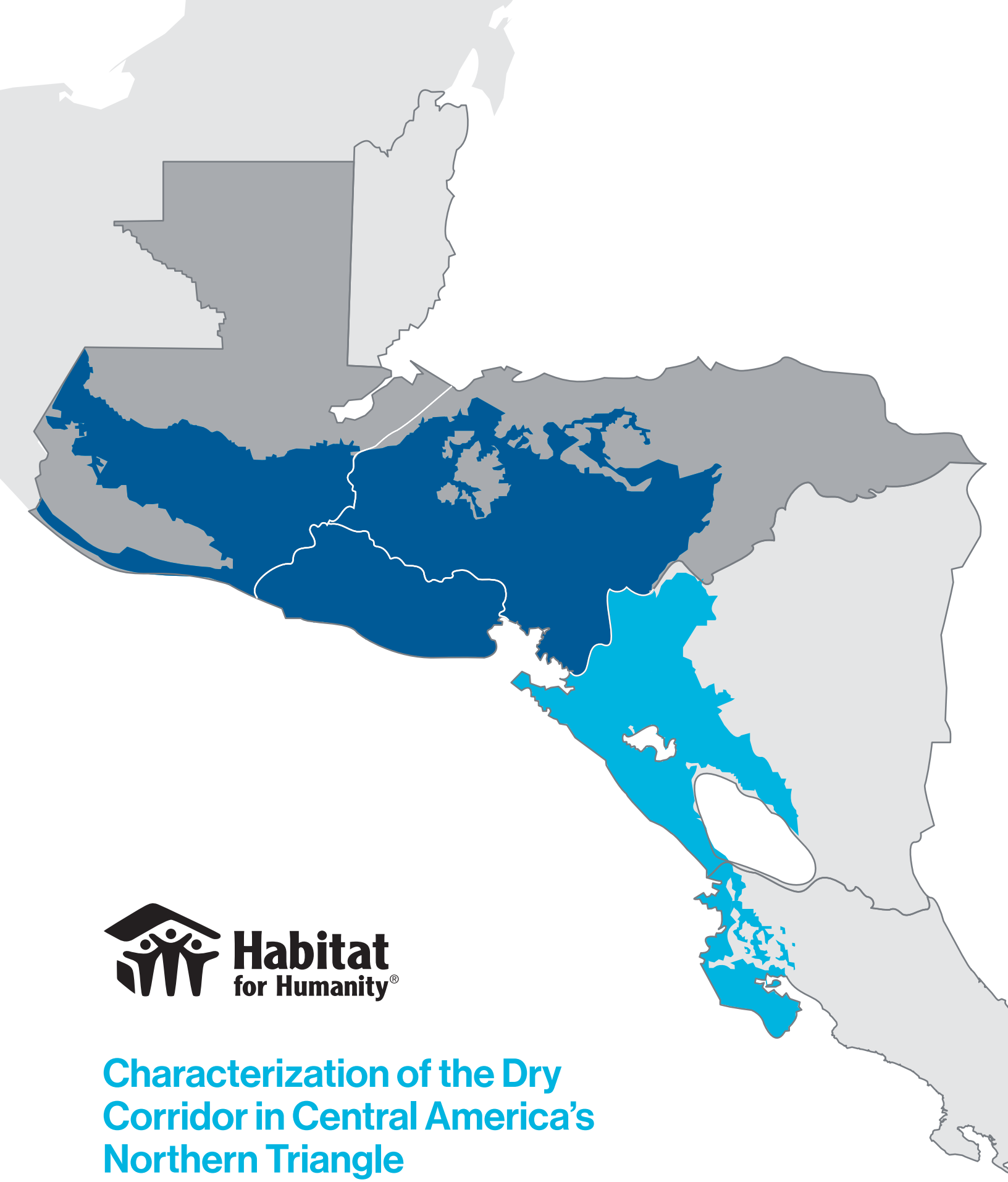


Habitat for Humanity®

Characterization of the Dry Corridor in Central America's Northern Triangle

TECHNICAL FILE

Publication:
This publication was prepared by Habitat for Humanity International, Latin America and the Caribbean, with outside contributions.
Address: San José, Costa Rica
Telephone: (506) 4102-3359
Website: habitat.org/lac-es

Work team:
Author
- Eric Solera Mata, independent consultant

Coordination and pedagogical mediation under the responsibility of Habitat for Humanity International, Latin America and the Caribbean

- Rodrigo Vargas, Senior Manager of Monitoring, Evaluation, Accountability and Learning
- Lena Mora Rodríguez, Manager, Knowledge Management
- Mariah Travis, Specialist in Learning
- Maria Teresa Morales, Director of Operations
- Lina Obando, Senior Manager, National Programs

Production
- Paola Fallas, independent consultant
- Steven Guzmán, independent consultant

Characterization of the Dry Corridor in Central America's Northern Triangle

Table of contents

Chapter 1

Chapter 2

List of tables

List of figures

List of illustrations

Chapter 1

The Central American Dry Corridor: Problems and challenges for a programmatic intervention.

Foreword

Climate change is a constant threat affecting the planet's most vulnerable people, and its impact manifests itself in many ways, depending on the geographic and social vulnerabilities of a population.

Central America is one of the regions affected most by extremes of weather duality resulting from climate change. Because of this phenomenon, thousands of families lose their crops during years of drought, and just when they think the situation is about to improve, excessive rain means yet another loss of livelihoods.

The Central America Dry Corridor is one of the few regions in the world and the only one in the continental Americas that exhibits the top levels of climate risk.[i] In 2020 alone, storms and hurricanes Eta and Iota harmed more than 6.5 million people in Central America,[ii] inflicting great damage to productive lands, livestock and fishery assets, community infrastructure, housing, and potable water sources and requiring large investments in reconstruction by families, governments and development agencies.

When crops and productive lands are lost, one severe consequence is the critical reduction in sources of food and income. According to a study by FAO, the Food and Agriculture Organization of the United Nations, 80% of households in the Dry Corridor were forced to sell their work tools to meet food needs.[iii]

To confront this situation, thousands of young Central Americans decide to migrate in search of work, which erodes the labor force as they relocate either permanently or seasonally. In 2020 alone, an estimated 4 million people migrated north from the Northern Triangle countries to the United States.[iv]

The continual loss of infrastructure from natural disasters is an everyday concern, affecting the well-being, economic outlook and quality of life of those who are most vulnerable. According to a study by the World Bank, "the overall net benefit of investing in the resilience of infrastructure in developing countries would be $4.2 trillion over the lifetime of new infrastructure. That is a $4 benefit for each dollar invested in resilience."[v]

At Habitat for Humanity International, we think the multidimensional problems of the Central American Dry Corridor can only be addressed through collaborative work with diverse actors and through community participation in designing solutions adapted to climate change. Resilient infrastructure has a great impact on people, improving their livelihoods, health and education. Taking the demographic dividend[vi] into consideration, investment in infrastructure, habitability and livelihoods provides economic development opportunities for the most vulnerable populations in the Dry Corridor.

Ernesto Castro García
Area Vice President Latin America & the Caribbean Habitat for Humanity International

---

i Eckstein, D., et al (2019). *Índice de riesgo climático global 2020. German Watch.* | **ii** OCHA (2020). *Centro América: Tormenta Tropical Eta & Huracán Iota: seis semanas después.* | **iii** FAO (2021). *Eventos climáticos adversos en el Corredor Seco Centroamericano dejan a 1.4 millones de personas en necesidad de asistencia alimentaria urgente.* | **iv** Canales, A., et al (2019). *Desarrollo y migración: desafíos y oportunidades en los países del norte de Centroamérica. Mexico City:* ECLAC. | **v** Hallegate, S., et al (2019). *Lifelines: The Resilient Infrastructure Opportunity* (Foreword), World Bank, Washington, D.C. | **vi** Population in the 15- to 39-year-old age group.

Characterization of the Central American Dry Corridor: Geographical delimitation and population

Introduction

Central America is a region endowed with important natural characteristics. Its geographical position and isthmian configuration make it **a nexus of ecological, social and economic connection between two great continental masses and two oceans**. Additionally, it has a great deal of development potential because of its biodiversity, ecosystem variability, hydrological potential and soil fertility.

At the same time, the region is **exposed to natural hazards, many weather-related**, that become significant risks against the harsh backdrop of economic and social vulnerability that has marked its people's history for decades. Several of these threats come together within an area that runs longitudinally across many of the countries in the isthmus, and which has been named the **Central American Dry Corridor, or CDC**, because of its climate and hydrological characteristics.

Photo 1

Photo 1 The Benitez sisters participate in the improvement of their housing in a Lenca indigenous community in Yamaranguila. Habitat for Humanity Honduras/Luis Madrid

The Central American Dry Corridor

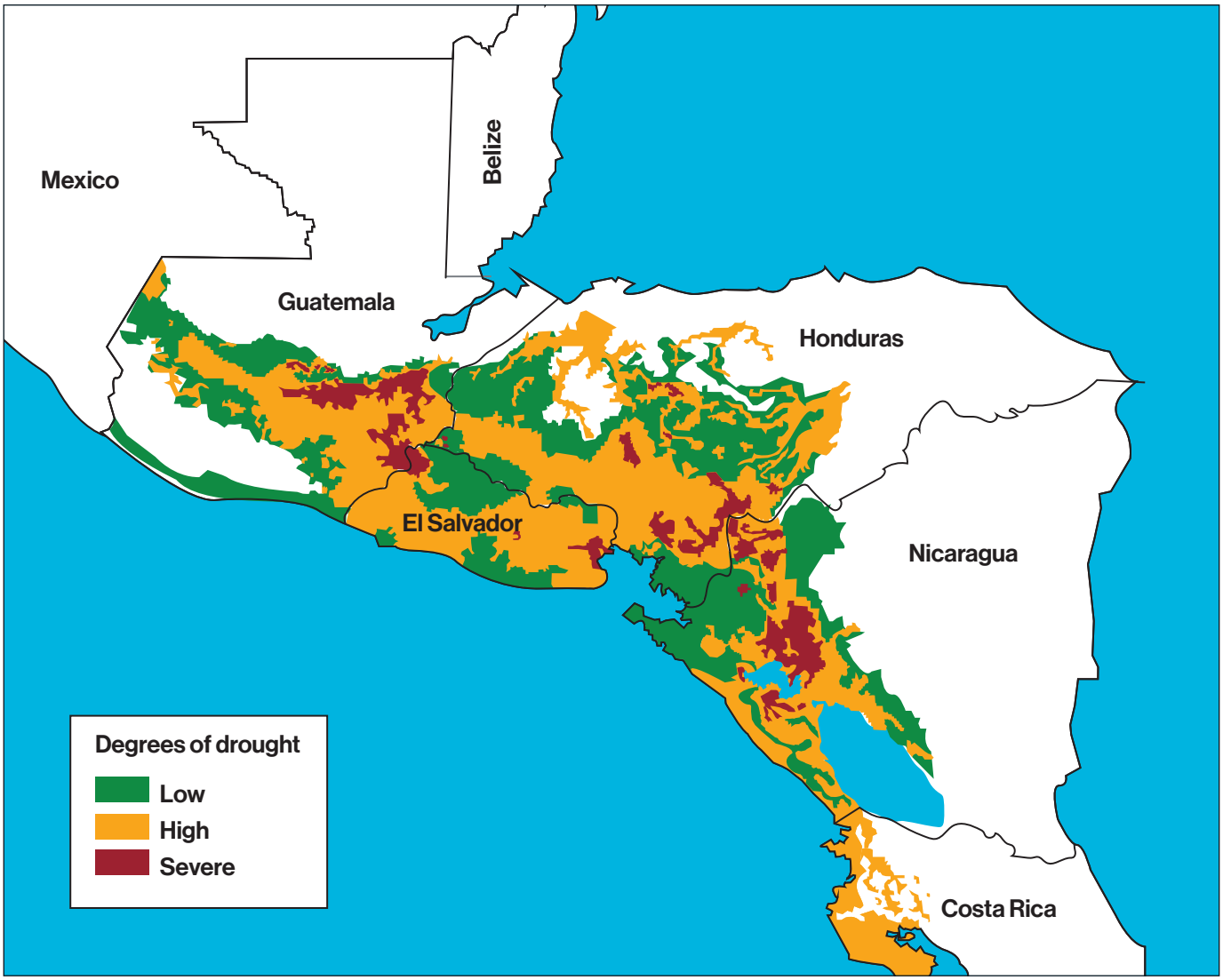
The CDC is a regional classification recognized by the United Nations. Its boundaries are set based on ecological and climate parameters defining a stretch of land some 1,600 kilometers long and 100 to 400 kilometers wide, extending from southern Chiapas, Mexico, to Guanacaste, Costa Rica.[1] *(See map in Illustration 1).*[2]

From an ecological standpoint, the CDC is located in Central America's dry tropical forest region, which mainly encompasses the Pacific coast, lowlands and premontane regions less than 800 meters above sea level. In general, the territories in this corridor have dry seasons lasting over four months.

According to FAO, the Food and Agriculture Organization of the United Nations, the CDC covers 30% of Central America,[3] or 157,133 square kilometers. It is no insignificant matter that **four of Central America's capitals and most populous cities** are found within the corridor: **Guatemala City, San Salvador, Tegucigalpa and Managua**.

Eighty percent of the corridor is located in what is called the Northern Triangle, comprising **Guatemala, El Salvador and Honduras**. Here the corridor's economic, social and environmental problems take on particular complexity and intensity.

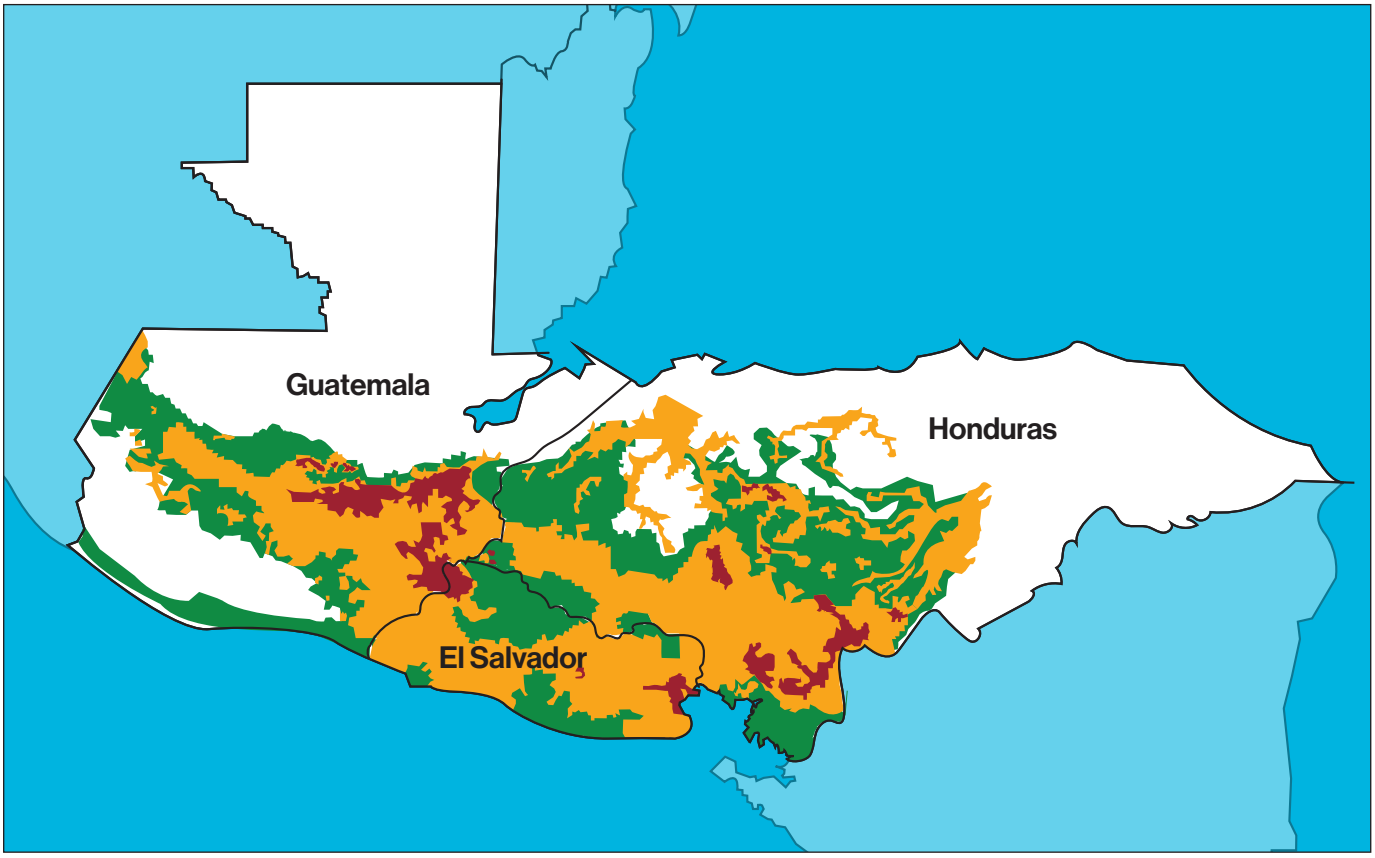
Illustration 1 *- Central American Dry Corridor*



This illustration is based on the original illustration cited in the footnote on this page.

1 Panama's Dry Arch, located toward the center of this isthmian country, is frequently included as well. | **2** Amparo van der Zee et al. *Estudio de caracterización del Corredor Seco Centroamericano* Tomo I (Tegucigalpa: FAO, 2012), 40. *https://reliefweb.int/sites/reliefweb.int/files/resources/tomo_i_corredor_seco.pdf.* | **3** Based on the total extension of Central American territory provided in "*Guía para invertir en el sector turístico centroamericano*," Consejo Centroamericano de Turismo-SICA. Accessed June 1, 2021, at *https://www.sica.int/busqueda/busqueda_archivo.aspx?Archivo=odoc_2588_2_29082005.htm.*

Illustration 2 *- Northern Triangle*



This illustration is based on the original illustration cited in the footnote.

