www.bmj.com/content/bmj/352/bmj.h6704.full.pdf

Colchero, M., Rivera-Dommarco, J., Popkin, B., & Ng, S. 2017. *In Mexico, Evidence Of Sustained Consumer Response Two Years After Implementing A Sugar-Sweetened Beverage Tax*. Health Affairs, 36 (3). Retrieved from https://www. healthaffairs.org/doi/abs/10.1377/hlthaff.2016.1231

Corvalán, C., Garmendia, M., Jones-Smith, J., Lutter, C., Miranda, J., Pedraza, L., et al. 2017. *Nutrition status of children in Latin America*. Obesity Reviews, 18(S2), 7-18. Retrieved from https://onlinelibrary.wiley.com/doi/ epdf/10.1111/obr.12571

CSA. 2012. *En buenos términos con la terminología. 39th session, 15-20 October 2012*. Rome: CSA. Retrieved from http://www.fao.org/docrep/meeting/026/ MD776s.pdf

DAES. 2015. *The World's Women 2015: Trends and Statistics*. New York: UN Retrieved from https://unstats. un.org/ unsd/gender/downloads/worldswomen2015_report. pdf

DAES. 2017. *World Population Prospects: The 2017 Revision, Key Findings and Advance Tables. Working Paper No. ESA/P/WP/248*. UN Retrieved from https://esa.un.org/ unpd/wpp/Publications/Files/WPP2017_KeyFindings.pdf

DAES. 2018. *Population Databases* [online]. http://www. un.org/en/development/desa/population/ publications/ database/index.shtml

DAES, UNCTAD, CEPA, CEPE, ECLAC, ESCAP & ESCWA. 2018. *World Economic Situation and Prospects*. New York: UN DAES. Retrieved from https://www.un.org/development/ desa/dpad/wp-content/uploads/sites/45/publication/ WESP2018_Full_Web.pdf

Daru, J., Zamora, J., Fernandez-Felix, BM, Vogel, J., Oladapo, OT, Morisaki, N., et al. 2018. *Risk of maternal mortality in women with severe anaemia during pregnancy and post partum: a multilevel analysis*. Lancet Glob Health, 6(5), PE548-E554. Retrieved from https://www.thelancet. com/ action/showPdf?pii=S2214-109X%2818%2930078-0

De Laurentiis, V., Corrado, S., & Sala, S. 2018. *Quantifying household waste of fresh fruit and vegetables in the EU*. El Sevier, 238-251.Retrieved from https://www.sciencedirect. com/science/article/pii/ S0956053X18301946

Devaux, M., and Sassi, F. 2011. *Social inequalities in obesity and overweight in 11 OECD countries*. European Journal of Public Health, 23(3), 464–469. Retrieved from https://academic.oup.com/eurpub/ article/23/3/464/536242

DICONSA. 2018. *DICONSA* [online]. https://www.gob.mx/ diconsa

Dinsa, G. 2012. *Obesity and socioeconomic status in developing countries: a systematic review*. Obesity reviews, 13(11), 1967-1079. Retrieved from https://onlinelibrary.wiley. com/doi/ epdf/10.1111/j.1467-789X.2012.01017.x

Dinsa, G., Goryakin, Y., Fumagalli, E., & Suhrcke, M. 2012. *Obesity and socioeconomic status in developing countries: a systematic review*. Obesity reviews, 13(11), 1067-79. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/ articles/PMC3798095/pdf/obr0013-1067.pdf

Dirven, M. 2016. *Juventud rural y empleo decente en América Latina*. Santiago: FAO. Retrieved from http:// www. fao.org/3/a-i5570s.pdf

Drewnowski, A. 2010. *The cost of US foods as related to their nutritive value*. The American Journal of Clinical Nutrition, 92(5), 1181–1188. Retrieved from https:// academic.oup.com/ajcn/article/92/5/1181/4597537

EM-DAT. 2018. *The International Disaster Database* [online]. https://www.emdat.be/

Energici, M., Acosta, E., Huaiquimilla, M., & Bórquez, F. 2016. *Feminización de la gordura: estudio cualitativo en Santiago de Chile*. Revista de Psicología, Universidad de Chile, 25(2), 1-17. Retrieved from https://scielo.conicyt. cl/ pdf/revpsicol/v25n2/art08.pdf

EuropeAid. 2018. *Proyecto de Respuesta a los efectos del Niño en el Corredor Seco de Centro America - PRO- ACT* [online]. https://ec.europa.eu/ europeaid/projects/respuesta-los-efectos-del-nino-en-el- corredor-seco-de-centro-america-pro-act_es

Evans, A., Jennings, R., Smiley, AW, Medina, JL, Sharma, SV, Rutledge, R., et al. 2012. *Introduction of farm stands in low-income communities increases fruit and vegetables among community residents*. Health & Place, 18, 1137-1143. Retrieved from https://www.sciencedirect. com/science/ article/pii/ S135382921200069X?via%3Dihub

Fall, C. 2013. *Fetal Programming and the Risk of Non-communicable Disease*. Indian Journal of Paediatrics, 80(1), 13-20. Retrieved from https://link.springer.com/ article/10.1007%2Fs12098- 012- 0834-5

Faminow, M. 2018. *Food Systems and Malnutrition (overweight and obesity) in Latin America and the Caribbean: strategic opportunities for FAO.*

FAO. 2011a. *The State of Food Security and Nutrition* 2010-11. Women in Agriculture: Close the Gender Gap for the Development. Rome: FAO. Retrieved from http://www.fao. org/3/a-i2050s.pdf

FAO. 2011b. *AU Memories. Experiencias de Agricultura Urbana y Periurbana en América Latina y el Caribe*. Santiago de Chile: FAO. Retrieved from IPES – Promoción del Desarrollo Sostenible: http://www.ipes.org/index. php/ component/jdownloads/send/2-agricultura-urbana/55-memorias-y-experiencias-de-agricultura-urbana

FAO. 2011c. *Seguridad Alimentaria y Nutricional. Conceptos Básicos*. FAO. Retrieved from http://www.fao. org/3/a-at772s.pdf

FAO. 2013. *El Estado Mundial de la Agricultura y la Alimentación. Sistemas alimentarios para una mejor nutrición*. Rome: FAO. Retrieved from http://www.fao.org/ docrep/018/i3300e/i3300e.pdf