Country distribution of the CDC in the Northern Triangle:

Table 1 *- Dry Corridor area distribution by country in square kilometers*

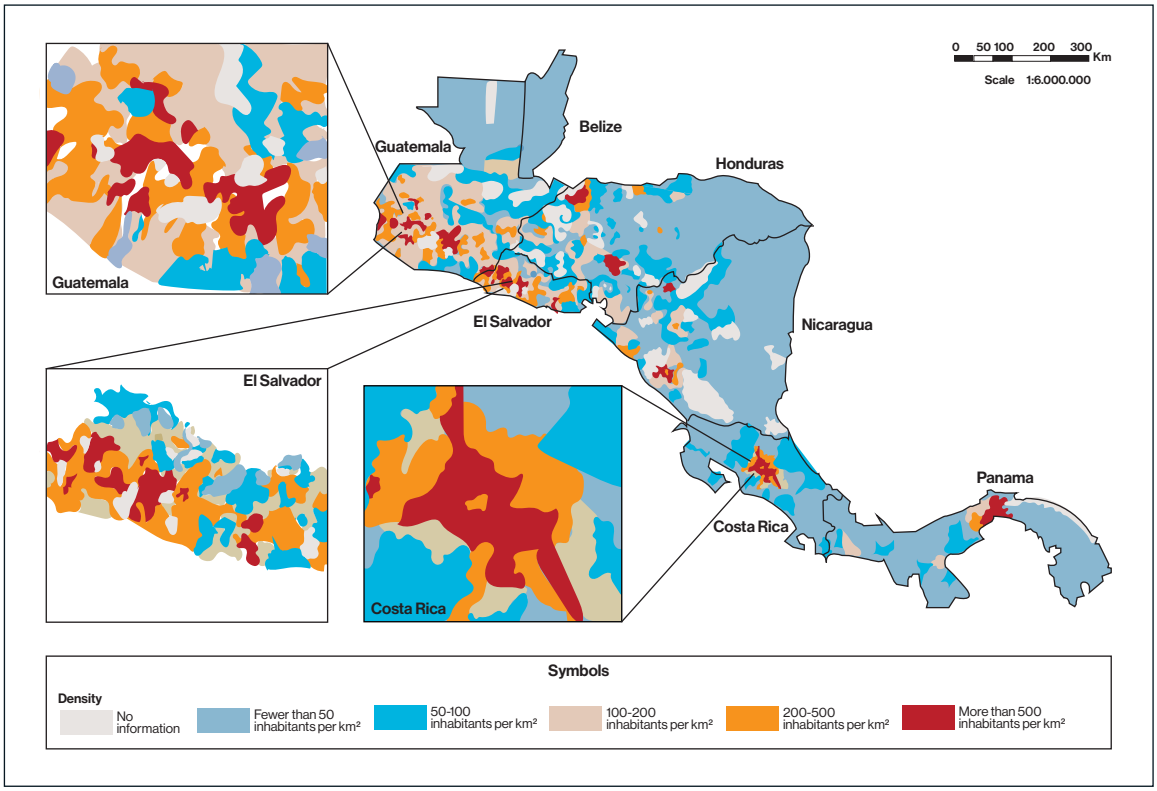
	El Salvador		Guatemala		Honduras		Total
	km2	%	km2	%	km2	%	km2
Area	21 040.0[4]	100.0	38 408.5	35.0	61 068.5	60.0	126 516.0

Note: Percentages of total country area were calculated by the authors. Total numbers were obtained from the World Bank's Open Data statistical platform, accessed on May 29, 2021, at http://datos.bancomundial.org

4 The study by Amparo van der Zee, et al, edited by FAO, indicates that all Salvadoran territory is contained within the CDC, as the map in Illustration 1 shows. As such, its entire population qualifies as inhabitants of this climatic region. van der Zee at al. *Estudio de caracterización del Corredor...* Tomo 1, 41.

From a demographic and territorial standpoint, the Northern Triangle contains a significant portion of the CDC's population. Strikingly, most of the municipalities with the highest population density are located throughout this geographical strip, as can be seen on this map.[5]

Illustration 3 *- Population density in the Central American Dry Corridor, 2015*



This illustration was based on the original illustration cited in the footnote.

Sources quantifying the region's population are not very precise, current or consistent. According to our own method of estimation,[6] almost 22.5 million people live in the CDC, disaggregated as follows:

Table 2 *- Population distribution by gender and rural/urban area in the CDC*

Population	El Salvador	Guatemala	Honduras	Total
Overall population	6 704 864	9 147 859	6 613 942	22 466 665
% of national population	100.0	61.4	71.1	7.7
% men	47.1	48.1	48.4	47.9
% women	52.9	51.9	51.6	52.1
% urban	61.7	63.5	61.4	62.2
% rural	38.3	36.8	38.6	37.8

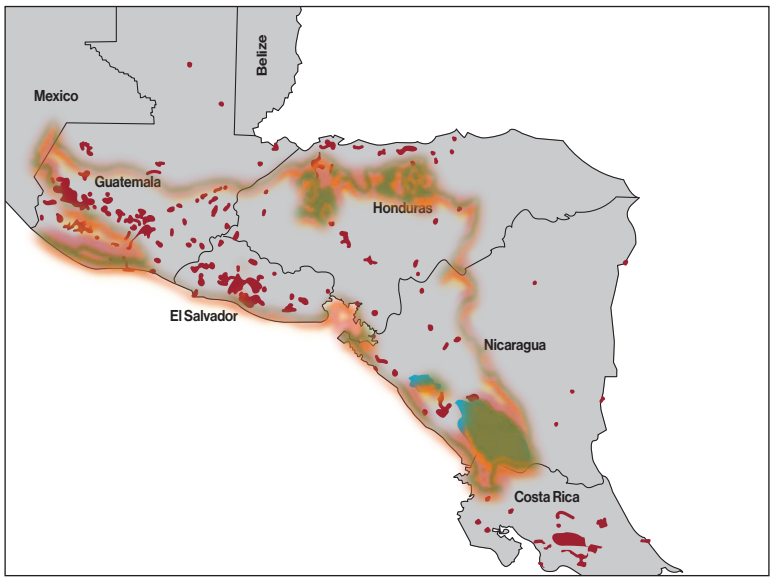
5 Map taken from the State of the Nation Program, *Quinto Informe Estado de la Región en Desarrollo Humano Sostenible 2016 Un informe desde Centroamérica y para Centroamérica* (San José: PEN, 2016)., http://repositorio.conare.ac.cr/handle/20.500.12337/959 | **6** We established the list of CDC municipalities in each of the Northern Triangle countries based on van der Zee, *Estudio de Caracterización... Tomo I*. When necessary, we confirmed a municipality's relevance by collating maps. With this list, demographic information about municipalities was collected. In the case of Guatemala, census information was used because it was relatively recent (2018), as found in *Cuadro A1 - Población total por sexo, grupos quinquenales de edad y área*. In *XII Censo Nacional de Población*, Instituto Nacional de Estadísticas de Guatemala, accessed on June 21, 2021, https://www.censopoblacion.gt/explorador. Since censuses had not been done for several years in Honduras and El Salvador, it was necessary to resort to population projections, facilitated by the national statistics entities: "*Proyecciones de población 2014-2030*." Instituto Nacional de Estadística de Honduras, accessed on June 21, 2021, at https://www.ine.gob.hn/V3/baseine/; and "*Encuesta de Hogares de Propósitos Múltiples 2019*," Dirección General de Estadística y Censos de El Salvador (DIGESTYC), accessed on June 21, 2021, at http://www.digestyc.gob.sv. In any case, while not exact, we consider these estimates quite close, among other factors because in the delimitation of the CDC perimeter there are several Guatemalan and Honduran municipalities not totally incorporated in this region and disaggregating the quantification any further is difficult.

There is a very regular pattern in the statistical distributions between the different countries and in total. A distinct and important rural component stands out, in all cases representing somewhat more than a third of the population. The proportion of this rurality is noticeable in approaches to the CDC's situation and its problems.

However, the proportion of urban population is also considerable (62.2%), at slightly higher than in Central America as a whole[7] (60.8%).[8] The gap is more noticeable regarding the percentage of total urban population in Northern Triangle countries, which reaches 57.5%. Clearly, these urbanization percentages are still far from the regional average for Latin America and the Caribbean, at approximately 80% of the population. **Nevertheless, Central America, and hence the Northern Triangle Dry Corridor, ranks second in the world with respect to the pace at which urban population is growing.**

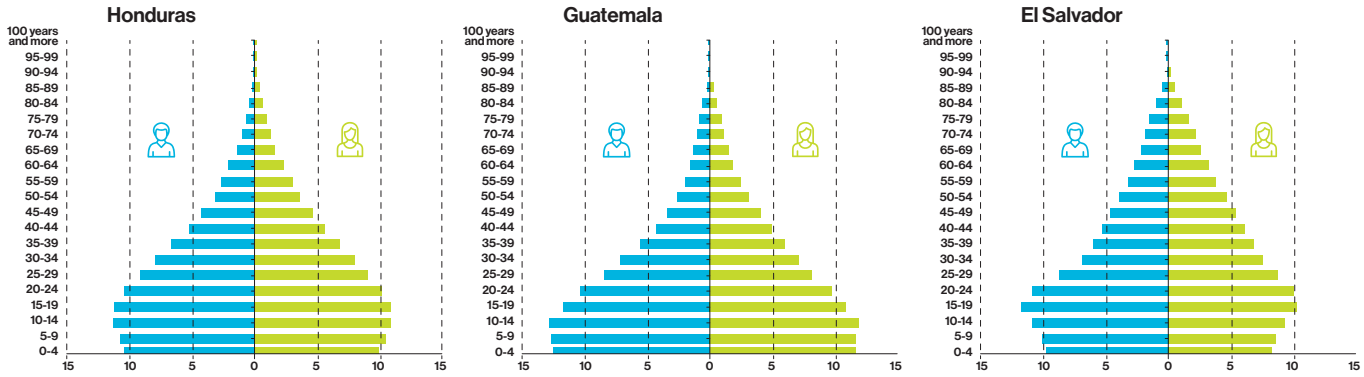
This map[9] provides a graphic visualization of the correspondence of urban agglomerations within the Northern Triangle Dry Corridor, especially in El Salvador and Guatemala (the red-colored urban blotches stand out).

Illustration 4 *- Comparison of population density with correspondence of urban agglomerations in the Dry Corridor*



No specific information is available on population structures at the Northern Triangle CDC regional level, and constructing these based on municipal composition would be complex. However, national distributions show sufficiently revealing patterns.[10]

Figure 1 *- Countries in Northern Central America: Structure by population ages, 2015 (percentages)*

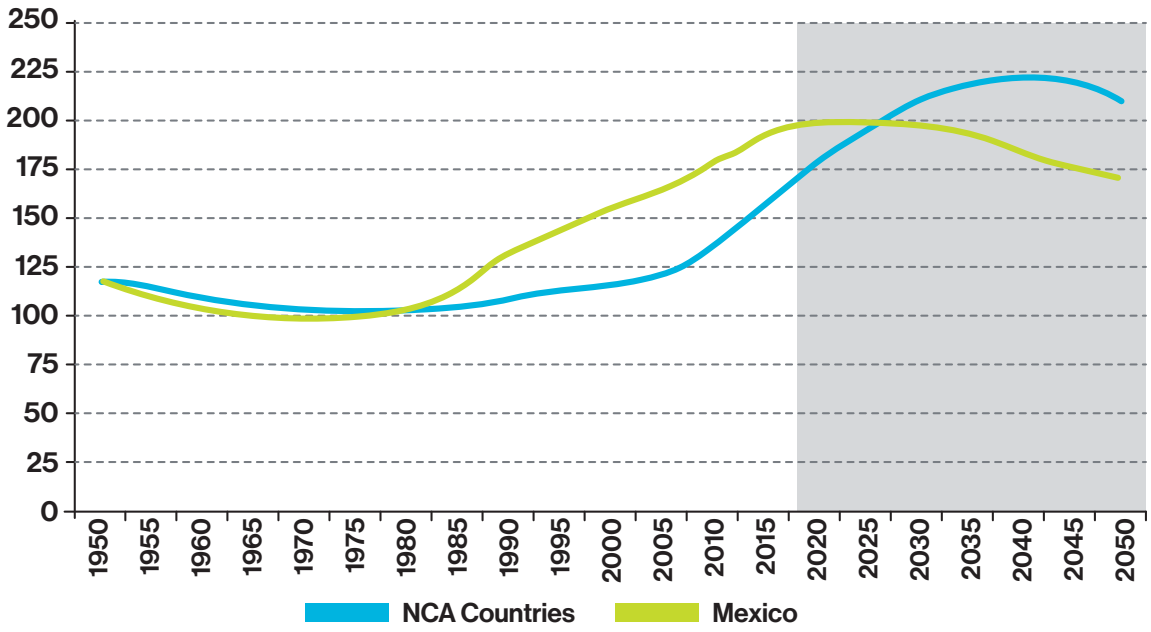


Source: Economic Commission for Latin America and the Caribbean based on online database CEPALSTAT
https://statistics.cepal.org/portal/cepalstat/index.html?lang=en

7 Central America is made up of seven nations: three in the Northern Triangle, plus Belize, Nicaragua, Costa Rica and Panama. | **8** We calculated this percentage based on numbers from the World Bank's Open Data, accessed on June 21, 2021, at *https://datos.bancomundial.org/* | **9** Prepared by the authors based on Agustín María, et al, *Estudio de la Urbanización en Centroamérica: Oportunidades de una Centroamérica Urbana*. Reporte No. 106268 (Washington: World Bank, 2016), 5, *https://documents1.worldbank.org/curated/en/811611517808775995/pdf/Central-America-urbanization-review-making-cities-work-for-Central-America.pdf* The same clarifications apply as in footnote 5 regarding the graphic effects generated by delimiting the CDC area. | **10** Taken from the Economic Commission for Latin America and the Caribbean's *Atlas of Migration in Northern Central America* (Santiago: ECLAC, 2018), 10, *https://www.cepal.org/es/publicaciones/44292-atlas-migration-northern-central-america*

These figures are significant because they show that the three Northern Triangle countries are in demographic transition, wherein the quantitative proportion of younger age groups is declining. The so-called **demographic dividend** produced is a window of opportunity that opens in a society only once for a limited period; it should therefore be taken advantage of in order to catalyze country development. The evolution of this demographic dividend is better demonstrated in Figure 2,[11] which shows an acceleration as of 2005 that is estimated to last for some 35 years.

Figure 2 *- Mexico and countries of Northern Central America: People at active ages per 100 people at inactive ages, 1950-2050 (number of people)*



Source: A. Canales and M. Rojas, "Panorama de la migración internacional en México y Centroamérica." Document prepared in the frame of the Latin American and Caribbean Regional Preparatory Meeting of International Migration Experts on the Global Compact for Safe, Orderly and Regular Migration, Series: Población y Desarrollo No 124 (LC/TS.2018/42), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2018.

11 Ídem

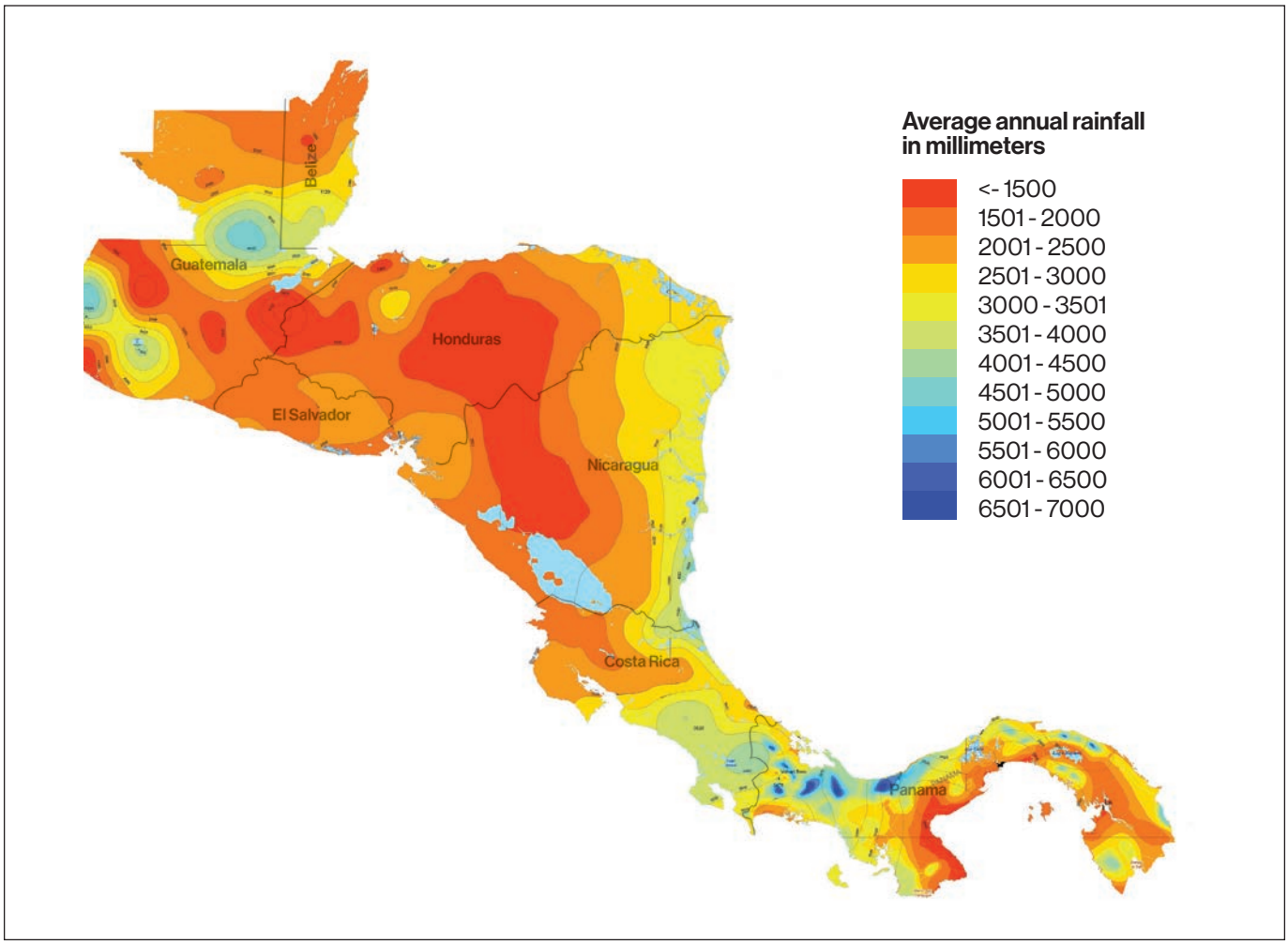
Structure of problems in the Central American Dry Corridor

The CDC's dual hydrometeorological pattern of alternating dry and wet seasons is accentuated by the **El Niño – Southern Oscillation, or ENOS,**[12] **phenomenon and climate change**, resulting in a period of **intense drought** followed by one of **torrential rains and floods**. Despite this dual nature, the CDC suffers significant water shortages in its annual averages. The following map shows annual rainfall scarcity (orange shades).[13]

Since the 1950s, more than 10 ENOS cycles have been observed in the CDC, lasting from 12 to 36 months.[14]

These extreme episodes of drought and excessive rainfall have a seasonal effect on the two main harvesting cycles comprising the productive strategy of more than a million families[15] who live in the CDC and engage in subsistence agriculture.

Illustration 5 *- Total annual precipitation in Central America (millimeters)*



12 The El Niño-Southern Oscillation, or ENOS, with its inverse correlation called La Niña, is a tropical oceanic-meteorological imbalance that sets up a recurring pattern consisting of a period of scarce rainfall, with another period, not always alternating, of abundant precipitation, between years of a certain stability. Its occurrence heightens the hydrometeorological duality causing the extreme weather that characterizes the Central American Dry Corridor. | **13** Taken from the "Atlas Centroamericano para la Gestión Sostenible del Territorio," PREVDA-SICA. Accessed on May 19, 2021, at *https://issuu.com/cathalac/docs/atlas_prevda* | **14** Van der Zee, *Estudio de Caracterización...*, Tomo I, 22 | **15** "Programa de fortalecimiento de la resiliencia en el Corredor Seco Centroamericano", FAO. Accessed on June 7, 2021, at *http://www.fao.org/resilience/resources/recursos-detalle/es/c/330169/*

Photo 2

In 2018 alone, delayed rainfall ruined 70% of the subsistence crops corresponding to the harvest in the first part of the year (first harvest), while the intense rains in the second half affected 50% of the crops harvested at that time of the year (last harvest.[16]

Because of existing vulnerabilities, the significant decrease of crops causes food crisis, malnutrition, increased poverty, loss of livelihoods, proletarianization of the farming population, and precarious national and international migration.[17]

Along with such social effects and humanitarian crises, impacts also **weaken the productive capacities of families and communities, so that the effect of losing crops lasts longer than the actual event, continuing into the medium and long terms**. Two key factors affecting this are:

- Weakening families scarce productive capital, since they opt to sell their farm animals, their tools and even part or all of their land to cope with the food emergency.
- Dispersion of the workforce due to the permanent or seasonal movement of workers to other regions and rural or urban productive units, along with international labor emigration, mainly to the United States.

Relocation to **urban zones** because of this loss of assets and livelihoods accentuates the growth and proliferation of precarious human settlements, many established in risk zones, in a situation of severe overcrowding without adequate housing conditions.

In addition, numerous members of these vulnerable populations (especially young people) are exposed to recruitment by groups of organized crime associated particularly with drug trafficking, where they encounter dynamics of violence and often end up victims. **In more than a few cases, migration is interwoven with this dynamic of organized crime**, causing people who displace to other destinations in irregular conditions to become trapped in human trafficking networks that involve kidnapping, disappearances, torture, forced labor, death threats and deaths.

Photo 2 Corredor Seco, Nicaragua. Habitat for Humanity Nicaragua /Jessly Obando | **16** "Eventos climáticos adversos en el Corredor Seco Centroamericano dejan a 1.4 millones de personas en necesidad de asistencia alimentaria urgente", FAO. Accessed on June 3, 2021, at http://www.fao.org/americas/noticias/ver/es/c/1191839/ | **17** These phenomena are considered multicausal and multidirectional, not simply a linear chain of consequences.

Chapter 2

The most significant challenges in Central America's Northern Triangle Dry Corridor

Exposure to climate impacts as a key risk factor

The United Nations World Conference in Sendai, Japan, in 2015 called on countries to achieve a substantial increase of disaster prevention and risk reduction, and to strengthen community resilience by 2030.[18]

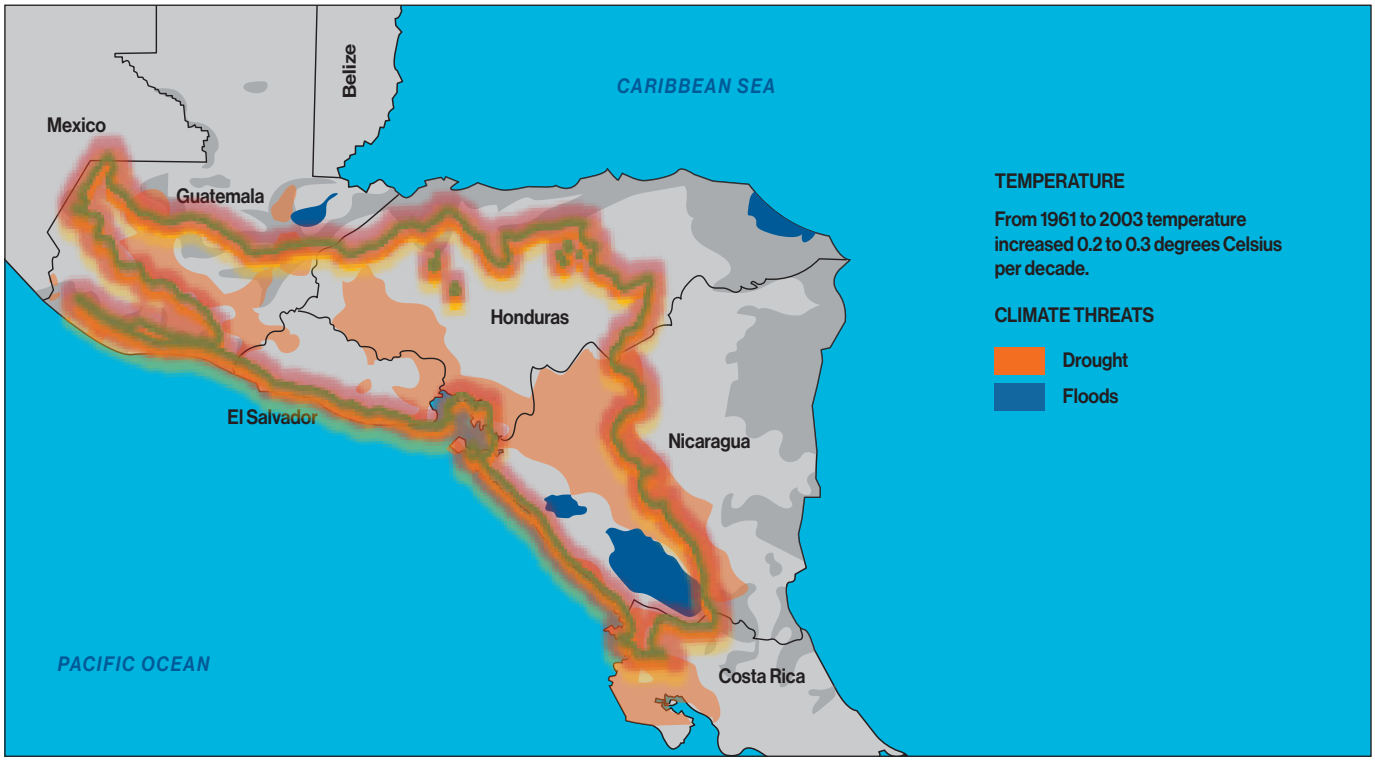
As indicated earlier, threats[19] to Dry Corridor populations in Central America derive from the dual hydrometeorological pattern. Drought is one of the major factors determining the situation of CDC communities.

The low annual rainfall average creates conditions that behave as threats, which are accentuated by the recurrence and intensity of the ENOS phenomenon, when annual precipitation falls between 30% and 40%.[20]

The map in Illustration 6[21] traces the perimeter of the CDC[22] to illustrate that it is precisely in this region where drought events are most prevalent in the countries within the corridor.

Technical estimations indicate that almost 60% of the CDC is affected by high or severe drought effects, with low effects in the rest of the area.[23] Table 3 provides a breakdown of the data:

Illustration 6 *- Drought events in the Central American Dry Corridor*



18 United Nations Office for Disaster Risk Reduction, *Sendai Framework for Disaster Risk Reduction 2015-2030*, (s.l. U.N. System, 2015). https://www.unisdr.org/files/43291_spanishsendaiframeworkfordisasterri.pdf | **19** The threat or risk factor of a population consists of "*...un peligro latente asociado con un fenómeno físico de origen natural o tecnológico (dígase en general, antrópico) que puede presentarse en un sitio específico y en un tiempo determinado produciendo efectos adversos en las personas, los bienes y/o el medio ambiente...*". [a latent danger associated with a physical phenomenon of natural or technological origin (namely, anthropic in general) that can occur in a specific place and given time with adverse effects on people, goods and/or the environment...], Omar Cardona, "*Evaluación de la amenaza, la vulnerabilidad y el riesgo. Elementos para el Ordenamiento y la Planeación del Desarrollo*". In *Los desastres no son naturales* , compiled by Andrew Maskrey (s.l., Red de Estudios Sociales en Prevención de Desastres en América Latina, 1993), 49, www.desenredando.org/public/libros/1993/ldnsn/html/cap3.htm | **20** "Cronología del Corredor Seco: El acelerador de la resiliencia en Centroamérica," FAO. Accessed on May 29, 2021, at, http://www.fao.org/in-action/agronoticias/detail/es/c/1024540/ | **21** By the authors, taken from PRISMA, *Territory Dynamics and Climate Change in the Central American Dry Corridor: Impacts on Family Agriculture*, (2016), slide 4, https://slideplayer.es/slide/10514640/ | **22** Clarifications from Note 5 apply to this illustration as well.

***Table 3** - Percentage distribution of drought-affected territory by country, according to drought effect*

	Percentage of territory and drought effect		
Country	**Severe**	**High**	**Low**
El Salvador	4.0	62.3	33.7
Guatemala	11.8	49.9	38.3
Honduras	3.9	54.3	41.7
Centroamérica	7.5	50.5	42.0

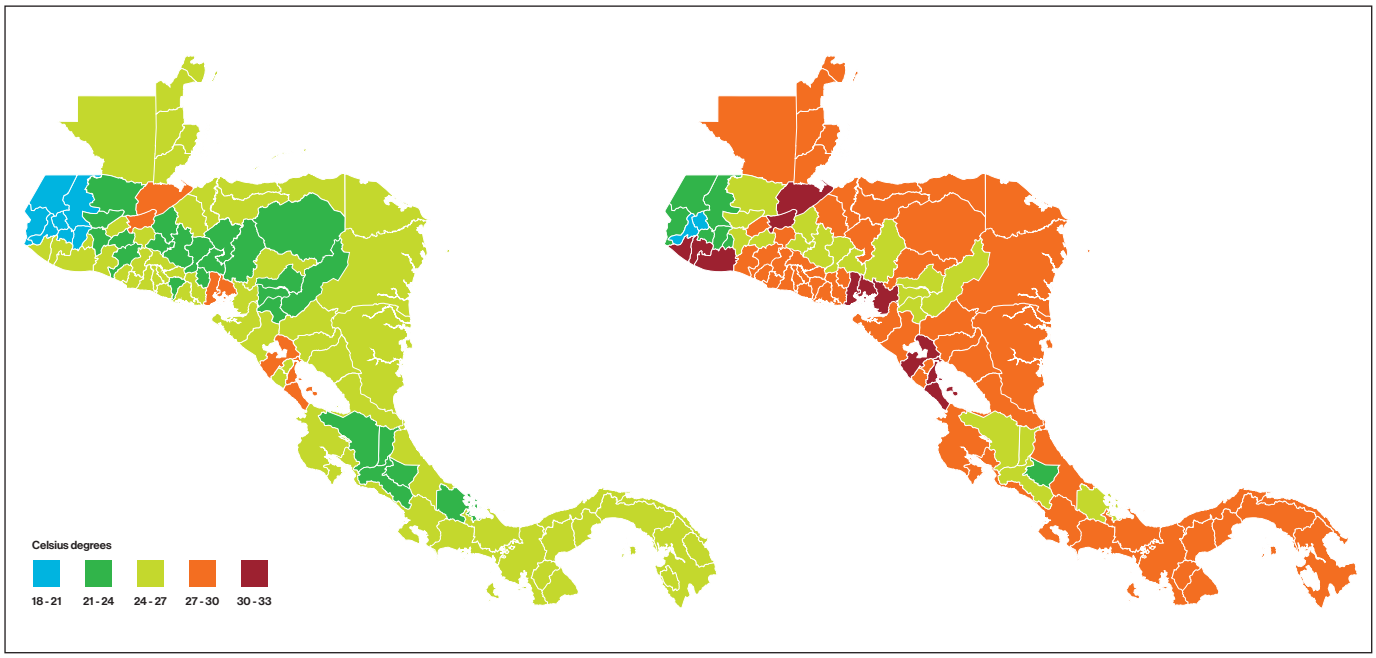
Note: Based on a table presented in Adriana Bonilla, Adriana Bonilla, Patrones de Sequia en Centroamérica, (Tegucigalpa: GWP-COSUDE. 2014), 31, https://www.gwp.org/globalassets/global/gwp-cam_files/patrones-de-sequia_fin.pdf

In Central America, drought behavior is associated with rainfall pattern anomalies, mainly due to delayed onset of the rainy season (April-May), its early termination (October-November) or a prolonged heat wave (*canícula*) or "little summer" (*veranillo*) in between (July-August). Although these droughts in the Central American isthmus do not last, they have a cyclical nature and the length of their occurrence (two months without rain, on average) strikes key phases of agricultural production — and to a lesser degree, water recharge.

Because of the CDC's characteristics, **long-term climate change** has alarming nuances. Illustration 6: Drought events in the Central American Dry Corridor confirms that in Central America, average temperatures in the last decades of the 20th century rose **0.2 to 0.3°C** per decade (approximately 1°C in those 40 years). According to estimates by the United Nations Environmental Programme, if current trends continue, **average temperature in the CDC will increase by 6° to 7°C** (a catastrophic magnitude) by the end of the 21st century.[24] The comparison of maps in Illustration 7 shows the distribution of average temperatures by department as of 2020 (left) and projected for 2100 if trends remain unchanged (right). Considering that the dark colors represent higher temperatures, note projected behavior for the CDC.[25]

23 Degrees of drought effects are established according to technical parameters and measurements (precipitation, duration, type of effect, etc.), which can even vary relatively from one area of the world to another. Specifying these technical details is beyond the scope of this document, but it should be mentioned that at the high or severe level, effects on crops, aquifers and surface waters are important. | **24** "*La propia naturaleza puede combatir el cambio climático en una de las zonas más vulnerables del mundo*", UNEP. Accessed June 18, 2021, at *https://www.unep.org/es/noticias-y-reportajes/reportajes/la-propia-naturaleza-puede-combatir-el-cambio-climatico-en-una-de* | **25** Taken from Julie Lennox, Diana Ramírez and Jaime Olivares, *Cambio climático en Centroamérica: Impactos potenciales y opciones de política pública* (Mexico: ECLAC, 2015), 36, *www.cepal.org/es/publicaciones/39149-cambio-climatico-centroamerica-impactos-potenciales-opciones-politica-publica*

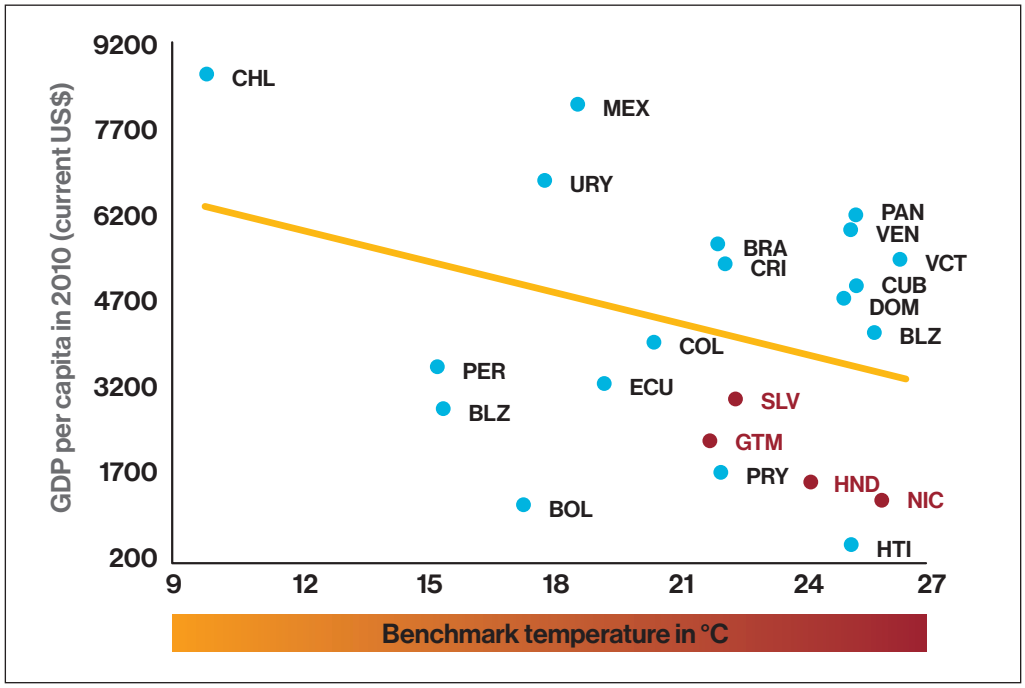
Illustration 7 *- Comparison of estimated change in average temperatures between 2020 and 2021 in the Central American Dry Corridor*



This is also important because studies have demonstrated that in the Latin American context — and because of different intervening factors — a **negative correlation can be established between temperature and GDP per capita**, meaning that the poorest countries and regions are more exposed to climate shocks associated with high temperatures.[26] This is shown in a study published by the Inter-American Development Bank that includes the following Figure 3,[27] where we highlight in red the location of the four countries where the CDC is mainly located (*ignore the abbreviation PRY*):

26 We emphasize that this does not signify a direct, mechanistic or unequivocal causal relation. A series of factors also intervene between per capita GDP performance and mean temperatures, to a great extent related with the historical-social distribution of vulnerabilities and development conditions. | **27** Bridget Hoffmann, *La crisis de la desigualdad: América Latina y el Caribe en la encrucijada*. Edited by Matías Busso and Julián Messina, (Washington: IDB, 2020), 251, *https://publications.iadb.org/publications/spanish/document/La-crisis-de-la-desigualdad-America-Latina-y-el-Caribe-en-la-encrucijada.pdf*

Figure 3 - Per capita GDP and benchmark temperatures in Latin American Countries, 2015



Source: Author's original calculations based on Burke, Hsiang and Edward (2015).