FAO. 2014a. *Agricultura Familiar en América Latina y el Caribe: Recomendaciones de Política*. Santiago de Chile. FAO. Retrieved from http://www.fao.org/docrep/019/ i3788s/i3788s.pdf

FAO. 2014b. *The State of the Food-Based Dietary Guidelines in Latin America and the Caribbean*. Rome: Retrieved from http://www.fao.org/3/a-i3677s.pdf

FAO. 2014c. *Refinements to the FAO methodology for estimating the prevalence of undernourishment indicator*. Rome: FAO. Retrieved from http://www.fao.org/3/a-i4046e.pdf

FAO. 2015a. *The State of Food and Agriculture. Social protection and agriculture: breaking the cycle of rural poverty*. Rome: FAO. Retrieved from http://www.fao.org/3/a-i4910s.pdf

FAO. 2015b. *Fomento del modelo Brasileño de alimentación escolar*. Rome: FAO. Retrieved from http:// www.fao.org/3/a-i4287s.pdf

FAO. 2015c. *Nutrition in the trade and food security nexus. The State of Agricultural Commodity Markets IN DEPTH*. Retrieved from http://www.fao.org/3/a-i5223e.pdf

FAO. 2016a. *Influencing Food Environments for Healthy Diets*. Rome: FAO. Retrieved from http://www.fao.org/3/a-i6484e.pdf

FAO. 2016b. *Methods for estimating comparable prevalence of food insecurity experienced by adults throughout the world*. Rome: FAO. Retrieved from http://www.fao.org/3/a-i4830e.pdf

FAO. 2017a. *Atlas de las mujeres rurales de América Latina y el Caribe*. Santiago de Chile: FAO. Retrieved from http:// www.fao.org/3/a-i7916s.pdf

FAO. 2017b. *Boletín 4. Pérdidas y Desperdicios de Alimentos en América Latina y el Caribe. Alianzas e institucionalidad para construir mejores políticas*. FAO. Retrieved from http:// www.fao.org/3/a-i7248s.pdf

FAO. 2017c. *Combined effects and synergies between agricultural and social protection interventions: What is the evidence so far?* Rome: FAO. Retrieved from http:// www.fao. org/3/a-i6589e.pdf

FAO. 2017d. *El Estado de la Agricultura y la Alimentación 2017. Aprovechar los sistemas alimentarios para lograr una transformación rural inclusiva*. Rome: FAO. Retrieved from http://www.fao.org/3/a-I7658s.pdf

FAO. 2017e. *El futuro de la alimentación y la agricultura. Tendencias y desafíos*. Rome: FAO. Retrieved from http:// www.fao.org/3/a-i6583e.pdf

FAO. 2017f. *Marco de protección social de la FAO. Promoviendo el desarrollo rural para todos*. Rome: FAO. Retrieved from http://www.fao.org/3/a-i7016s.pdf

FAO. 2017g. *Public purchases of food from family farming, and food and nutrition security in Latin America and the Caribbean. Lessons learned and experiences.* Santiago de Chile: FAO. Retrieved from http://www.fao. org/3/a-i4902e.pdf

FAO. 2017h. *Regional Network of Public Food Supply and Commercialization Systems*. Retrieved from FAO. http://www. fao.org/3/a-i6665s.pdf

FAO. 2017i. *Strengthening sector policies for better food safety and nutrition results: Social protection Policy Guidance Note 4*. FAO. Retrieved from http://www.fao. org/3/a-i7216e.pdf

FAO. 2018a. *The impact of disasters and crises on agriculture and food security 2017*. Rome: FAO. Obtained from http: // www. fao.org/3/I8656EN/i8656en.pdf

FAO. 2018b. *Trade and Nutrition Technical Note. Trade and Food Security, 21, 1-8*. Retrieved from http://www. fao. org/3/I8545EN/i8545en.pdf

FAO. 2018. Gender and Right to Land Database. In: *FAO* [online]. http://www.fao.org/gender- landrights-database/es/

FAO. 2018. *Rome Declaration on World Food Security and Plan of Action of the World Food Summit* [online]. http:// www.fao.org/docrep/003/w3613s/w3613s00.htm

FAO. 2018. FAOSTAT. In: *FAO* [online]. http:// www.fao.org/ faostat/en/#home

FAO. 2018. *Policy notes on rural women* [online]. http://www. fao.org/americas/ publicaciones-audio-video/politicas-mujeres-rurales/es/

FAO. 2018. *Misión Alimentación* [online]. https:// plataformacelac.org/programa/348

FAO. 2018. *Regional Network of Public Food Supply and Commercialization Systems*. Retrieved from FAO: http://www. fao.org/family-farming/ detail/es/c/889372/

FAO. n.d.. *Agricultura urbana y periurbana en América Latina y el Caribe: Una realidad*. Santiago de Chile: FAO. Retrieved from http://www.fao.org/fileadmin/ templates/FCIT/PDF/ Brochure_FAO_3.pdfPDF/Brochure_FAO_3.pdf

FAO & IDB. 2007. *Políticas para la agricultura familiar en América Latina y el Caribe. Resumen ejecutivo*. Santiago de Chile: FAO. Retrieved from http://www.fao.org/3/a-a1244s.pdf

FAO & CELAC. 2018. *Estudio para identificar Experiencias Nacionales Relacionadas con el Fortalecimiento de la Educación Alimentaria y Nutricional en el Marco de Programas de Nutrición y Alimentación Escolar*. FAO. Retrieved from http:// www.fao.org/3/I8902ES/i8902es.pdf

FAO & WHO. 2004. *Vitamin and Mineral Requirements in Human Nutrition, second edition*. WHO. Obtained from http://apps.who.int/iris/bitstream handle/10665/42716/9241546123.pdf?sequence=1

FAO & WHO. 2015. *Segunda Conferencia Internacional sobre Nutrición. Informe de la Secretaría Mixta FAO/ OMS de la Conferencia*. Rome: FAO. Obtained from http://www. fao.org/3/a-i4436s.pdf

FAO & PAHO. 2017a. *Panorama of Food security and nutrition in Latin America and the Caribbean 2016*. Santiago de Chile: FAO. Retrieved from http://www.fao.org/3/a-i6747s.pdf

FAO & PAHO. 2017b. *Panorama of Food security and nutrition in Latin America and the Caribbean 2017*. Santiago de Chile: FAO and PAHO. Obtained from http://www.fao. org/3/a-i7914s.pdf

FAO & WHO. 2018. *Políticas y programas alimentarios para prevenir el sobrepeso y la obesidad. Lecciones aprendidas*. FAO and PAHO. Retrieved from http://www.fao. org/3/ i8156es/I8156ES.pdf

FAO & WFP. 2017. *Estado Nutricional y Seguridad Alimentaria de Beneficiarios y no Beneficiarios de Progresando con Solidaridad*. Santo Domingo.