According to the Economic Commission for Latin America and the Caribbean, or ECLAC, at this pace of rising temperatures, the countries' per capita GDP will perform below what would be achieved at current temperatures. The following are medium- and long-range estimates of effects in the Northern Triangle countries.

Table 4 - Medium- and long-range estimates of effects on GDP rate by country

Country	Difference in GDP per capita with climate change 2030	Difference in GDP per capita with climate change 2050
El Salvador	-8.0	-28.4
Guatemala	-8.3	-30.3
Honduras	-9.6	-33.3

Based on Alicia Bárcena, et al, The Climate Emergency in Latin America and the Caribbean: The Path Ahead — Resignation or Action? (Santiago: ECLAC, 2020), 70, https://www.cepal.org/en/publications/45678-climate-emergency-latin-america-and-caribbean-path-ahead-resignation-or-action.

Recent impact of drought on development and quality of life in the Central American Dry Corridor's Northern Triangle

The most recent manifestation of the ENOS phenomenon began in 2014, giving rise to **one of the most intense droughts of the 21st century**, with notable impacts until around 2018.

As IICA has indicated,[28] **the food crops that tend to be most affected by droughts are corn and beans**, so families who depend on these products, particularly for self-consumption, are extremely vulnerable to such climate events, which affect not only **economic activity** but also **food security**. This impact is better visualized by considering that **80% of the families who depend on basic food crop production in the Northern Triangle live in poverty, and 30% live in extreme poverty**. Given this sector's preponderance in agricultural production and its characteristics, there is nothing surprising about the critical nature of drought effects triggered by the last ENOS,[29] apparent in the indicators in Table 5.

Table 5 *- Drought-related indicators by country*

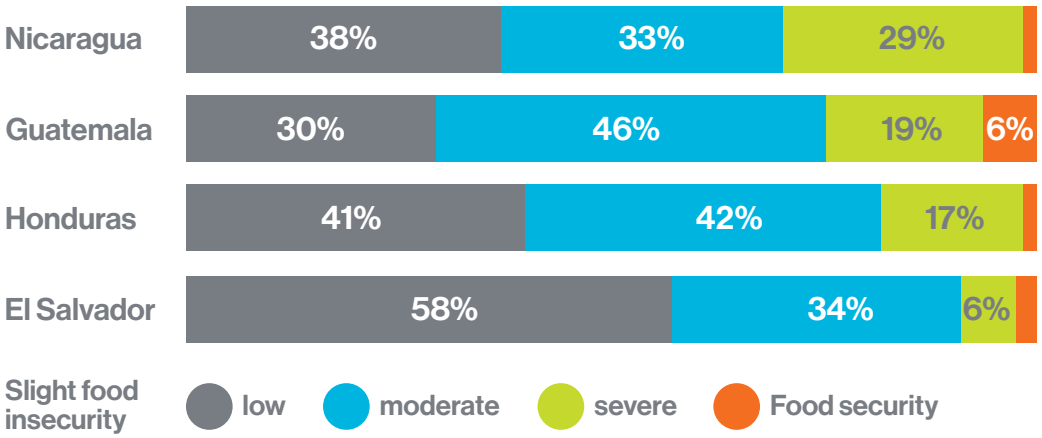
Indicators	El Salvador	Guatemala	Honduras
Crop losses	60% of the corn crop	82,000 tons of corn 118,800 tons of beans	60% of the corn crop 80% of the bean crop
% of CDC municipalities	57.0	51.0	91.0
CDC departments affected most	San Miguel Morazán La Unión La Paz San Vicente	Baja Verapaz • El Progreso Zacapa • Chiquimula Jalapa • Jutiapa • Quiché Huehuetenango Totonicapán San Marcos • Retalhuleu Santa Rosa • Escuintla	La Paz Lempira Intibucá Choluteca Valle Francisco Morazán El Paraíso
Number of people with food insecurity	190,000	905,000	461,000
Number of people who required humanitarian assistance (three countries)	3.5 million		

Source: Authors

28 "El IICA prioriza la intervención en el Corredor Seco centroamericano para focalizar su cooperación técnica", ICA, accessed on May 23, 2021, at https://www.iica.int/en/node/21028 | **29** Based on FAO, *Corredor Seco de América Central. Informe de situación 2016*, (s.l., FAO, 2016), http://www.fao.org/3/br092s/br092s.pdf and World Food Programme, *Análisis inicial del impacto de la sequía en la seguridad alimentaria en Guatemala, El Salvador y Honduras*, (s.l. WFP, September 2015), https://reliefweb.int/sites/reliefweb.int/files/resources/Analisis%20inicial%20del%20impacto%20de%20la%20sequia%20en%20la%20seguridad%20alimentaria.pdf

The effects of drought periods last longer than their critical phases, so the food insecurity scenarios they generate are not easily overcome. A 2020 survey by the Consortium of Humanitarian Organizations (Oxfam, Acción contra el Hambre and others) conducted with a sample of 13,450 households in 13 departments and 42 municipalities in the Northern Triangle Dry Corridor plus Nicaragua, found that even once the most critical phase of the drought had passed, significant levels of food insecurity persisted. Figure 4 illustrates the food security situation in each country:[30]

***Figure 4** - Level of household food security, 2020*



As observed, CDC countries show **very low levels of food security**. Nicaragua portrays the worst indicator, showing 29% of households suffering severe food insecurity, followed by Guatemala with 19% and Honduras with 17%.

These indicators are consistent with 2016-19 data showing that rates of undernourishment in Northern Triangle CDC countries double the average of all Central America — 12.3% of the population versus 6.1%. In Guatemala, the rate is even higher at 15.2%.[31]

30 Consortium of Humanitarian Organizations, *Informe de situación de familias en inseguridad alimentaria*, (s.l. COH, 2020), 24, http://www.siinsan.gob.gt/siinsan/wp-content/uploads/13.-echo_ca4_2020_informe_situacion_familias_en_inseguridad_alimentaria_0.pdf. Level of food insecurity is determined based on three variables: food consumption score (there are technical definitions for this measurement), level of household expenditures on food, and survival strategies households deploy to cope with the current food insecurity. | **31** UN OCHA, *Panorama de las Necesidades Humanitarias en CA: El Salvador, Guatemala y Honduras* (s.l., UNOCHA, 2020), 9-10, https://reliefweb.int/sites/reliefweb.int/files/resources/HNO_CENTROAMERICA_marzo%202020-2.pdf

Negative drought-response strategies

The way households respond to an emergency tends to further erode family assets, development and living conditions in the medium and long terms. The list below shows the percentage of households that employed some of the strategies for coping with the last great drought. [32]

Food consumption restrictions

- Reduction of meals and size of meals per day.
- Intake of less expensive food and low nutritional value.

El Salvador
70%
of households.

Guatemala
93%
of households.

Honduras
98%
of households.

Effects on the livelihood of families*

- Use of seed reserves destined for future crops.
- Sale of assets such as livestock, farm animals, tools and equipment.
- Fewer purchases of animal feed and fertilizers.

El Salvador
52%
of households (especially sale of productive assets and reducing the purchase of supplies).

Guatemala
56%
of households.

Honduras
99%
of households (especially consumption of seed reserves and sale of animals).

* In this respect, a study by FAO, the World Food Programme and Central American governments established that **up to 82%** of CDC households chose to sell their work tools to meet food needs.[33]

Harmful financial strategies

- Use of savings and formal and informal indebtedness to purchase food.

El Salvador
76%
of households.

Guatemala
14%
of households.

Honduras
1%
of households.

32 By authors based on World Food Programme, *Análisis inicial del impacto...* | **33** "Eventos climáticos adversos en el Corredor Seco Centroamericano dejan a 1.4 millones de personas en necesidad de asistencia alimentaria urgente", FAO, Accessed on June 3, 2020, at http://www.fao.org/americas/noticias/ver/es/c/1191839/

Emergency strategies

Other negative responses by families involved labor, which corresponds to what international agencies refer to as **"emergency strategies."** These are the most extreme ways of coping with food insecurity, as they compromise long-term household development and well-being:

Expanding child labor. UNICEF found that 30% of families in the Honduran Dry Corridor implemented this strategy to deal with the effects of drought, affecting primarily minors 12 to 17 years of age.[34]

Seasonal internal migrations to other rural zones in the countries to work as field hands on large plantations..

International migration. This will be examined in another section.

Just as food insecurity persists beyond the shock phase of drought, the negative strategies implemented by families are reproduced as routine practices, becoming an integral part of populations' patterns of life. Figure 5 shows negative response strategies to address insecurity, taken from the Consortium of Humanitarian Organizations study cited earlier. [35]

***Figure 5** - Stress strategies implemented, 2020*

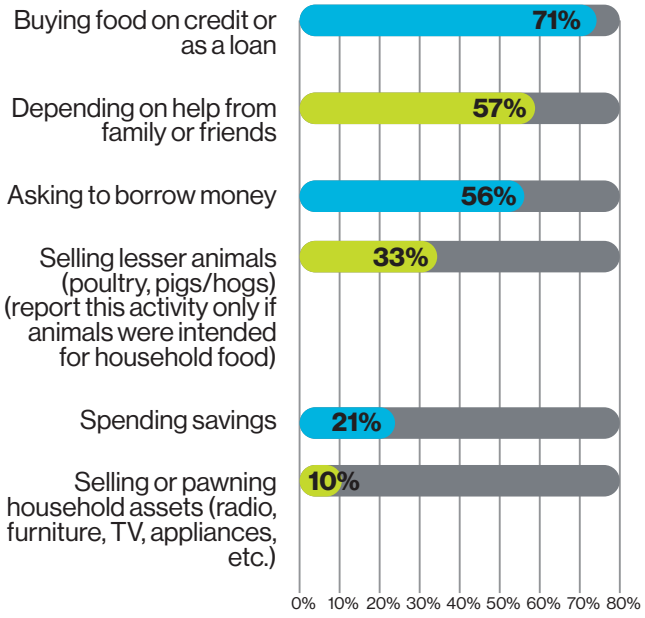


***Figure 6** - Crisis strategies implemented, 2020*

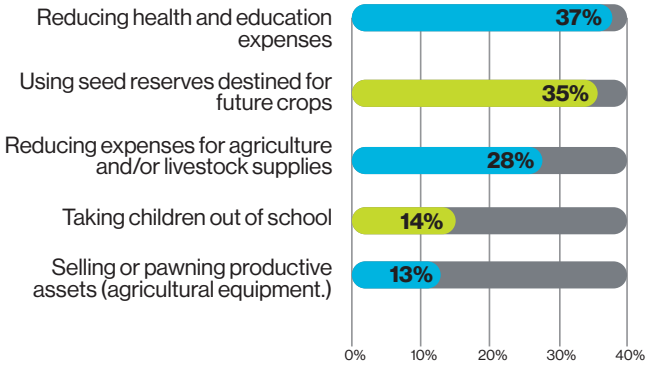
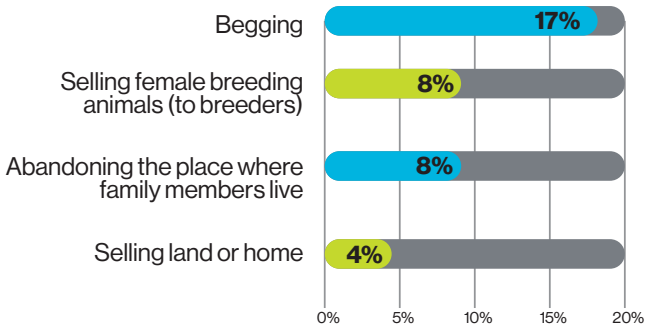


***Figure 7** - Emergency strategies implemented, 2020*



34 UNICEF, *Ahora lo urgente: Impacto de la sequía en las niñas, niños y adolescentes del Corredor Seco de Honduras* (2016), Cited in Federico Fraga, *Corredor Seco Centroamericano: Una visión exploratoria sobre el contexto, las razones y el potencial de una estrategia de creación de empleo en Guatemala y Honduras*, working document No. 23 (Switzerland: ILO, 2020), 4, https://www.ilo.org/sanjose/publicaciones/WCMS_744898/lang--es/index.htm | **35** Consortium of Humanitarian Organizations, *Informe de situación de familias en inseguridad alimentaria*, 28-29.

The other hydrometeorological impact: Hurricanes, floods and storms

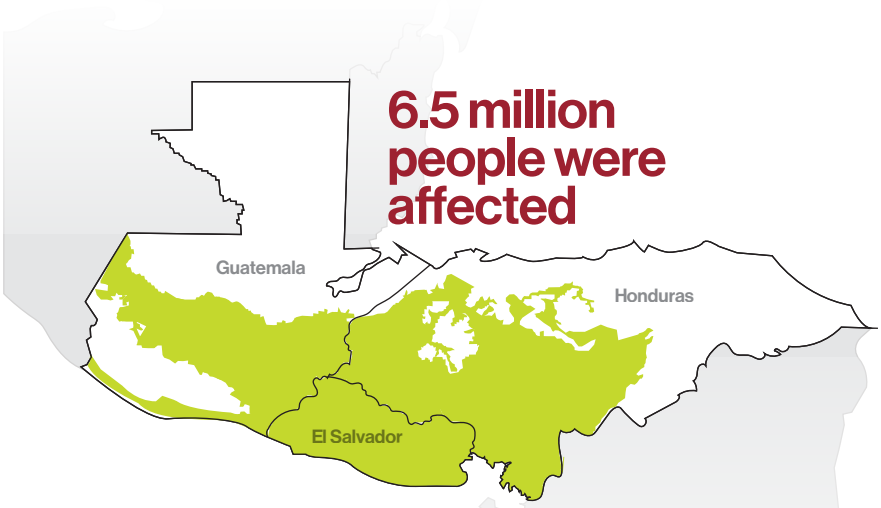
Photo 3

It is worth pointing out that **in Central America and the Dominican Republic** (as part of the Central American Integration System, or SICA), **375 extreme events associated with hydrometeorological phenomena were recorded between 1931 and 2015**.[36] Honduras was the country experiencing the highest frequency of events in that period, with 66. For all the intensity and complexity of droughts, **floods and storms are more common, representing 82% of all events.**[37]

This source also verified that the number of events has continually increased, especially since the 1960s.[38] According to the study, in the period from 1991 to 2015, the number of floods tripled in all the countries considered, including those in Central America's Northern Triangle, compared with the previous 25 years (1966 to 1990).

The study also demonstrated a rising trend since the 1990s of events such as mudslides, extreme temperatures, droughts, forest fires, tropical storms and hurricanes, the last of these with greater presence in the Atlantic Ocean.

Photo 3 LA LIMA, HONDURAS (11-20) Disaster zone after two hurricanes strike in two weeks of November 2020. Habitat for Humanity Honduras/Luis Madrid | **36** Lennox, Ramírez y Olivares, *Cambio climático en Centroamérica...*, 42 | **37** Ídem | **38** Ídem



In November 2020, the humanitarian crisis occurring after years of drought was heightened by tropical storms Amanda and Cristobal and hurricanes Eta and Iota, which harmed 6.5 million people in the Northern Triangle countries (mostly Honduras and Guatemala) and damaged 600,000 hectares dedicated mainly to producing food staples.[39]

Among the most striking national impacts:

Main effects in Honduras

4.5 million
people were affected in 199 municipalities.

More than 70,000
homes were destroyed.

250,000
people were left without access to medical services because of damaged health facilities.

Main effects in Guatemala

1.8 million
people were affected in general in 16 municipalities and 267,000 families were affected by agricultural damage.

166,400
hectares suffered crop and harvest losses.

127,900
people were living in unofficial shelters (as of December 2020).

Hydrometeorological duality and the harvest calendar

In both historical records and in the case of Iota and Eta, the extremes of climate duality in the CDC pinch back the two main planting and harvesting periods in Central America, jeopardizing agricultural productivity and food security in a near chronic pattern:

The first harvest (first half of the year) is affected by drought or below-average rainfall.

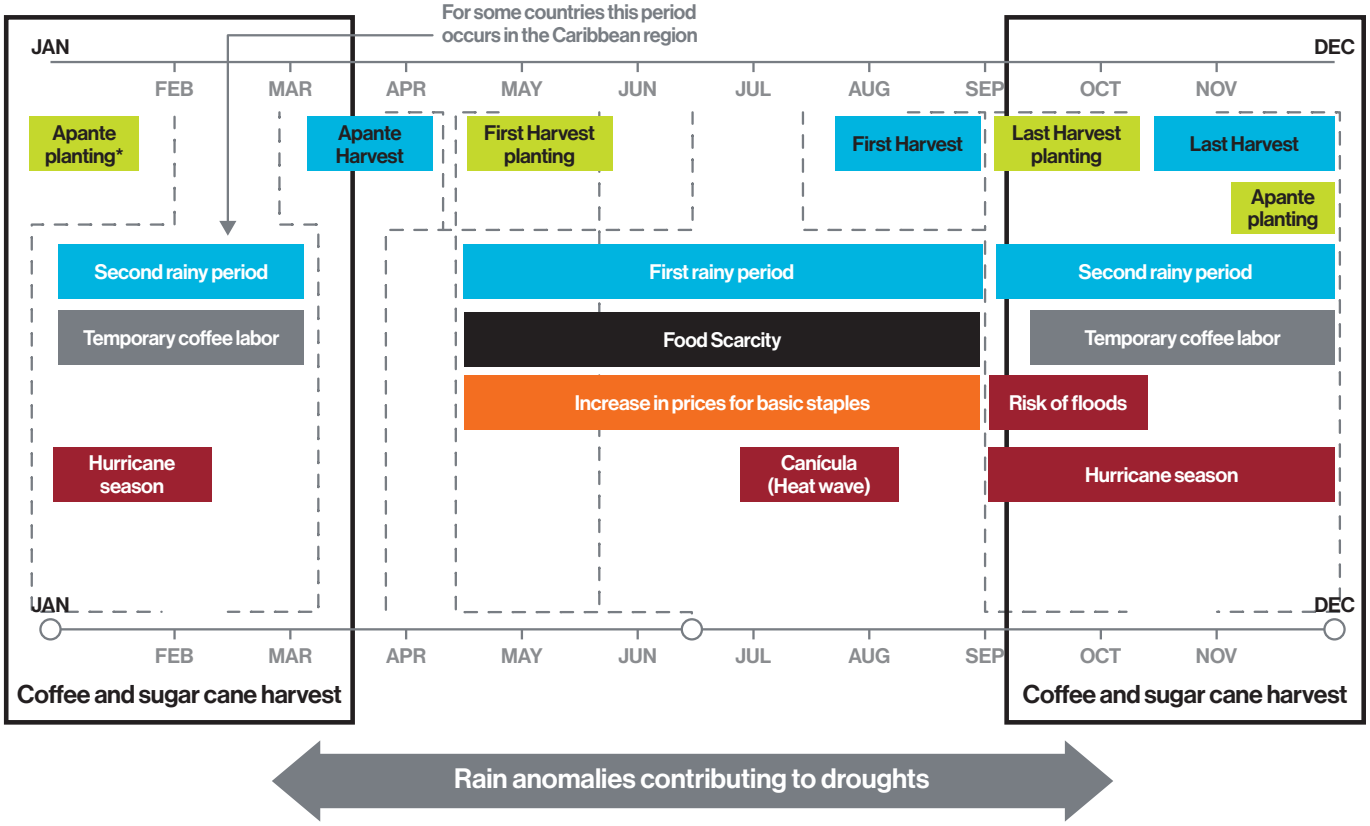
The second harvest (second half of the year) is threatened by storms, hurricanes, and their correlated floods and landslides.

Between the two is the heat wave (canícula) or "little summer" (veranillo), which generates its own impacts when prolonged.

39 Data from the United Nations Office for the Coordination of Humanitarian Affairs, *Centroamérica. Tormenta tropical eta & huracán iota: seis semanas después*, (s.l. UNOCHA, 2020), 3-5, https://reliefweb.int/sites/reliefweb.int/files/resources/2020-12-23%206W%20After%20%28SPA%29.pdf

Illustration 8 better captures this correlation among climate phases, the harvest calendar, hydrometeorological anomalies and socioeconomic effects. Periods of coffee and sugar cane harvesting — activities that mainly occur on plantations and require farming labor — also are reflected.[40]

Illustration 8 *- Relation among the harvest calendar, climate phases, hydrometeorological anomalies and socioeconomic effects*



** Apante is the name for the crop season that includes three planting cycles.*
Source: FEWS NET

Central America: A region highly exposed to disaster risk from climate threats

The 2019 **Global Climate Risk Index** generated by German Watch indicated that from 1998 to 2017, **Honduras ranked second in the world as the country with the greatest climate impacts, while Guatemala placed 14th and El Salvador was 16th.**[41]

The Global Climate Risk Index indicates a level of exposure and vulnerability to extreme weather events that countries should understand as warnings to prepare for more frequent or more severe events in the future.[42]

Illustration 9[43] shows that CDC countries make up one of the few regions in the world — and the only one in the continental Americas — that as a whole show the greatest levels of climate risk.

40 Edgar Escobar, "Zonas de medios de vida Corredor Seco Centroamericano", presentation at the 24th Latin American Symposium on Coffee Growing. Guatemala, September 2019, *https://promecafe.net/wp-content/uploads/2019/XXIV_Simposio_Multimedia/Panel_I/3_-_Edgar_Escobar.pdf*. Incorporation by authors of a few graphic elements. | **41** German Watch, *Global Climate Risk Index 2019: Who Suffers Most from Extreme Weather Events? (Bonn: German Watch, 2019), 2, https://germanwatch.org/sites/default/files/Indice%20de%20Riesgo%20Climatico%20Global%202019%20-%20Resumen_0.pdf* | **42** "El Índice Global de Riesgo Climático muestra a los países más afectados por eventos climáticos", IAGUA, Accessed May 22, 2021, at *https://www.iagua.es/noticias/agencia-sinc/indice-global-riesgo-climatico-muestra-paises-mas-afectados-eventos-climaticos* | **43** German Watch, *IGlobal Climate Risk Index 2019, 5 http://www.germanwatch.org/en/16046*

Illustration 9 *- Global climate risk for 1998 to 2017*

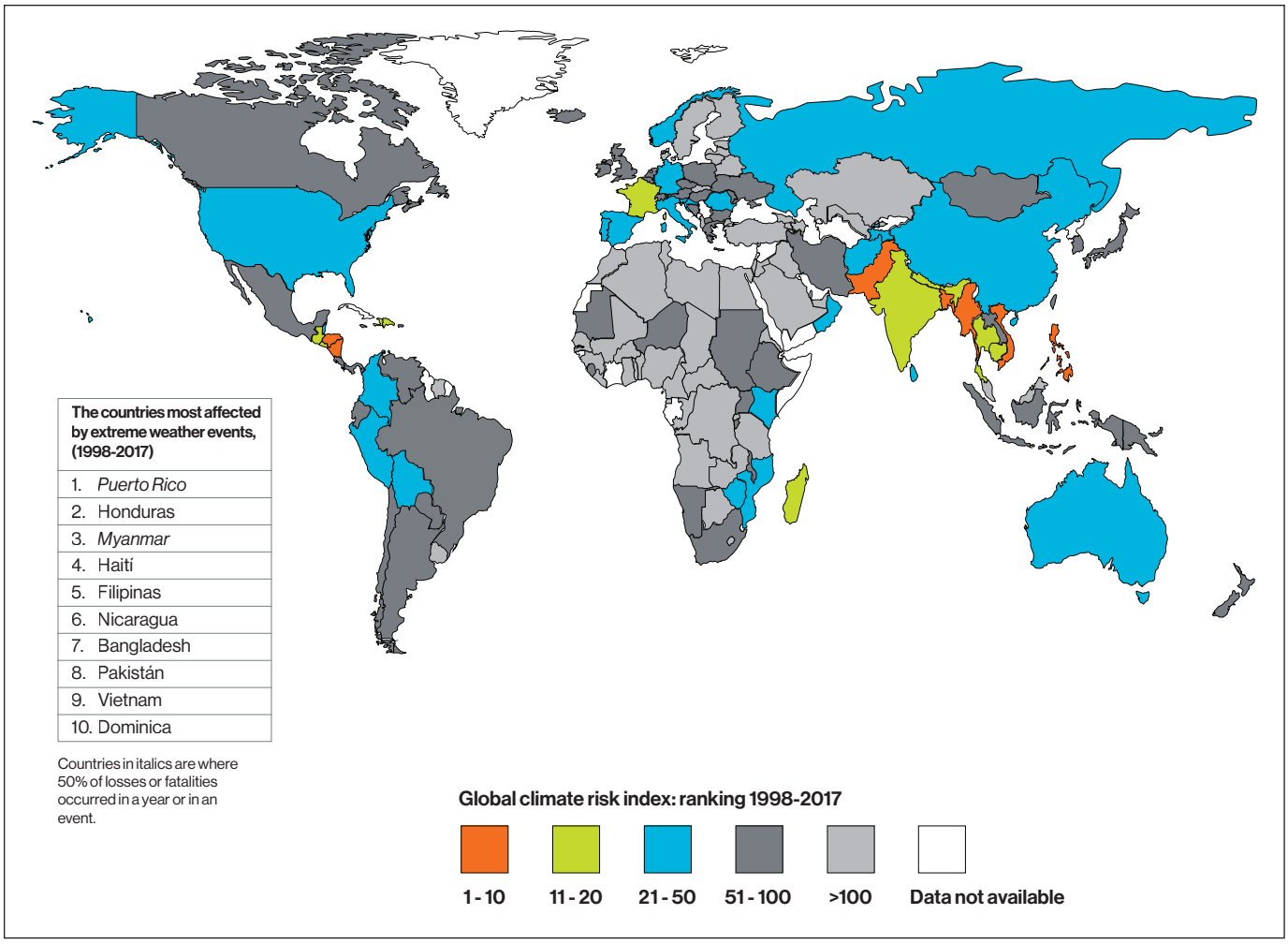
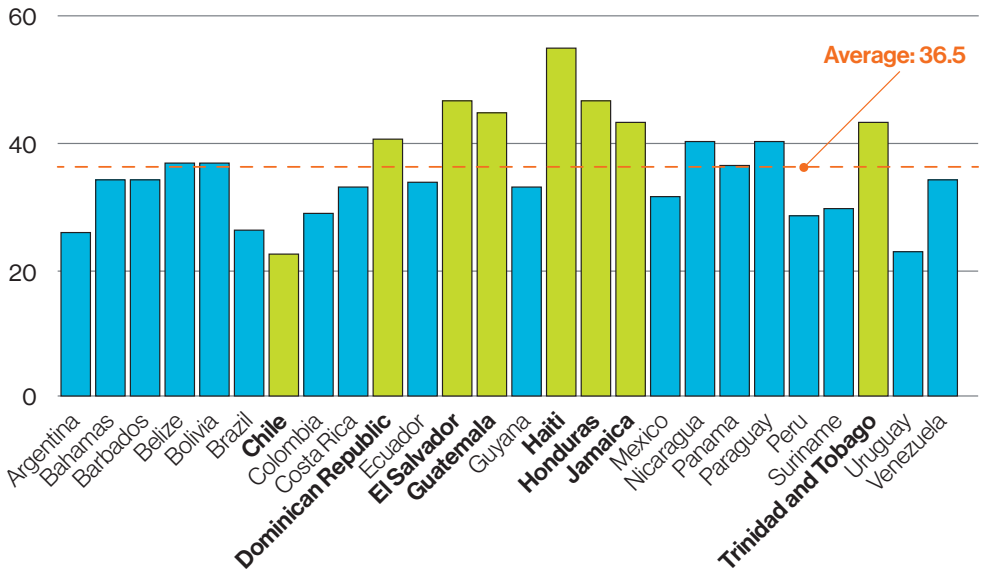


Figure 8 *- Prevalent Vulnerability index in Latin America and the Caribbean, 2021*

Country indicators for the Northern Triangle CDC exhibit worrisome levels of vulnerability, as can be seen in Figure 8's Prevalent Vulnerability Index, generated by the Inter-American Development Bank's Riskmonitor system:[44]



44 IDB, "Riskmonitor", Accessed June 10, 2021, at *https://riskmonitor.iadb.org/es/home*

The **Prevalent Vulnerability Index, or PVI**, characterizes a country's existing vulnerability in terms of exposure in disaster-prone areas, socioeconomic fragility and limited resilience capacity. These factors provide a measure of the direct, indirect and intangible impacts of hazards.[45]

A value over 40 indicates high levels of vulnerability. Guatemala, Honduras and El Salvador exceed this score, and aside from Haiti, they are the three most vulnerable among the 26 countries monitored in Latin America and the Caribbean.

Socioeconomic precariousness in a context of risk

In general terms, the economic dynamics of Northern Triangle countries are marked by several structural weaknesses, resulting in poverty, vulnerability and population expulsion via migration.

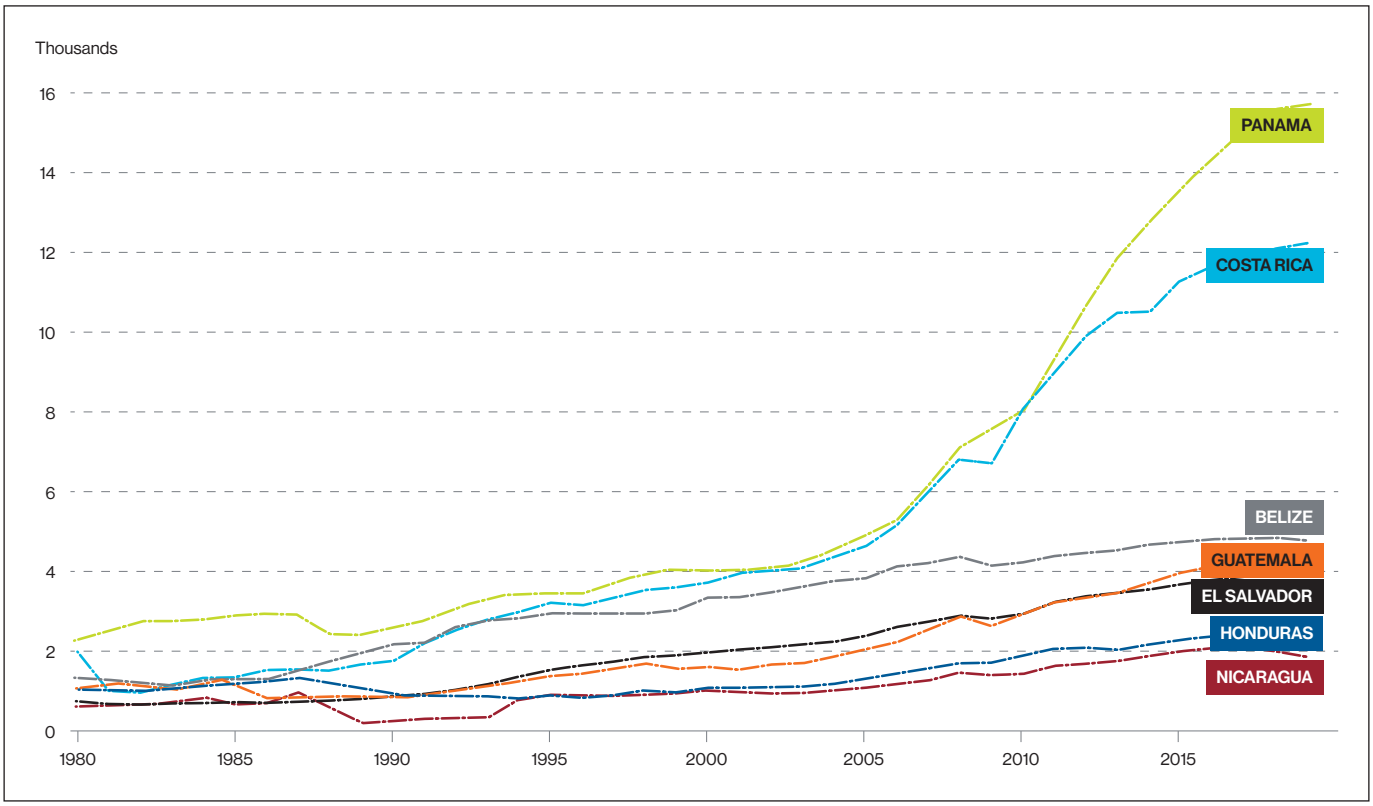
In the sphere of labor, the high occupational deficit in the three countries makes them net workforce expellers (see data in the section on migration), which in turn saps the productive capacities of their populations, especially considering that in these countries, **between 16% and 36% of their emerging demographic dividend has migrated.**

Unemployment is, in turn, an expression of the weak economic dynamism that creates the conditions for noticeable social lag. Usually, these three countries have low GDP per capita. Specific data for 2019 were:[46]

El Salvador:	**US$4 187,3**
Guatemala:	**US$4 620**
Honduras:	**US$2 574,9**

More noteworthy, the Northern Triangle has exhibited a modest growth trend in long-term GDP per capita growth. The following figure from the World Bank[47] shows the difference in the growth curve between northern and southern Central America:

Figure 9 *- GDP per capita (current US$) — Nicaragua, Guatemala, Honduras, El Salvador, Belize, Costa Rica and Panama, 2021*



45 Ídem | **46** "Databank", World Bank, accessed on June 6, 2021, at *https://datos.bancomundial.org/indicador/NY.GDP.PCAP.CD?end=2019&locations=NI-GT-HN-SV-BZ-CR-PA&start=1980&view=chart* | **47** Ídem

Observe that this performance is not secondary if we compare it with the projections shown before, which indicated that the economic dynamism of Northern Triangle countries will be affected, and this shows up in the deceleration of GDP per capita associated with an estimated rise in temperature.

One of the most critical manifestations of structural problems in the work arena relates to **informal labor, which represents 80% of total employment in Honduras and Guatemala, and 68.5% in El Salvador.**

Concurrently, the overall context of these countries is marked by **poverty (48.3% in Honduras and 59.3% in Guatemala**[48]**)**, albeit **El Salvador** stands out for its steep, 12-percentage-point reduction of this problem since 2015, bringing it to somewhat over **24%**.