FAO, IFAD, UNICEF, WFP & WHO. 2018. *El estado de la seguridad alimentaria y la nutrición en el mundo. Fomentando la resiliencia climática en aras de la seguridad alimentaria y la nutrición*. FAO, Rome. Retrieved from http://www.fao. org/3/ I9553ES/i9553es.pdf

Fernald, L., Gertler, P., and Hou, X. 2008. *Cash Component of Conditional Cash Transfer Program Is Associated with Higher Body Mass Index and Blood Pressure in Adults*. The Journal of Nutrition, 138 (11), 2250–2257. Retrieved from https://www.ncbi.nlm.nih. gov/ pmc/articles/PMC3151439/pdf/nut1382250.pdf

Follonier, M., Bonelli, E., Walz, F., Fortino, M., & Martinelli, M. 2013. *Consumo de alimentos en los kioscos de escuelas primarias públicas de la ciudad de Santa Fe*. FABICIB, 17, 103-122. Retrieved from https:// docplayer.es/17376464-Consumo-de-alimentos-en-los- kioscos-de-escuelas-primarias-publicas-de-la-ciudad-de- santa-fe.html

Forde, I., Chandola, T., Garcia, S., Marmot, M., & Attanasio, O. 2012. *The impact of cash transfers to poor women in Colombia on BMI and obesity: prospective cohort study.* International Journal of Obesity, 36, 1209–1214. Retrieved from https://www.nature.com/ articles/ijo2011234.epdf

Franch, C., Hernández, P., Weisstaub, G., & Ivanovic, C. 2012. *Diseño de una propuesta metodológica para identificar barreras y potencialidades culturales, enfocadas al control y prevención de la epidemia de sobrepeso/obesidad en población femenina de bajos recursos en Chile. Proyecto FONIS SA10I20003.* Santiago de Chile: Centro Interdisciplinario de Estudios de Género. Universidad de Chile.

GBD 2015 Risk Factors Collaborators. 2016. *Global, regional and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015.* The Lancet, 388(10053), 1659–1724.Retrieved from https://www.thelancet.com/action showPdf?pii=S0140-6736%2816%2931679-8

GLOPAN. 2016. *Food systems and diets: Facing the challenges of the 21st century.* London: GLOPAN. Retrieved from http://glopan.org/sites/default/files/ ForesightReport.pdf

Gonzalez, M. 2013. *La inocuidad en el Plan Nacional de Seguridad Alimentaria y Nutricional: análisis orientado a la valoración del concepto.* Diaeta, 31(145). Retrieved from http://www.scielo.org.ar/pdf/diaeta/ v31n145/v31n145a03.pdf

Guardiola, J., Rivas, J., & Red Mel- CYTED. 2010. *Comercio internacional y crecimiento económico: ¿cómo influyen en el hambre de América Latina?* Nutrición Hospitalaria, 25(3), 44-49. Retrieved from http://scielo. isciii.es/pdf/nh/ v25s3/07_articulo_07.pdf

Heraclides, A., Witte, D., & Brunner, E. J. 2008. *The Association between Father's Social Class and Adult Obesity is Not Explained by Educational Attainment and an Unhealthy Lifestyle in Adulthood.* European Journal of Epidemiology, 23(8), 573–579. Retrieved from https://www.jstor.org/ stable/40283970?seq=1#page_scan_ tab_contents

HLPE. 2012. *Protección social en favor de la seguridad alimentaria. Informe del Grupo de alto nivel de expertos en seguridad alimentaria y nutrición del Comité de Seguridad Alimentaria Mundial.* Rome: HLPE Retrieved from http://www.fao.org/3/a-me422s.pdf

HLPE. 2013. *Los biocombustibles y la seguridad alimentaria. Un informe del Grupo de alto nivel de expertos en seguridad alimentaria y nutrición del Comité de Seguridad Alimentaria Mundial.* Rome: HLPE. Retrieved from http://www.fao.org/3/a-i2952s.pdf

HLPE. 2014. *Las pérdidas y el desperdicio de alimentos en el contexto de sistemas alimentarios sostenibles. Un informe del Grupo de alto nivel de expertos en seguridad alimentaria y nutrición del Comité de Seguridad Alimentaria Mundial.* Rome: HLPE. Retrieved from http://www.fao.org/3/a-i3901s.pdf

HLPE. 2015. *Water for food and security and nutrition. A report by The High Level Panel of Experts on Food Security and Nutrition.* Rome: Retrieved from http://www. fao.org/3/a-av045e.pdf

HLPE. 2017. *Nutrition and food systems. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security.* Rome: HLPE. Retrieved from http://www.fao. org/3/a-i7846e.pdf

Holzmann, R., & Jorgensen, S. 2000. *Social Risk Management: A New Conceptual Framework for Social Protection and Beyond. Social Protection Discussion Paper, 06, 1-30.* Retrieved from http://documents.worldbank.org/ curated/en/932501468762357711/pdf/ multi-page.pdf

Hossain, N. 2017. *Inequality, hunger, and malnutrition: Power matters. In 2017 Global Hunger Index: The inequalities of hunger. Chapter 3, pp. 24-29.* Washington, DC; Bonn; and Dublin: International Food Policy Research Institute, Welthungerhilfe, and Concern Worldwide. Retrieved from http:// ebrar y.ifpri.org/cdm/ref/ collection/p15738coll2/id/131418

HRW. 2017. *World Report 2018.* New York: URW. Retrieved from https://www.hrw.org/sites/default/files/ world_report_ download/201801world_report_web.pdf

IFPRI. 2018. *2018 Global Food Policy Report.* Washington,D.C. Retrieved from http://ebrary.ifpri.org/utils/ getfile/collection/ p15738coll2/id/132273/ filename/132488.pdf

INDECA. 2018. *National Institute of Agricultural Commercialization* [online]. http://indeca.gob.gt

Institute of Medicine (US). 2011. *Dietary Reference Intakes for Calcium and Vitamin D.* Washington, D.C. Retrieved from https://www.ncbi.nlm.nih.gov/books/ NBK56070/pdf/ Bookshelf_ NBK56070.pdf

ITAM, COLMEX, UANL & INSP. 2018. *Caloric taxes* [online]. http://impuestoscaloricos.com/

Jarpa, C., Cerda, J., Terrazas, C., & Cano, C. (2015). *Lactancia materna como factor protector de sobrepeso y obesidad en preescolares.* Revista Chilena de Pediatría, 86(1), 32-37. Retrieved from https://scielo.conicyt.cl/scielo.php?script=sci_arttext&pid=S0370-41062015000100006&lng=es

JUNAEB. 2018. *What are the purchase restrictions with the BAES?* [online]. Santiago. http://www.becajunaebsodexo.cl/vida-universitaria/cuales-son- las-restricciones-de-compra-con-la-baes/

Kang J., Jeong B., Cho Y., Song H. & Kim K. 2011. *Socioeconomic Costs of Overweight and Obesity in Korean Adults.* Journal of Korean Medical Science, 26(12), 1533–1540. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3230011/pdf/jkms-26-1533.pdf

Kanter, R., & Caballero, B. 2012. *Global Gender Disparities in Obesity: A Review. American Society for Nutrition, 3(4), 491-498.* Retrieved from https://www. researchgate.net/publication/229153184_Global_ Gender_Disparities_in_Obesity_ A_Review

Kim, T., & Knesebeck, O. 2018. *Income and obesity: what is the direction of the relationship? A systematic review and meta-analysis.* BMJ Open, 8, e019862. Retrieved from https://bmjopen.bmj.com/content/ bmjopen/8/1/e019862.full.pdf

Letona, P. 2015. *Estudio exploratorio sobre la promoción y publicidad de alimentos y bebidas no saludables dirigida a niños en América Latina y el Caribe. Informe completo.* Panama City: UNICEF. Retrieved from https://www.unicef.org/lac/informes/ estudio-sobre-la-promoci%C3%B3n-y-publicidad-de- alimentos-y-bebidas-no-saludables-dirigida

Horwood, L.; Darlow, B.; & Mogridge, N. 2001. *Breast milk feeding and cognitive ability at 7-8 years.* BMJ journals, 84 (1). Retrieved from https://fn.bmj.com/ content/84/1/F23

Mallarino, C.; Gómez, L.; González-Zapata, L.; Cadena, Y.; & Parra, D. 2013. *Advertising of ultra-processed foods and beverages: children as a vulnerable population.* Saúde Pública, 47(5), 1006-1010. Retrieved from http://www.scielo.br/pdf/rsp/v47n5/0034-8910- rsp-47- 05-1006.pdf

Manippa, V., Padulo, C., Nynke Van Der Laan, L., & Brancucci, A. 2017. *Gender Differences in Food Choice: Effects of Superior Temporal Sulcus Stimulation.* Front Hum Neurosci, 11 Retrieved from https://www.ncbi. nlm.nih.gov/pmc/articles/PMC5725471/pdf/fnhum-11- 00597.pdf

MINSAL. 2013. *Estudio para la revisión y actualización de las Guías Alimentarias para la población chilena.* Santiago de Chile: MINSAL. Retrieved from http://www. minsal.cl/portal/url/item/ dde0bc471a56a001e040010165012224.pdf

MINSAL. 2017. *Informe de evaluación de la implementación de la Ley sobre composición nutricional de los alimentos y su publicidad.* Santiago de Chile: MINSAL. Retrieved from http://www.minsal.cl/wp-content/ uploads/2017/05/Informe-Implementaci%C3%B3n-Ley- 20606-junio-2017-PDF.pdf

MINSAL. 2018. *Food Law - New food labeling* [online]. Santiago. http://www.minsal. cl/ley-de-alimentos-nuevo-etiquetado-de-alimentos/

Monteiro, C., Moura, E., Conde, W., & Popkin, B. 2004. *Socioeconomic status and obesity in adult populations of developing countries: a review.* Bulletin of World Health Organization, 82(12), 940-946. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/ PMC2623095/pdf/15654409.pdf

Monteiro, C., Moubarac, J., Cannon, G., Ng, S., & Popkin, B. 2013. *Ultra-processed products are becoming dominant in the global food system.* Obesity reviews, 14(2), 21-28. Retrieved from https://onlinelibrar y. wiley.com/doi/epdf/10.1111/obr.12107

Mytton, O., Clarke, D., & Rayner, M. 2012. *Taxing unhealthy food and drinks to improve health.* BMJ, 344, e2931. Retrieved from https://www.researchgate.net/publication/224966727_Taxing_unhealthy_food_and_drinks_to_improve_health

Nakamura, R., Mirelman, A. J., Cuadrado, C., Silva- Illanes, N., Dunstan, J., & Suhrcke, M. 2018. *Evaluating the 2014 sugar-sweetened beverage tax in Chile: An observational study in urban areas.* PLOS Medicine, 15(7), 1-22. Retrieved from http://journals.plos.org/plosmedicine/article/file?id=10.1371/journal. pmed.1002596&type=printable

Navarrete, M., Alejandra, J., Villamil, G., Shanen, S., Correa, J. B., Meneses-Echávez, J. F., et al. 2015. *Efectividad de las intervenciones educativas realizadas en América Latina para la prevención del sobrepeso y obesidad infantil en niños escolares de 6 a 17 años: una revisión sistemática.* Nutrición Hospitalaria, 31(1), 102-114. Retrieved from http://scielo.isciii.es/ pdf/nh/v31n1/10revision10.pdf

NCD-RisC. 2016. *Trends in adult body-mass index in 200 countries from 1975 to 2014: a pooled analysis of 1698 population-based measurement studies with 19·2 million participants*. The Lancet, 387(10026), 1377-1396. Retrieved from https://www.thelancet.com/action/ showPdf?pii=S0140-6736%2816%2930054-X