No current data is available specifically on CDC poverty. While not exact, the following statistical approximations can help with visualizing the dimension of the problem in that region. Data on national rural poverty are presented first, given the prevalence of rurality in the CDC.[49]

***Table 6** - Percentage distribution of rural poverty by country, according to type of poverty*

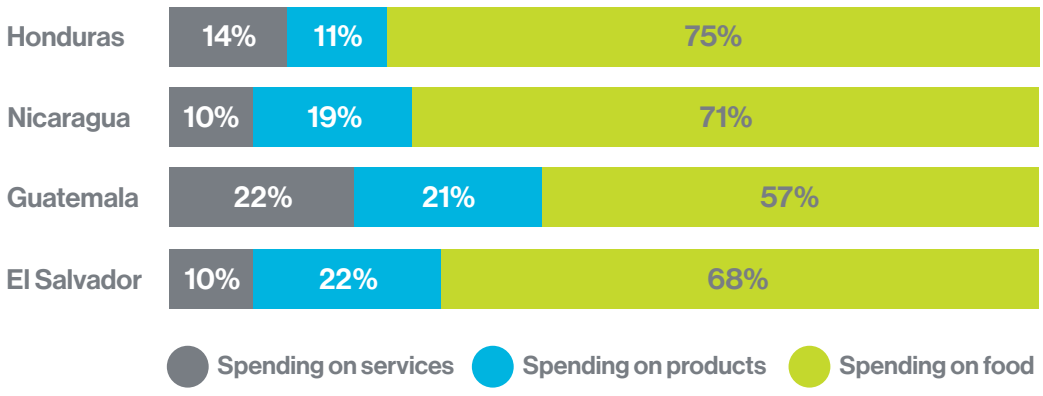
Country	General poverty	Extreme poverty
El Salvador	42.8	9.6
Guatemala	65.8	23.4
Honduras	70.9	34.7

Nota: Based on "CEPALSTAT | Bases de Datos y Publicaciones Estadísticas." ECLAC, accessed June 9, 2021.

The Consortium of Humanitarian Organizations survey of Dry Corridor communities in Honduras, Guatemala, El Salvador and Nicaragua provides other indicative data on the problem of poverty.[50] Two variables are particularly sensitive in this regard: the percentage a household must spend to supply themselves with food and the percentage to which their income covers expenses.

The following figure shows that in the countries under consideration, most household expenditures relate to food needs:[51]

***Figure 10** - Composition of household expenses, 2020*



48 Data corresponding to 2019 in the same World Bank source cited previously, using the poverty line measurement. | **49** Recall that El Salvador's entire territory lies within the Dry Corridor, so in this case national data coincides with that of the CDC. | **50** Consortium of Humanitarian Organizations, *Informe de situación de familias...* | **51** Idem, 34.

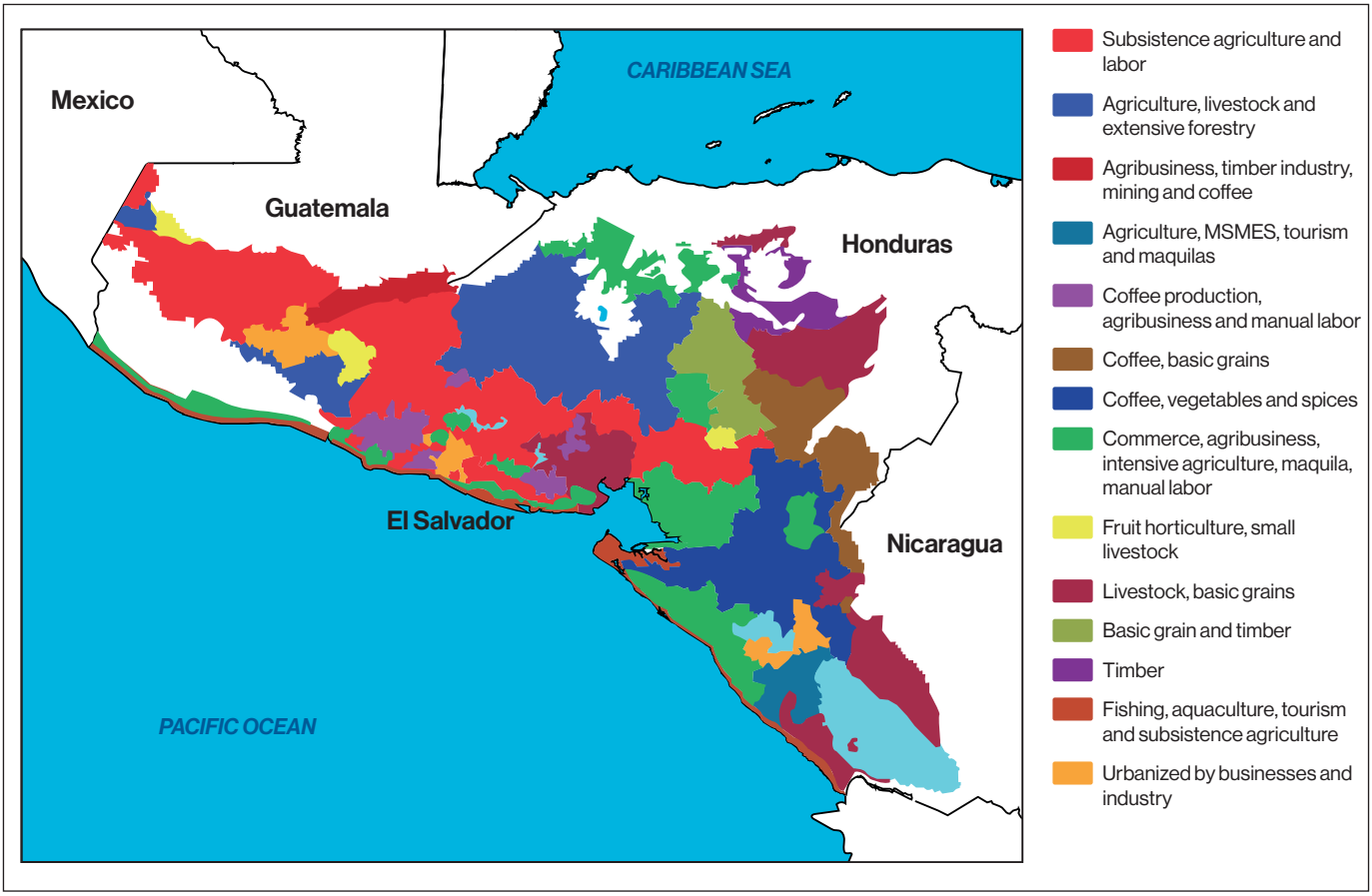
Those interviewed also indicated their income was insufficient. In El Salvador, family income covers just **36% of household expenditures**, and percentages for the Dry Corridor in **Honduras and Guatemala are 22% and 49%, respectively.** Cross-checking with the data in Figure 8, it is evident that on average, Dry Corridor households in those countries are unable to cover their food expenses with family income.

While not based on a representative sample, survey data are indicative because of the significant number of people interviewed (13,450) and their geographical distribution (41 municipalities), among other factors.

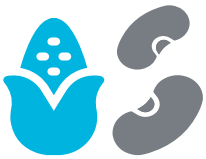
This is one of the largest studies recently conducted in the CDC.

The **weight of rurality** also is clear, given that in each country one-third of the labor force works in agriculture,[52] particularly the subsistence agriculture on which **more than a million households in the three countries depend.** This is eloquently depicted on the livelihoods map in Illustration 10, prepared by Alan González for an FAO study. [53] Areas where subsistence agriculture is predominant appear in red.

Illustration 10 *- Distribution of agglomerations of livelihood zones in Central America, 2021*



52 Economic Commission for Latin America, *Atlas de la migración en los países del norte de Centroamérica*, 13. | **53** Alan González, (2012) *Marco Estratégico Regional para la Gestión de Riesgos Climáticos en el Sector Agrícola del Corredor Seco Centroamericano*, (Tegucigalpa: FAO, 2012), 11, https://coin.fao.org/coin-static/cms/media/14/13590441298720/marco_estratgico_corredor_seco-.pdf

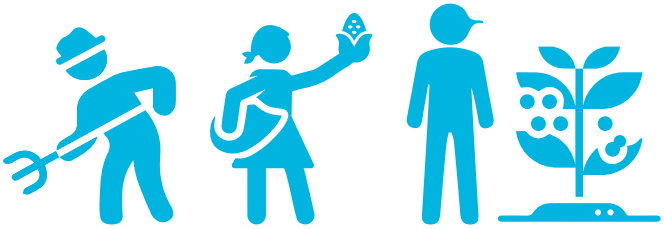


Production mainly focuses on **basic food crops**. Percentages of Dry Corridor producers in this category are:

- 54% **El Salvador**
- 54% **Honduras**
- 67% **Guatemala**

This production is small-scale and primarily dedicated to the cultivation of corn and beans, especially on fairly unproductive hillsides that are frequently dry, rocky and exposed to hazards such as landslides. These are usually smallholdings that have the following average size in each country:[54]

- 1.3 hectares **in Guatemala**
- 1.3 hectares **in El Salvador**
- 2.4 hectares **in Honduras**



These small productive units generally employ traditional practices, with little access to agricultural inputs and traditional financial services. Altogether, this results in low-yield systems that limit the amount of food reserves available for self-consumption or commercialization, thus increasing household vulnerability to the CDC's frequent climate variations and shocks.[55]

Moreover, given the vulnerabilities of small farming production in the CDC, strategies usually include supplementing income through seasonal work as farmhands on medium and large plantations, **especially those growing coffee and sugar cane**. In several cases, this requires displacement for a period each year (see the seasonal calendar in Illustration 8). These workers may even be accompanied by their families, especially if other members can also be put to work. In coffee harvesting, for example, part or all of the family group is placed at the plantation's service. However, in recent years this seasonal option has been seriously affected by the phytosanitary impact of the coffee rust plague and the 2019 decline in international coffee prices. [56]

54 Acción contra el Hambre *La sequía en el Corredor Seco Centroamericano: Escenario de vulnerabilidad y propuestas de intervención a partir de la experiencia acumulada en crisis anteriores*, (s.l., Acción contra el Hambre, 2014), 4, *https://reliefweb.int/sites/reliefweb.int/files/resources/141029%20ACF%20Sequia%20Corredor%20Seco%20%26%20Herramientas.pdf* | **55** Data taken from FAO, *Disaster Risk Programme to Strengthen Resilience in the Dry Corridor in Central America, 2015-2018* (s.l: FAO, 2015). *http://www.fao.org/resilience/resources/ressources-detail/fr/c/330164/.* | **56** UNOCHA, *El Salvador, Guatemala and Honduras: Humanitarian Needs Overview. https://reliefweb.int/sites/reliefweb.int/files/resources/El%20Salvador%2C%20Guatemala%20and%20Honduras%20-%20Humanitarian%20Needs%20Overview%20Summary%20%28Humanitarian%20Programme%20Cycle%2C%20July%202021%29_0.pdf.*

Impact of the COVID-19 pandemic: Ramping up the problems

The COVID-19 pandemic sweeping the world since early 2020 has not only strained public health systems but also triggered economic crises. The pandemic's effects have varied based on pre-existing patterns of social inequality and have been particularly severe in Central America.

In this pandemic context, countries' GDP has dropped sharply, especially in Honduras and El Salvador, where the decline has been slightly more than 10 percentage points, as seen in Table 7, prepared by ECLAC.[57]

Table 7 - GDP growth rates from 2019 to 2021 in Central America and the Dominican Republic

Country	2019	2020[a]	2021[b]
Costa Rica	2.1	-4.5	3.0
El Salvador	2.4	-8.6	3.5
Guatemala	3.8	-2.5	3.5
Honduras	2.7	-8.0	4.5
Nicaragua	-3.9	-4.0	1.3
Panama	3.0	-11.0	5.5
Dominican Republic	5.1	-5.5	5.0
Average CADR[c]	**3.2**	**-6.1**	**4.2**

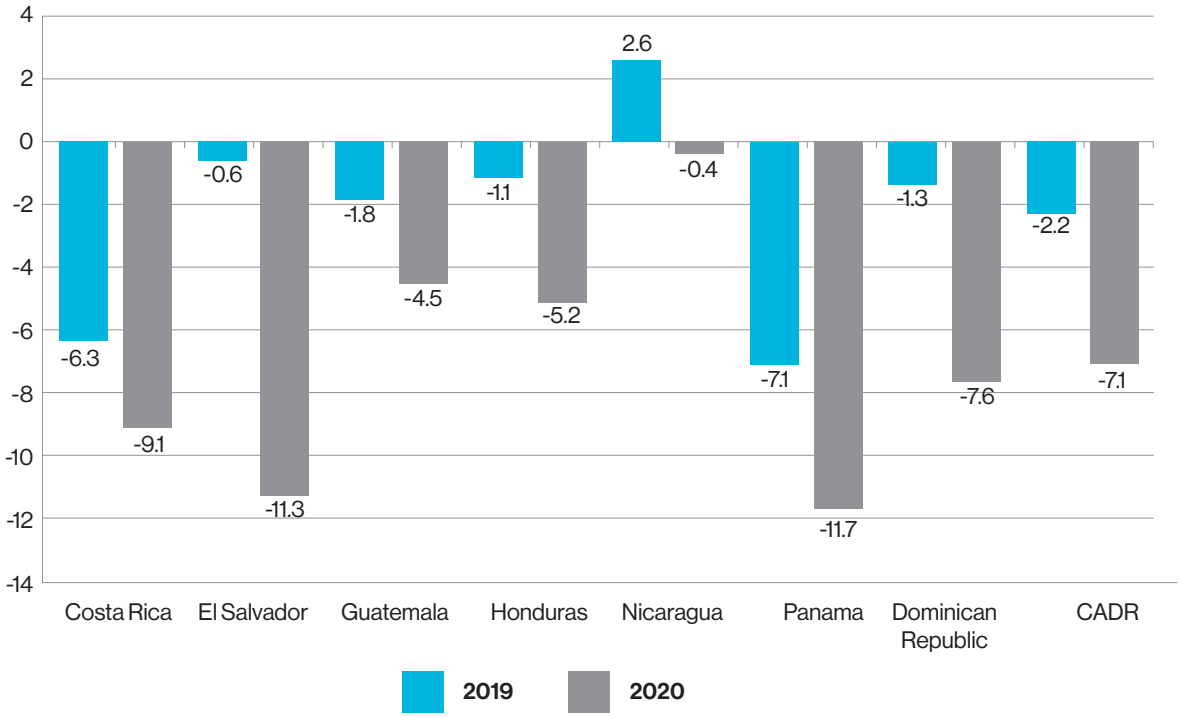
a. 2020 figures are ECLAC estimates; those for Costa Rica are official numbers.
b. 2021 numbers are ECLAC projections.
c. Corresponds to weighted average.

In this framework, national governments are forced to deploy different measures in response to both health and economic crises, further straining public expenditure just as tax revenues deteriorate because of the same pandemic-generated context of economic deceleration. The fiscal deficits experienced in prior years by several of these economies are therefore exacerbated.

57 ECLAC, *Balance preliminar de las economías de Centroamérica y República Dominicana en 2020 y perspectivas para 2021*, (Ciudad de México: CEPAL, 2021), 9. https://www.cepal.org/es/publicaciones/46684-balance-preliminar-economias-centroamerica-la-republica-dominicana-2020

Figure 11, included in the same ECLAC report just cited, shows the severe deepening of the countries' fiscal deficit in 2020 and an exponential escalation from 2019, especially in El Salvador, where the deficit rose more than tenfold.[58]

***Figure 11** - Central America and the Dominican Republic: Central government fiscal balance, third quarter 2019 and 2020 (as percentage of GDP)*



Source: Economic Commission for Latin America and the Caribbean, based on official numbers.