Nilson, E., Spaniol, A., Gonçalves, V., Moura, I., Silva, S., L'Abbé, M., & Jaime, P. 2017. *Sodium Reduction in Processed Foods in Brazil: Analysis of Food Categories and Voluntary Targets from 2011 to 2017*. Nutrients, 9(7), E742. Retrieved from https://www.mdpi.com/2072-6643/9/7/742

OCHA. 2017. *Resumen Anual 2017*. OCHA. Retrieved from https://relief web.int/sites/reliefweb.int/files/ resources/201804027-%20PA-%20RESUMEN%20 OCHA%202017%20-%20ESP-ilovepdf-compressed.pdf

OCHA. 2018a. *América Latina y el Caribe, Panorama Humanitario Mensual. March 2018*. OCHA. Retrieved from https://relief web.int/sites/reliefweb.int/files/ resources/20180405%20monthly%20humanitarian%20 snapsho%20t-%20SPA.pdf

OCHA. 2018b. *América Latina y el Caribe, Panorama Humanitario Mensual. April 2018*. OCHA. Retrieved from https://relief web.int/sites/reliefweb.int/files/ resources/20180504%20monthly%20humanitarian%20 snapshot%20SPA.pdf

OCHA. 2018c. *América Latina y el Caribe, Panorama Humanitario: January – February 2018*. OCHA Retrieved from https://relief web.int/sites/reliefweb.int/files/ resources/201803006%20monthly%20humanitarian%20 snapshot%20SPA.pdf

OCHA. 2018d. *Latin America and the Caribbean Monthly Humanitarian Panorama to July 2, 2018*. OCHA Retrieved from https://relief web.int/sites/reliefweb.int/ files/ resources/20180711%20monthly%20humanitarian%20 snapshot%20SPA.pdf

ODI. 2016. *Cash transfers: what does the evidence say? A rigorous review of program impact and of the role of design and implementation features*. London: ODI. Retrieved from https://www.odi.org/sites/odi.org.uk/files/ resource-documents/10749.pdf

OECD & FAO. 2015. *Agricultural Outlook 2015-2024*. Paris: OECD. Retrieved from http://www.fao.org/3/a-i4738e.pdf

IOM. 2018a. *Strengthening the regional response to large-scale migration of Venezuelan nationals in South America, North America, Central America and the Caribbean*. IOM. Retrieved from https://relief web.int/ sites/reliefweb.int/ files/resources/RAP%20-%20 External%20SitRep%20No.%20 4%20VENSIT.PDF

IOM. 2018b. *Tendencias migratorias en Las Américas. July 2018*. Retrieved from https://robuenosaires.iom.int/ sites/ default/files/Informes/Tendencias_ Migratorias_ Nacionales_en_ Americas__Venezuela_ES_ Julio_2018_ web.pdf

IOM. 2018c. *Tendencias migratorias en las Américas República Bolivariana de Venezuela. April 2018*. IOM. Retrieved from https://robuenosaires.iom.int/sites/default/ files/Informes/Tendencias_ Migratorias_ Nacionales_en_ America_del_Sur_Venezuela.pdf

LSE, OAS & WFP. 2015. *Hambre sin fronteras: Los vínculos entre inseguridad alimentaria, violencia y migración en el Triángulo Norte de Centroamérica. Un estudio exploratorio*. WFP. Retrieved from https://documents.wfp.org/stellent/ groups/public/documents/ liaison_offices/wfp277545. pdf?_ ga=2.175315234.183926611.1537812847-307212363.1525721785

ILO. 2018. *Panorama Laboral 2017 América Latina y el Caribe. Tema especial, evolución de los salarios en América Latina en el periodo 2005-2015*. Lima: ILO. Retrieved from https://www.ilo.org/wcmsp5/groups/ public/---americas/--- ro-lima/documents/genericdocument/wcms_616176.pdf

ILO. 2018. ILOSTAT. In: *ILO* [online]. https://www. ilo.org/ ilostat/faces/wcnav_ defaultSelection;ILOSTATCOOKIE=CidEn1I4Yo5Q_ c1YT6M3uA-rtIxyiEXnA-WBWH2SD42OQYunuGnI!1254440622?_ afrLoop=1810571281721792&_afrWindowMode=0&_ afrWindowId=null#!%40%40%3F_afrWindowId%3Dnull%26_ afrLoop%3D1810571281721792%26_ afrWindowMode%3D0%26_adf.ctrl-state%3D95tgtcvvo_ 4

ILO. 2018. NORMLEX Information System on International Labor Standards. In: *ILO* [online]. https://www.ilo.org/dyn/ normlex/es/f?p=NORMLEXPUB:11300:0::NO::P11300_ INSTRUMENT_ID:312314

WHO. 2003. *Dieta, Nutrición y Prevención de Enfermedades Crónicas. Serie de Informes técnicos 916*. Geneva: WHO. Retrieved from http://www.who.int/ nutrition/publications/obesity/WHO_TRS_916_spa.pdf

WHO. 2009. *Global prevalence of vitamin A deficiency in populations at risk. World Health Organization Global Database on Vitamin A Deficiency.* Geneva: WHO. Retrieved from http://apps.who.int/iris/bitstream/handle/10665/44110/9789241598019_eng.pdf?sequence=1

WHO. 2017a. *Monitoring Health in the Sustainable Development Goals: 2017 update.* New Delhi: WHO. Retrieved from http://apps.who.int/iris/bitstream/handle/10665/258751/9789290226048-eng.pdf?sequence=1&isAllowed=y

WHO. 2017b. *The double burden of malnutrition. Policy Brief.* Geneva: WHO. Retrieved from http://apps.who.int/ iris/bitstream/handle/10665/255413/WHO-NMH- NHD-17.3-eng.pdf?ua=1

WHO. 2018. Global Health Observatory data repository. In: *WHO* [online]. http://apps.who.int/gho/ data/node.home

WHO. 2018. Health statistics and information systems. In: *WHO* [online]. http://www.who.int/healthinfo/en/

WHO. 2018. Food safety. In: *WHO* [online]. http://www.who.int/es/news-room/fact-sheets/detail/food-safety

WHO. 2018. Health issues. *Food safety.* In: *WHO* [online]. http://www.who.int/ topics/food_safety/es/

WHO. 2018. Mortalidad materna. In: *WHO* [online]. http://www.who.int/es/news-room/fact-sheets/detail/ maternal-mortality