As we have said, the impacts of this macroeconomic situation are differentiated in the social situation of the different sectors, strata and territories of society in the Northern Triangle countries. Oxfam and other humanitarian organizations detected that from August 2019 to June 2020, when the pandemic was in one of its peaks, **severe food insecurity in the CDC rose 12%**.[59] Oxfam also noted that confinement measures imposed in the region's countries caused a contraction of up to 20% in CDC household incomes, given the barriers to mobility and economic activity entailed. At the same time, basic staples became more expensive because of reductions and imbalances in value chains, as distribution was disrupted by restricted mobility, food hoarding and commercial speculation on different basic products.[60]

As for employment, countries in the Central American Integration System, or SICA — Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama and Dominican Republic — are estimated to have lost **8.3 million jobs because of the pandemic.**[61] ECLAC estimates this increased unemployment will cause extreme poverty to rise in the Northern Triangle countries in 2020 compared with 2019, as indicated below (data at national level with no rural-urban disaggregation).[62]

- **Guatemala:** from 19.8% to 22.7%.
- **Honduras:** from 18.7% to 22.8%
- **El Salvador:** from 7.4% to 11.9%

58 Ídem | **59** OXFAM, *"Aquí lo que hay es hambre". Hambre y pandemia en Centroamérica y Venezuela*, (s.l., OXFAM Internacional, 2020), 9, https://oi-fles-cng-prod.s3.amazonaws.com/lac.oxfam.org/s3fs-public/file_attachments/Aqui%CC%81%20lo%20que%20hay%20es%20hambre.%20Hambre%20y%20pandemia%20en%20Centroame%CC%81rica%20y%20Venezuela.pdf | **60** Idem | **61** OXFAM, *Faces of Hunger in Central America, Food and Nutritional Insecurity in the Dry Corridor as a Consequence of the Hurricane Season, Drought, and COVID-19*, https://www.oxfam.org.nz/news-media/media-releases/growing-hunger-with-the-climate-crisis-and-the-pandemic-in-the-central-american-dry-corridor/. **62** | ECLAC, Addressing the Growing Impact of COVID-19 with a View to Reactivation with Equality: New Projections, (Santiago: CEPAL, 2020), 11, https://repositorio.cepal.org/bitstream/handle/11362/45782/4/S2000471_es.pdf

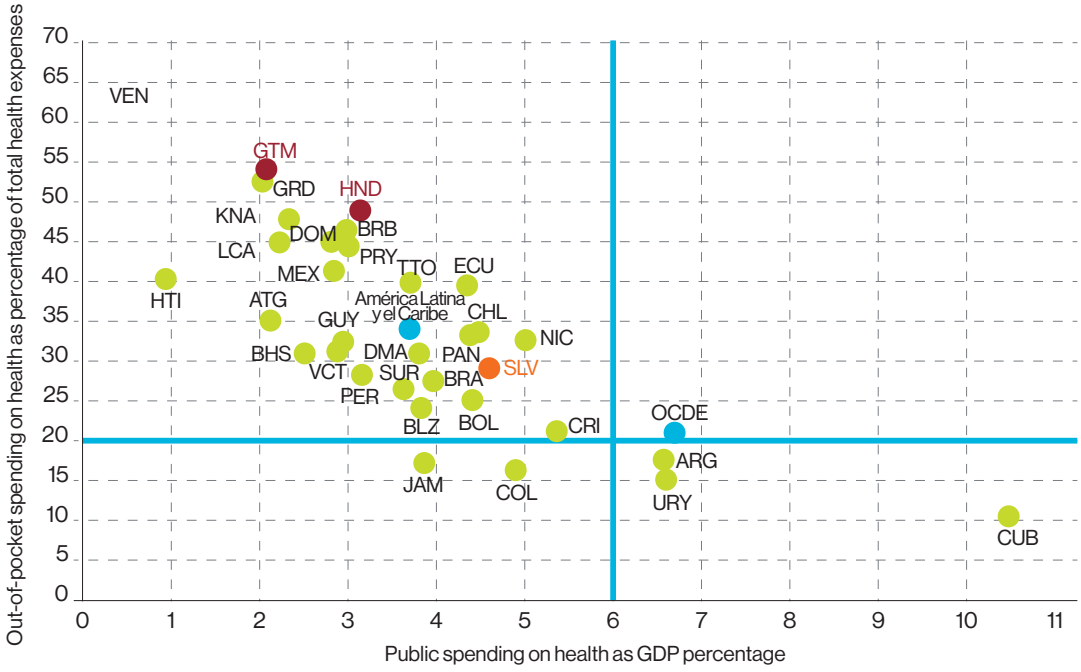
When considering these problems and their impacts, inequalities in **gender relations** must not be ignored, since **the pandemic increases the care work that falls to women in households** — for minors, the elderly, people with disabilities and the sick, who require more prolonged and more frequent attention. For example, in times of food insecurity, women are more likely to sacrifice their own food consumption in favor of the household's economically compensated work force, primarily men, in order to protect the productive capacity that supports the family's survival.[63] Moreover, **7 out of every 10 households experiencing food insecurity are single-parent households, and most are headed by women.** [64]

Given the accumulated effects of the droughts, storms and hurricanes in 2020, along with the pandemic, Oxfam estimated that food insecurity in 2021 would affect 86% of the families living in the CDC, and it forecasts a 120% increase by 2030.[65]

OXFAM's data shows that in 2021 food insecurity has an effect in 86% of the families living in the CDC.

This pandemic's significant health impacts place substantially greater strain on family income in those countries where a good part of medical expenses is paid directly by households because of the weakness of public health systems and low investment in them. This is particularly the case in Guatemala and Honduras (highlighted in red), while in El Salvador (highlighted in orange) the problem is less severe. Figure 12 offers a good depiction of the scenario in which COVID-19 operates with respect to family economy and health:[66]

***Figure 12** - Public spending on health, out-of-pocket health expenses and public spending on primary care, 2017*



63 OXFAM, *"Faces of Hunger in Central America"*. | **64** "Crisis climática y pandemia incrementan el hambre en el Corredor Seco Centroamericano", OXFAM, Accessed on June 29, 2021, at *https://lac.oxfam.org/latest/press-release/crisis-clim%C3%A1tica-y-pandemia-incrementan-el-hambre-en-el-corredor-seco* | **65** Idem | **66** ECLAC-PAHO, *Informe COVID-19. Health and the economy: a convergence needed to address COVID-19 and retake the path of sustainable development in Latin America and the Caribbean*, (s.l. ECLAC-PAHO, 2020), 15, *https://repositorio.cepal.org/bitstream/handle/11362/45841/4/S2000461_en.pdf*

OXFAM says pandemic response measures designed by the region's governments have been insufficient for several reasons:[67]

The scope, funding and anticipated application period are not enough given the dimension and length of the crisis.

Planned programs and budgets have been hampered by inefficiencies and under-execution.

Measures have weak transparency and accountability associated with accusations of corruption and political patronage.

Indeed, another Oxfam study based on a survey in October and November 2020 in 75 municipalities of the Northern Triangle countries plus Nicaragua found "that the largest percentage of benefiting households were in El Salvador, where 43% received food aid. Guatemala was second at 22.7%, and Honduras placed third, with 9.7% of those surveyed indicating they had received food." [68]

While r**emittances did not decline** as much as some analysts expected in the context of the pandemic and impacts on the economy of the United States, which is the main migratory destination from the Northern Triangle, interannual growth of remittances has slowed for the moment, while the needs of receiving families have multiplied.

The decelerating effect is more noticeable in Guatemala and Honduras than in El Salvador, where the decline in income from remittances had already appeared in 2019 and therefore cannot be attributed specifically to the pandemic.[69]

Table 8 *- Percentage variation in recent evolution of family remittances from 2018 to 2020 in Central America and the Dominican Republic*

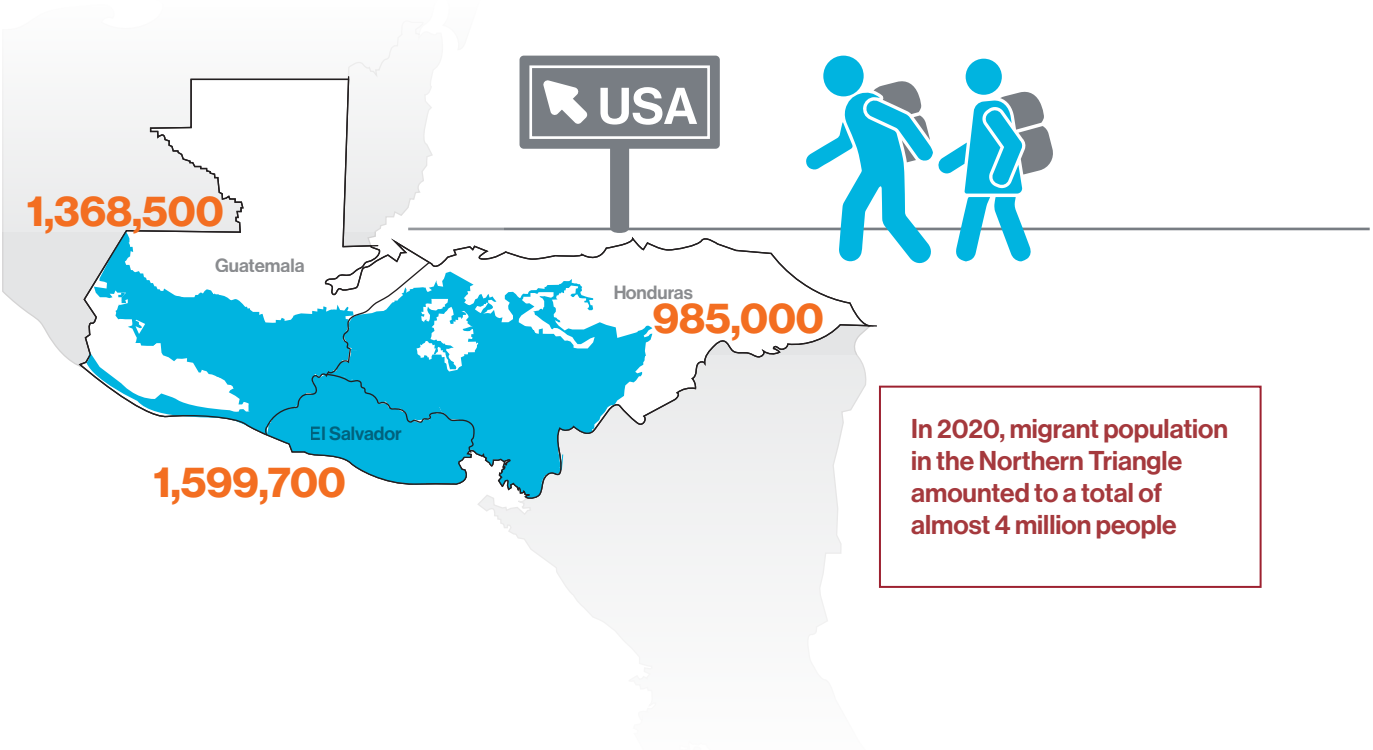
Country	2018	2019	2020
Costa Rica[a]	-5.3	4.0	-5.9
El Salvador	8.1	4.8	4.8
Guatemala	13.4	13.1	7.9
Honduras	10.6	13.1	6.4
Nicaragua	7.9	12.1	10.0
Panama[a]	2.9	8.0	-18.6
Dominican Republic	9.8	9.1	16.0
Central America	**10.3**	**10.7**	**6.2**
Central America and Dominican Republic	**10.2**	**10.3**	**8.4**

Source: ECLAC, based on preliminary figures and author estimates.
a. Annual estimation for 2020 based on information from the third quarter (Costa Rica) and second quarter (Panama), the latest data available.

This same ECLAC publication[70] theorizes that different compensatory measures may have curtailed a trend toward greater deterioration in remittances, such as migrants' eventual access to unemployment insurance and other mitigation programs implemented by the United States government, savings strategies and restructuring of spending by the population sending remittances, and the advantages of certain forms of **migrant labor not being affected as much by the pandemic.**

67 OXFAM, *"Aquí lo que hay es hambre". Hambre y pandemia en Centroamérica y Venezuela*, 2. | **68** OXFAM, *Los rostros del hambre en Centroamérica...*, 9. | **69** ECLAC, *Balance preliminar de las economías de Centroamérica...*, 23. | **70** Idem

International migrations



In 2020, migrant population in the Northern Triangle amounted to a total of almost 4 million people

Since the 1980s, emigration from the Northern Triangle countries has risen exponentially. A study for ECLAC[71] reports that the number of migrants in that decade was less than 300,000 people, while United Nations records[72] show that **in 2020 the migrant population** amounted to **985,000 people from Honduras, 1.37 million from Guatemala, and 1.6 million from El Salvador**, for a total of almost 4 million from the Northern Triangle. Notably, the number of migrants from El Salvador represented practically one-fourth of the country's entire population (24.7%).

This extensive migration mostly follows the south-north mobility pattern, indicating that the United States of America was the destination for 87%.[73] In fact, according to the Pew Research Center, in the 10 years from 2007 to 2017, **migration to the U.S. from the Central American Northern Triangle has grown some 25%** [74]— more than any other region in the world. Another study from the same institute[75] established that in 2015, **51% of the Salvadorans, 56% of Guatemalans and 60% of Hondurans who migrated to the United States were in that country irregularly.**

Data on migration specifically from the CDC is limited, but certain special studies are indicative of the relevance of this migratory flow. For example, a 2019 survey by Honduras' Unidad Técnica de Seguridad Alimentaria y Nutricional (Food and Nutritional Security Technical Unit) of 3,551 households in 15 departments located in the **Honduran Dry Corridor** detected that in one-third of those households, one of the members had resorted to permanent migration as an **emergency strategy** to meet basic needs.[76] The World Food Programme found that three of the five departments of origin for most of those returned by the U.S. authorities make up a significant part of the **Guatemalan Dry Corridor**. Those three departments constituted the origin of 29% of the returnees.[77]

---

71 Alejandro Canales, Juan Alberto Fuentes y Carmen Rosa de León, *Desarrollo y migración: desafíos y oportunidades en los países del norte de Centroamérica*, (Ciudad de México: CEPAL, 2019), 31, https://www.cepal.org/es/publicaciones/44649-desarrollo-migracion-desafios-oportunidades-paises-norte-centroamerica | **72** "International Migrant Stock 2020", United Nations Department of Economic and Social Affairs, Population Division, Accessed May 29, 2021, at https://www.un.org/development/desa/pd/themes/international-migration | **73** Canales, Fuentes y de León, *Desarrollo y migración...*, 32. | **74** "Mexicans decline to less than half the U.S. unauthorized immigrant population for the first time", Pew Research Center, Accessed on May 29, 2021, at https://www.pewresearch.org/fact-tank/2019/06/12/us-unauthorized-immigrant-population-2017/ | **75** D'Vera Cohn, Jeffrey Passel and Ana Gonzalez-Barrera, *Rise in U.S. Immigrants from El Salvador, Guatemala and Honduras outpaces Growth from Elsewhere*, (Washington: Pew Research Center, 2017), 12, https://www.pewresearch.org/hispanic/wp-content/uploads/sites/5/2017/12/Pew-Research-Center_Central_American-migration-to-U.S._12.7.17.pdf | **76** Unidad Técnica de Seguridad Alimentaria y Nutricional, *Informe de Indicadores de Seguridad Alimentaria y Nutrición*, (Tegucigalpa: UTSAN, 2019), 12, https://utsan.scgg.gob.hn/wp-content/uploads/2019/12/INFORME-INDICADORES-SAN-2019.pdf The consulted document clarifies that it is a preliminary report. | **77** Data is from 2015 and refers to the departments of Quiché, Petén and Chiquimula. World Food Program, *Food Security and Emigration: Why People Flee and the Impact on Family Members Left Behind in El Salvador, Guatemala and Honduras* (s.l. WFP, 2017), 32, https://docs.wfp.org/api/documents/WFP-0000019632/download/?_ga=2.231940255.1869249967.1633732026-344168835.1633732026.

Deportation is highly relevant to the way the migrant population is structured. According to the World Bank, only a minority of Northern Triangle migrants — **11% to 25%**, depending on the year — manage to enter and settle in the United States. In 2019 alone, immigration authorities returned **192,700 Northern Triangle migrants**[78] **back to their countries.**[79] **Return signifies an extremely difficult economic and social situation** in at least three key aspects:

1. The migration process involves **elevated costs**[80] that are covered by selling vital assets (land, tools and other livelihoods) and/or acquiring debt (in 40% of the cases[81]). Expectation of compensation depends on successfully settling in the destination country. This means that **a failed migration worsens the critical economic situation that motivated the displacement.**

2. Especially in the Salvadoran case, where over 16% of migrations relate to factors of violence and citizen insecurity, **returning to the place of origin is highly risky**, leading to often improvised and precarious relocations in the same country or third nations.

3. For sociocultural reasons, returnees are frequently **viewed negatively** in their own communities of origin (as a failure or a person who made a mistake). For gender reasons, women returnees are openly disparaged — blamed for having abandoned their "natural" obligation of caring for their children. All of this can slash away at the relations of trust and ties of solidarity that existed before the attempt to migrate.

In macroeconomic terms, IDB estimates that Northern Triangle countries must grow their GDP by an **additional 0.2% to 1%** to be able to reinsert all this returned population adequately.[82]

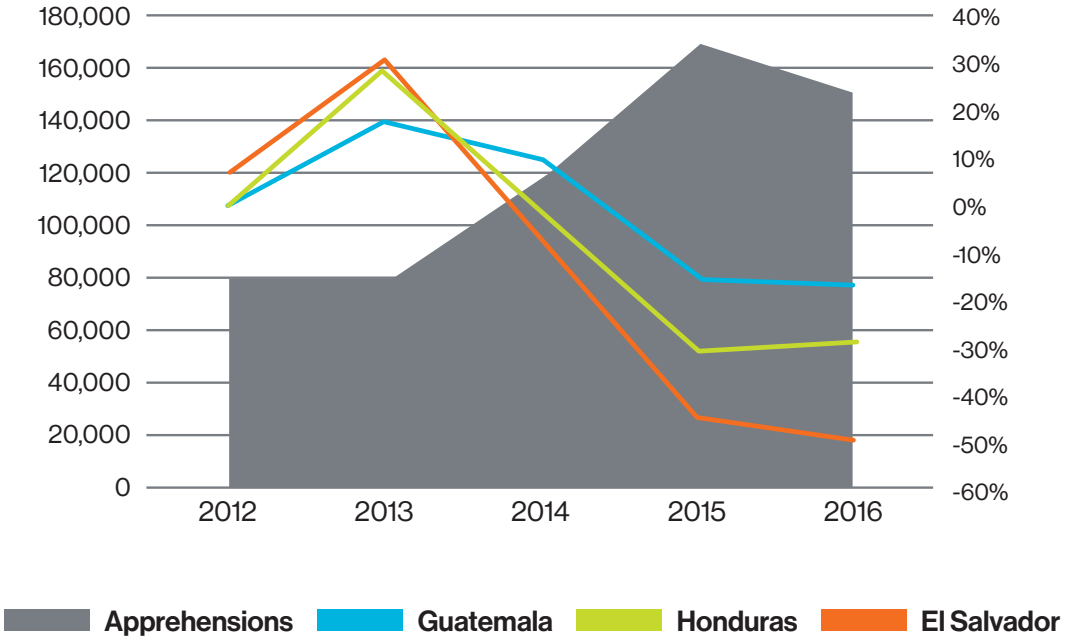
At the national level, the factors affecting Northern Triangle migration relate to economic problems people experience in their communities of origin. For **95% of migrant Guatemalans, 74% of Salvadorans and 95% of Hondurans, the main reasons for migrating were the economic crisis, unemployment, poor labor conditions and extremely low income in their place of origin**. This is consistent with Northern Triangle data indicating that the shortage of formal employment affects 65% of the economically active population. Only in the case of El Salvador was there another factor weighing more heavily, which is the previously mentioned citizen insecurity.[83]

In the specific arena of the Northern Triangle Dry Corridor, these factors are not only present but shaped and honed by the very characteristics of the climate dynamics impacting on them and manifesting as droughts and food insecurity.