WHO. 2018. Las 10 principales causas de defunción. In: *WHO* [online]. http://www.who.int/es/news-room/ fact-sheets/detail/the-top-10-causes-of-death

WHO. 2018. Reducción de la mortalidad en la niñez. In: WHO [online]. http://www.who.int/es/news-room/ fact-sheets/detail/children-reducing-mortality

WHO & FAO. 2003. *Dieta, Nutrición y Prevención de Enfermedades Crónicas. Serie de Informes Técnicos 916.* Geneva: WHO. Retrieved from http://www.fao.org/wairdocs/who/ac911s/ac911s00.htm

WHO & FAO. 2006. *Guidelines on food fortification with micronutrients.* WHO. Retrieved from http://www.who.int/nutrition/publications/micronutrients/9241594012/en/

WHO & UNICEF. 2018. *Joint Monitoring Programme for water supply and sanitation.* In: WHO & UNICEF [online]. https://washdata.org/

UN. 2014a. *Agua y Salud. Zaragoza: Programa de ONU-Agua para la Promoción y la Comunicación en el marco del Decenio (UNW-DPAC).* Retrieved from http://www.un.org/spanish/waterforlifedecade/pdf/04_2014_ water_and_health_info_brief_spa.pdf

UN. 2014b. *Informe del Relator Especial sobre el derecho de toda persona al disfrute del más alto nivel posible de salud física y mental. General Assembly of the United Nations.*

UN. 2016. *Progresos en los Objetivos de Desarrollo Sostenible. Informe del Secretario General.* Retrieved from ONU: https://undocs.org/es/E/2016/75

UN. 2017. *Informe del Grupo Interinstitucional y de Expertos sobre los Indicadores de los Objetivos de Desarrollo Sostenible. Statistical Commission.* Retrieved from ONU: https://undocs.org/es/E/CN.3/2017/2

PAHO. 2011. *Recomendaciones de la Consulta de Expertos de la Organización Panamericana de la Salud sobre la promoción y publicidad de alimentos y bebidas no alcohólicas dirigida a los niños en la Región de las Américas.* Washington D.C.: PAHO. Retrieved from https://www.paho.org/hq/dmdocuments/2012/Experts-Food-Marketing-to- Children-(SPA).pdf

PAHO. 2015. *Alimentos y bebidas ultraprocesados en América Latina: tendencias, efecto sobre la obesidad e implicaciones para las políticas públicas.* Washington D.C.: PAHO. Retrieved from http://iris.paho.org/xmlui/bitstream/handle/123456789/7698/9789275318645_esp.pdf

PAHO. 2017. *Salud en las Américas+, edición del 2017. Resumen: panorama regional y perfiles de país.* Washington D.C.: PAHO. Retrieved from https://www.paho. org/salud-en-las-americas-2017/wp-content/uploads/2017/09/Print-Version-Spanish.pdf

PAHO & WHO. 2018. *Semana Mundial de la Lactancia Materna 2018. Lactancia materna: Pilar de la vida.* Retrieved from https://www.paho.org/hq/index.php?option=com_docman&task=doc_view&gid=45729& Itemid=270&lang=es

PAHO & University of Washington. 2017. *Las dimensiones económicas de las enfermedades no transmisibles en América Latina y el Caribe.* Washington D.C.: PAHO. Retrieved from http:// iris.paho.org/xmlui/bitstream/handle/123456789/33994/9789275319055-spa.pdf?sequence=1

Paraje, G. 2009. *Desnutrición crónica infantil y desigualdad socioeconómica en América Latina y el Caribe. Revista CEPAL 99, 43-63*. Retrieved from https:// repositorio.cepal.org/bitstream handle/11362/11328/099043063_ es.pdf?sequence=1&isAllowed=y

Perez-Escamilla, R., Bermudez, O., Santos Buccini, G., Kumanyika, S., Lutter, C. K., Monsivais, P., & Victora, C. 2018. *Nutrition disparities and the global burden of malnutrition*. BMJ, 361:k2252. Retrieved from https://www.bmj.com/content/361/bmj.k2252.full.pdf

Pezza Cintrão, R. 2018. *Mujeres campesinas en programas de compras públicas en América Latina y el Caribe*. Santiago de Chile: FAO.

Pickett, K., Kelly, S., Brunner, E., Lobstein, T., & Wilkinson, R. 2005. *Wider income gaps, wider waistbands? An ecological study of obesity and income inequality. Journal of Epidemiology and Community Health, 59(8), 670–674*. Retrieved from https://www.ncbi.nlm.nih.gov/ pmc/articles/PMC1733121/pdf/v059p00670.pdf

Popkin, B. 2006. *Global nutrition dynamics: the world is shifting rapidly towards a diet linked with non-communicable diseases*. The American Journal of Clinical Nutrition, 84(22), 289-298. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/16895874

Popkin, B., Adair, L., & Ng, S. 2012. *Global nutrition transition and the pandemic of obesity in developing countries*. Nutrition Reviews, 70(1), 3-21. Retrieved from https://www.ncbi.nlm.nih. gov/pmc/articles/PMC3257829/pdf/nihms336201.pdf

Popkin, B., & Reardon, T. 2018. *Obesity and the food system transformation in Latin America*. Obesity Reviews, 19(8), 1028–1064. Retrieved from https://onlinelibrar y.wiley.com/doi/epdf/10.1111/obr.12694

Power, M., & Schulkin, J. (2008). *Sex differences in fat storage, fat metabolism, and the health risks from obesity: possible evolutionary origins. British Journal of Nutrition, 931-940*. Retrieved from https://www.cambridge.org/core/services/aop-cambridge-core/content/view/00950AD6710FB3D0414B13EAA67D4327/S0007114507853347a.pdf/sex_differences_in_fat_ storage_fat_metabolism_and_the_health_risks_from_ obesity_possible_evolutionary_origins.pdf

Prentice, A. 2000. *Calcium in Pregnancy and Lactation. Annual Review of Nutrition, 20, 249-272*. Retrieved from https://www.annualreviews.org/doi/pdf/10.1146/annurev.nutr.20.1.249

Rajakumar, K., Greenspan, S., Thomas, S., & Holick, M. 2007. *SOLAR Ultraviolet Radiation and Vitamin D. A Historical Perspective*. American Journal of Public Health, 97(10), 1746–1754. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1994178/pdf/0971746.pdf

Ramakrishnan, U., Aburto, N., McCabe, G., & Martorell, R. 2004. *Multimicronutrient Interventions but Not Vitamin A or Iron Interventions Alone Improve Child Growth: Results of 3 Meta-Analyses*. The Journal of Nutrition, 134(10), 2592–2602. Retrieved from https://academic. oup.com/jn/article/134/10/2592/4688357

Ramos Truchero, G. 2015. *Revisión teórica y limitaciones del concepto de desiertos alimentarios. Revista de Humanidades, 25, 85-102*. Retrieved from http://www.revistadehumanidades.com/articulos/90-revision-teorica-y-limitaciones-del-concepto-de-desiertos- alimentarios

RED ICEAN. 2018. *What is Food and Nutrition Education?* In: RED ICEAN [online]. http://www. fao.org/red-icean/acerca-de-la-red-icean/que-es-la- educacion-alimentaria-y-nutricional/es/

RMISP. 2017. *Pobreza y desigualdad, informe latinoamericano. No dejar a ningún territorio atrás. Synthesis*. Santiago de Chile: RIMISP. Retrieved from https://www.rimisp.org/wp-content/files_mf/1519834500SintesisCASTRimisp2017REFERENCIAPxP.pdf

Rohlfs, I. 2003. *Género y salud: diferencias y desigualdades. Quark, 27*. Retrieved from https://www.raco.cat/index.php/Quark/article/view/54973/65434

Roodhooft, J. 2002. *Causes of blindness worldwide. Bulletin de la Société belge d'ophtalmologie, 283(283), 19-25*. Retrieved from https://www.researchgate.net/publication/11314746_Causes_of_blindness_worldwide

Secretaria Especial de Agricultura Familiar e do Desenvolvimiento Agrário. 2018. *Documentação das Trabalhadoras Rurais* [online]. http://www.mda.gov.br/sitemda/secretaria/dpmr-doc/ sobre-o-programa

SERCOTEC. 2016. *Catastro Nacional de Ferias Libres*. Santiago de Chile. Retrieved from https://documentos.sercotec.cl/documentos/Catastro_ Nacional_Ferias_ Libres.pdf

Siegel, K., Ali, M., Srinivasiah, A., Nugent, R., & Venkat Narayan, K. 2014. *Do we produce enough fruits and vegetables to meet global health needs?* PLoS ONE, 9(8), e104059. Retrieved from https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0104059&type=printable

Solomons, N. 2012. *Vitamin A. En J. W. Erdman Jr., I. A. Macdonald, and S. H. Zeisel, Present Knowledge in Nutrition, 10th Edition (pp. 149-184).* Retrieved from https://onlinelibrary.wiley.com/doi/book/10.1002/9781119946045

Stahl, W. & Sies, H. 2003. *Antioxidant activity of carotenoids. Molecular Aspects of Medicine, 24(6), 345-351* Retrieved from https://www.sciencedirect.com/ science/article/pii/S009829970300030X?via%3Dihub

Tirado, M., Galicia, L., Husby, H., Lopez, J., Olamendi, S., Chaparro, M., et al. 2016. *Mapping of nutrition and sectoral policies addressing malnutrition in Latin America.* Pan American Journal of Public Health, 40(2), 114-123. Retrieved from https://scielosp.org/scielo.php?script=sci_arttext&pid=S1020-49892016000800114&lng=en&nrm=iso&tlng=en

UAE. 2015. *Impacto Económico del Sobrepeso y la Obesidad en México 1999-2023. Nota técnica 001-2015.* Secretaría de Salud. Retrieved from http://oment.uanl.mx/wp-content/uploads/2016/09/ impacto_financiero_OyS_060815_oment.pdf

UNICEF. 2011. *La desnutrición infantil. Causas, consecuencias y estrategias para su prevención y tratamiento.* Madrid: UNICEF. Retrieved from https://www.unicef.es/sites/unicef.es/ files/comunicacion/Informe_La_desnutricion_infantil.pdf

UNICEF. 2013. *Mejorar la Nutrición infantil. El imperativo para el progreso mundial que es posible lograr.* New York: UNICEF. Retrieved from https://www.unicef.org/Spanish_ UNICEF-NutritionReport_low_res_10May2013.pdf

UNICEF. 2018. *Breastfeeding: A Mother's Gift, for Every Child.* New York: UNICEF. Retrieved from https://www. unicef.org/publications/files/UNICEF_Breastfeeding_ A_ Mothers_Gift_for_Every_Child.pdf

UNICEF. 2018. *Micronutrients* [online]. https://www.unicef.org/nutrition/index_iodine.html

UNISDR. 2015. *Marco de Sendai para la Reducción del Riesgo de Desastres 2015-2030.* Geneva: UNISDR.Retrieved from https://www.unisdr.org/files/43291_spanishsendaiframeworkfordisasterri.pdf

UNISDR. 2016. *Nota Conceptual – Primera Reunión Ministerial y de Autoridades de Alto Nivel sobre la Implementación del Marco de Sendai para la Reducción del Riesgo de Desastres 2015-2030 en las Américas.* Asunción: UNISDR. Retrieved from http://eird.org/ran- sendai-2016/docs/NotaConceptualReunionMinisterialPar aguay-rev.pdf

UNSCN. 2014. *Nutrición y Objetivos de Desarrollo Sostenible posteriores a 2015. Una nota técnica.* UNSCN. Retrieved from https://www.unscn.org/files/Publications/ESL_Final_Web-Oct- 2014-Nutrition-and-the-SDGs.pdf

UNSCN. 2017. *Antes de 2030, acabar con todas las formas de malnutrición y no dejar a nadie atrás.* Rome: UNSCN. Retrieved from https://www.unscn.org/uploads/ web/news/document/NutritionPaper-SP-WEB.pdf

USDA. 2018. *USDA Food Composition Databases* [online]. https://ndb.nal.usda.gov/ndb/

Scapini, V. & Vergara, C. 2017. *El impacto de la nueva ley de etiquetados de alimentos en la venta de productos en Chile.* Perfiles Económicos, 3, 7-33. Retrieved from http://perfileseconomicos.faceauv.cl/wp-content/uploads/2017/08/arti%CC%81culo-1.pdf

Van de Poel, E., Hosseinpoor, A., Speybroeck, N., Van Ourtia, T., & Vegab, J. 2008. *Socioeconomic inequality in malnutrition in developing countries.* Bulletin of the World Health Organization, 86 (4), 282-291. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/ PMC2647414/pdf/07- 044800.pdf

Vice Presidency of the Dominican Republic. 2018. *History* [online]. https://progresandoconsolidaridad.gob.do/nosotros/historia-prosoli/

Victora, C., de Onis, M., Hallal, P., Blössner, M., & Shrimpton, R. 2010. *Worldwide Timing of Growth Faltering: Revisiting Implications for Interventions.* Pediatrics, 125(3), e473-80. Retrieved from http://pediatrics.aappublications.org/ content/125/3/e473.long

WCRF. 2018. NOURISHING database. In: *WCRF* [online]. https://www.wcrf.org/int/policy/nourishing-database

Weaver, C., Gordon, C., Janz, K., Kalkwarf, H., Lappe, J., Lewis, R., et al. 2016. *The National Osteoporosis Foundation's position statementon peak bone mass development and lifestyle factors: a systematic review and implementation recommendations.* Osteoporosis International, 1281-1386. Retrieved from https://www. researchgate.net/profile/Kathleen_ Janz/publication/293646555_The_National_Osteoporosis_ Foundation%27s_position_statement_on_peak_bone_mass_development_and_lifestyle_factors_ A_systematic_ review_and_implementation_recommendations/links/56f2992c0

Weaver, C., Martin, B., Plawecki, K., Peacock, M., Wood, O., Smith, D., & Wastney, M. 1995. *Differences in calcium metabolism between adolescent and adult females*. The American Journal of Clinical Nutrition, 61(3), 577-581. Retrieved from https://academic.oup.com/ajcn/article-abstract/6 1/3/577/4651951?redirectedFrom=fulltext

Wells, J., Marphathia, A., Cole, T., & McCoy, D. 2012. *Associations of economics and gender inequality with global obesity prevalence: Understanding the female excess*. Social Science & Medicine 75, 75(3), 482-490. Retrieved from https:// www.sciencedirect.com/science/article/pii/ S0277953612002961?via%3Dihub

WFP. 2016a. *Fill the Nutrient Gap El Salvador: Full Report*. WFP. Retrieved from https://docs.wfp.org/api/documents/ a453920f7cf7429fb31e95749ee2ef63/download/?iframe

WFP. 2016b. *Fortaleciendo las Redes de Protección Social. Apoyando los Programas Nacionales de Alimentación Escolar en América Latina y el Caribe*. WFP. Retrieved from https:// www.wfp.org/sites/default/files/Strenghtening%20 National%20 Safety%20Nets_School%20Feeding_WFP%20 Evolving%20 Role%20in%20LAC_Eng%20compressed.pdf

WFP. 2017. *Nutrir el Futuro. Programas de Alimentación Escolar Sensibles a la Nutrición en América Latina y el Caribe. Un Estudio de 16 Países*. World Food Program. Retrieved from https://docs.wfp.org/api/documents/WFP-0000071367/download/?_ ga=2.92193818.1462672604. 1527517334- 307212363.1525721785

WFP. 2018. *Bridging the Gap: Engaging Adolescents for Nutrition, Health and Sustainable Development*. WFP. Retrieved from https://docs.wfp.org/api/documents/WFP-0000071272/ download/?_ga=2.167843105.183926611. 1537812847- 307212363.1525721785

WFP & OPM. 2016. *Protección social reactiva frente a emergencias en América Latina y el Caribe. Marco teórico y revisión de la literatura*. OPM. Retrieved from https:// documents. wfp.org/stellent/groups/public/documents/ liaison_offices/ wfp292089.pdf?_ ga=2.44904740.123271 0071.1531402336- 307212363.1525721785

Wiggins, S. & Keats, S. 2015. *The rising cost of a healthy diet. Changing relative prices of foods in high-income and emerging economies*. London: ODI. Retrieved from https:// www.odi.org/sites/odi.org.uk/files/ odi-assets/publications-opinion-files/9580.pdf

Zhong, M., Kawaguchi, R., Kassai, M., & Sun, H. 2012. *Retina, Retinol, Retinal and the Natural History of Vitamin A as a Light Sensor*. Nutrients, 4, 2069-2096. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/ PMC3546623/ pdf/nutrients- 04- 02069.pdf

Zukiewicz-Sobczak, W., Wróblewska, P., Zwolinski, J., Chmielewska-Badora, J., Adamczuk, P., Krasowska, E., et al. 2014. *Obesity and poverty paradox in developed countries*. Annals of Agricultural and Environmental Medicine, 21 (3), 590-594. Retrieved from http://www.aaem.pl/ Obesity-and-poverty-paradox-in-developed-countries,72161,0,2.html

All online documents were consulted for the last time as of 28/09/2018.

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LATIN AMERICA AND THE CARIBBEAN REGIONAL OVERVIEW OF FOOD SECURITY AND NUTRITION

Latin America and the Caribbean deviates from its path toward the achievement of the Sustainable Development Goal 2: Zero Hunger. The number of undernourished people increased for the third consecutive year: in 2017 it reached 39.3 million, largely due to results in South America.

Malnutrition in the region takes many forms: one in ten children under five years of age are stunted; one in four adults is obese; one in five women of childbearing age suffer from anemia.

The problems of malnutrition in the region are the result of the profound changes that have affected its food systems, which determine the quantity, quality and diversity of food available for consumption, a transformation that has been driven by growing urbanization, changes in diets and new ways of producing and processing food.

The social and economic inequalities that characterize the region aggravate the problem of malnutrition. Vulnerable groups, such as the population living in poverty, children, women, indigenous peoples and rural inhabitants, tend to experience more severe problems of hunger and malnutrition.

Stunted affected around five million children in the region; however, the incidence of stunting is greater among indigenous children, those living in rural areas, or those who belong to lower socio-economic groups.

Inequality of malnutrition is also seen in gender: in Latin America, 8.4% of women suffer from severe food insecurity, compared to 6.9% of men, while the obesity rate among women is higher than that for men across the entire region, unlike in other parts of the world.

The solution to the problems of hunger and malnutrition in the region requires changes to its food systems. All the stakeholders in this system must work together to ensure a better nutrition for all people, now and in the future, in a manner that is both more sustainable and adapted to climate change.

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