Although the data in Figure 13 is at the country level, it is highly indicative that drought episodes in the Northern Triangle are correlated with increased migratory flows, observed indirectly through the number of migrants who are returned, in this case by Mexican authorities.[84]

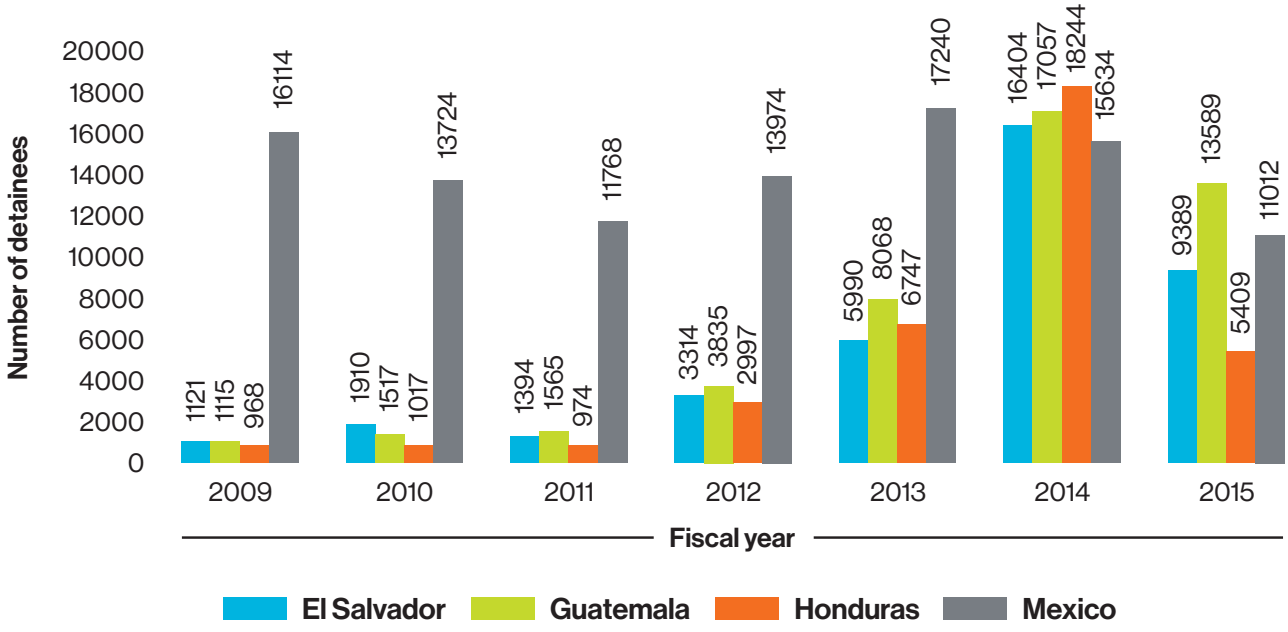
78 Distribution by country is 81,400 Guatemalans, 30,000 Salvadorans and 81,300 Hondurans. | **79** El Colegio de la Frontera Norte et al. *Boletín de Indicadores de la Encuesta de Migraciones de la Frontera Sur de México*. Informe de resultados 2019, (Tijuana: COLEF, 2020) 26 y 36, https://www.colef.mx/emif/datasets/indicadores/Emif%20Sur%20Indicadores%20Trimestrales%20Julio-Septiembre%202020.pdf | **80** Payments to intermediaries to complete the entire journey can cost from US$7,500 to almost US$14,000, according to El Colegio de la Frontera Norte, et al. *Boletín de Indicadores de la Encuesta de Migraciones de la Frontera Sur*, 7. | **81** Emmanuel Abuelafia Giselle Del Carmen y Marta Ruiz-Arranz, In the Footprint of Migrants: Perspectives and Experiences of Migrants from El Salvador, Guatemala and Honduras in the United States, (Washington: IDB, 2019), 19, https://publications.iadb.org/publications/english/document/In-the-Footprints-of-Migrants-Perspectives-and-Experiences-of-Migrants-from-El-Salvador-Guatemala-and-Honduras-in-the-United-States.pdf This study includes a survey of 1,859 migrants residing in New York; Washington, D.C.; and Los Angeles, the destinations for more than a third of those migrating from the Northern Triangle to the U.S. | **82** Osmel Manzano et al, coord., *El Futuro de Centroamérica. Retos para un desarrollo sostenible*, (Washington: IDB, 2019), 22, https://publications.iadb.org/es/el-futuro-de-centroamerica-retos-para-un-desarrollo-sostenible Estimation evidently does not take the pandemic into account. | **83** Hugo Beteta, "De la contención al desarrollo: hacia una nueva estrategia migratoria entre México y el Triángulo Norte de Centroamérica" Ponencia presenta en el Coloquio Centroamérica y México en la Encrucijada Hoy, México, 2018. https://www.cepal.org/sites/default/files/presentations/ppt-h.beteta.pdf | **84** Figure 13 is taken from World Food Programme, *Seguridad alimentaria y emigración*..., 31.

***Figure 13** - Incidents of foreigners presented to the migratory authorities and average precipitation in Northern Central America*



This correlation can be observed more symptomatically in the number of minors who migrate unaccompanied by adults, an indicator that dramatically reflects the highly intense factors involved in the population's expulsion from countries of origin, clearly associated with droughts (see Figure 14).[85]

***Figure 14** - Number of unaccompanied children and adolescents detained at the southern border of the United States, fiscal years 2009-15*



85 Figure 14 was taken from the Fundaungo study, "Una aproximación a las políticas de atención a los deportados en los países del Triángulo Norte de Centroamérica - El Salvador", ed. Asociación de Investigación y Estudios Sociales, (Guatemala City: Grupo Editorial ASIES, 2017), 4, *https://www.fundaungo.org.sv/products/una-aproximacion-a-las-politicas-de-atencion-a-los-deportados-en-los-paises-del-triangulo-norte-de-centroamerica-honduras/89*

While not specific to the CDC, the climate characteristics of this region can be used to deduce that the phenomena represented here are probably similar or more intense in this region than elsewhere in these countries.

This is consistent with the findings of field studies in 2016 by the World Food Programme in 22 communities of the Northern Triangle Dry Corridor. A survey revealed **lack of food and crop loss as the factors most cited for migrating (64% of responses)**. The relation to the drought problem is clear. The same survey found that **47% of households with members who migrated were suffering food insecurity**[86], a 50% higher incidence of this problem compared with the average of all households surveyed (with or without migrants). Although successful migration usually improves the economic situation of households with migrants, thanks to remittances, the study revealed that on average, **50% or more of remittances is used to buy food.** This means that the new income primarily served only to maintain an acceptable level in meeting basic needs, a situation that continues to generate long-term vulnerability.

86 Albeit more pronounced, this number was consistent with data recorded by the 10 emergency food security assessments made by the World Food Programme since 2014. See World Food Programme, *Seguridad alimentaria y emigración ...*

Housing conditions and access to water and sanitation

Photo 4

Water and sanitation

Water stress affects access and distribution of safe water for human consumption. In the drought caused by ENOS in 2014, for example, precipitation decreased up to 65%, which affected surface water provisions.

Specialized literature indicates that in the CDC, repeated drought episodes have decreased the water supply and increased the costs of compensating for shortages with alternative sources and repairing damage caused by events such as storms, hurricanes, landslides and floods.[87]

Another fundamental aspect of water provisioning is the geographical hydric imbalance that characterizes Central America in general: **70% of freshwater bodies** available for human use (consumption, irrigation, etc.) is concentrated in the **Atlantic zone**, versus **30% in the Pacific zone**, where population agglomeration is greater and where the CDC — and its problems of water stress and recurring drought — is located.[88]

It is worth noting that at the national level, **Northern Triangle countries have the least annual water resource availability per capita in Central America** (not including Belize), and two of the countries — Guatemala and El Salvador — are the most dependent on other countries for obtaining water for consumption.[89]

Photo 4 Filomena and her two sons received a health kit from Habitat for Humanity Guatemala, which has improved their quality of life. HFH Guatemala. | **87** For example, this is a statement from a geophysical research team at the University of Costa Rica: Oscar Calvo-Solano, et al, "Impacts of Drought in the Primary Sector of the Central American Dry Corridor," *Agronomía Mesoamericana* 29, (2018): 695-709, http://www.revistas.ucr.ac.cr/index.php/agromeso | **88** Francisco Sancho, Luis Rivera y Ronald Arce, *Regional Process of the Americas. World Water Forum 2018. Central America Subregional Report*. Cela Bedoya, ed., (Washington: BID, 2018), 21., https://www.incae.edu/sites/default/files/proceso_regional_de_las_americas_foro_mundial_del_agua_2018_informe_subregional_centroamerica_es_es_1.pdf | **89** Table reconstructed by the authors based on one presented in *Informe Subregional para Centroamérica* (idem).

Table 9 - Availability of water resources in Central America

Country	Annual precipitation Average long-term range (millions of cubic meters)	Percentage of dependence on sources outside the country	Total water resources per capita (cubic meters/ inhabitants/year)
Guatemala	217.3	15.0	8.27
Honduras	22.3	2.0	11.38
El Salvador	37.5	41.0	4.14
Nicaragua	297.2	5.0	27.05
Costa Rica	149.5	0.0	23.50
Panama	220.8	2.0	36.05

Based on the climate change trends previously mentioned in this document, **El Salvador and Honduras would fall below the water stress line** (less than 1,700 cubic meters per capita) by 2050, while Guatemala would be at approximately this limit.[90] As can be seen in Table 9, **El Salvador is highly dependent on water obtained beyond its borders** (41% of its water resource availability) and would otherwise enter the threshold of water stress before 2050, largely because its entire territory is in the Dry Corridor. This water vulnerability is rising, given that 90% of Salvadoran surface water is polluted.[91]

Concerning water and sanitation services, Tables 10 and 11 provide national-level data for Northern Triangle countries.[92] They show adequate rates for water access in the home, although it is important to note the disparity in rural percentages: 77% in Guatemala, 83% in Honduras and 77% in El Salvador.[93]

However, there is greater **fragility** regarding availability of water when required, as countries' performance in this indicator is 25% to 31% lower than water accessibility. Weaknesses in availability erode or neutralize achievements in accessibility.[94]

Table 10 - Percent distribution of water consumption characteristics in Central America and Latin America and the Caribbean, 2015

Country	Accessible inside the home	Available when needed	Free of contamination	Piped
Costa Rica	100.0	90.0	95.0	99.0
El Salvador	90.0	7.0	nd	88.0
Guatemala	86.0	61.0	92.0	77.0
Honduras	91.0	60.0	nd	89.0
Nicaragua	78.0	61.0	67.0	70.0
Panama	93.0	85.0	nd	92.0
Central America	**88.0**	**67.0**	**52.0**	**83.0**
Latin America and the Caribbean	**93.0**	**74.0**	**65.0**	**91.0**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), based on World Health Organization/United Nations Children's Fund (WHO/UNICEF), Progresos en materia de agua potable, saneamiento e higiene: informe de actualización de 2017 y línea base de los ODS, Geneva, 2017.

90 Lennox, Ramírez y Olivares, *Cambio climático en Centroamérica...*, 63. | **91** UNOCHA, *Panorama de las Necesidades Humanitarias en CA: El Salvador, Guatemala y Honduras*, 20 | **92** ECLAC *Desarrollo, integración e igualdad. La respuesta de Centroamérica a la crisis de la globalización*, (Washington: IDB, 2018), 126, https://www.cepal.org/es/publicaciones/44191-desarrollo-integracion-igualdad-la-respuesta-centroamerica-la-crisis-la. | **93** UNICEF and WHO, *Progress on Drinking Water, Sanitation and Hygiene, 2017 Update and SDG Baselines*, (Ginebra: WHO-UNICEF, 2017), 18., https://apps.who.int/iris/bitstream/handle/10665/260291/9789243512891-spa.pdf?sequence=1 | **94** Idem

Regarding sanitation, Table 11 shows that the level of open-air defecation continues to be comparatively high in the region as a whole and especially in Honduras and Guatemala, at 7% and 6%, respectively. While lower in El Salvador, the problem persists.

Percentages of outdoor defecation in rural areas are greater:[95]

- Guatemala: 10%
- Honduras: 13%
- El Salvador: 5%

Table 11 *- Percent distribution characteristics of sanitation facilities in 2015, Central America and Latin America and the Caribbean*

Country	Wastewater treatment	Latrines, septic tanks and other types	Sewer connections	Open-air defecation
Costa Rica	1.0	74.0	23.0	0.0
El Salvador	nd	57.0	35.0	2.0
Guatemala	nd	30.0	37.0	6.0
Honduras	1.0	45.0	35.0	7.0
Nicaragua	8.0	53.0	23.0	7.0
Panama	6.0	46.0	31.0	3.0
Central America	**2.0**	**24.0**	**33.0**	**5.0**
Latin America and the Caribbean	**22.0**	**26.0**	**60.0**	**3.0**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), based on the World Health Organization/United Nations Children's Fund (WHO/UNICEF), Progresos en materia de agua potable, saneamiento e higiene: informe de actualización de 2017 y línea base de los ODS, Geneva, 2017.

95 Ídem

Within the Northern Triangle Dry Corridor specifically, these are some of the most significant water and sanitation problems:[96]

HONDURAS	GUATEMALA	EL SALVADOR
Four of the six departments most affected by droughts are in the six departments in the country where **open-air defecation is practiced the most** (average rate of 22.3% in these departments vs. 9.8% nationally). The same six departments affected most by drought are also among the nine departments with greater **access to unimproved water sources** (on average, 16.7% of the population in these departments, while the national average is 10.6%). **About 902,000 people do not have sanitation services** in the Dry Corridor departments of Comayagua, Copán, Choluteca, El Paraíso, Francisco Morazán, Intibuca, Lempira, Ocotepeque, Olancho, Santa Bárbara, Valle and Yoro. **About 77,000 people experience deficiencies in access to drinking water** in the two dry corridor departments of Honduras: Atlántida and Francisco Morazán. In **2019, droughts made it necessary to ration water in the capital city of Tegucigalpa every 10 days.** **Aquifer overexploitation is evident during the dry season, because of the lack of water storage infrastructure**. A decrease in groundwater has been detected, along with salinization (another sign that these sources are being depleted), especially in the lower basins of the Choluteca and Nacaome rivers, where agricultural production depends on water from those aquifers.[97]	In four of the seven departments most affected by droughts, there is a **high degree of open-air defecation (21.5% vs. 8% nationally).** In three of the Dry Corridor departments alone — San Marcos, Huehuetenango and Alta Verapaz — 1 million people depend on untreated water extracted from natural water sources or supplied from cisterns or barrels.	Given that all Salvadoran territory lies within the CDC, it is highly significant and relevant that **12% of the rural population** (those most affected by the Dry Corridor's characteristic climate onslaughts) obtain their water, untreated, directly from surface water sources (rivers, ponds, etc.). The UNOCHA 2020 report established that **288,000 people do not have access to improved water facilities.** Approximately **8.7% of the Salvadoran population has no access whatsoever to drinking water** (99% of these inhabitants live in rural areas). Water stress leads to overexploitation of **strategic springs and surface water sources in the department of San Salvador** that are vital for water delivery to the metropolitan area. In this area of the country, 45 National Water Administration wells went dry between 2008 and 2016, which affects the provision of safe water to the metropolitan population of approximately 2.1 million people.[98]

96 By authors based mainly on two sources: UNICEF, *Análisis de Políticas, Acciones y Oportunidades para la contribución sectorial de Nutrición y de Agua, Saneamiento e Higiene a la resiliencia en el Corredor Seco de Centroamérica*, (s.l., UNICEF, 2018), 2-6, *https://www.unicef.org/lac/media/1701/file/PDF%20An%C3%A1lisis%20de%20pol%C3%ADticas,%20acciones%20y%20oportunidades%20para%20la%20contribuci%C3%B3n%20sectorial%20de%20nutrici%C3%B3n%20y%20de%20agua,%20saneamiento%20e%20higiene%20Corredor%20Seco.pdf* ; and UN OCHA, Panorama de las Necesidades Humanitarias en CA,18-50. The amount and type of information vary among countries depending on availability and emphasis of sources. | **97** This data comes specifically from Invest-Honduras, *Plan de participación de las partes interesadas. Proyecto: Seguridad Hídrica en el Corredor Seco de Honduras*, (Tegucigalpa INVEST, 2020), 8, *https://documents1.worldbank.org/curated/en/610451580861623731/pdf/Stakeholder-Engagement-Plan-SEP-Water-Security-in-the-Dry-Corridor-of-Honduras-P169901.pdf* | **98** "*Situación actual del agua en El Salvador*", Tutela de Derechos Humanos-Arzobispado de San Salvador, Accessed on June 20, 2021, at *http://tuteladh.org/sitioweb/situacion-actual-del-agua-en-el-salvador/*

Contribution of community water management

Amid the water and sanitation challenges faced by Northern Triangle countries, an important number of self-managed community organizations are shouldering the task of delivering these services[99] to large populations, as can be observed in Table 12:[100]

Table 12 *- Community organizations and water management in the Northern Triangle by country*

Country	Number of water and sanitation organizations	Number of people serviced by those organizations	Average number of people serviced per organization
Guatemala	13 000	5 700 000	438
Honduras	8 000	3 200 000	400
El Salvador	2 325	1 400 000	602
Total Northern Triangle	**23 325**	**10 300 000**	**442**
Total Central America (without Belize)	**32 531**	**14 700 000**	**414**
% of the Northern Triangle in relation to Central America	**65.5%**	**70.0%**	

These community-based water and sanitation organizations (known generically as OCSAS, the acronym for their name in Spanish)[101] are quite prevalent in the Northern Triangle countries, representing 65.5% of the total existing in Central America. Their reach is even greater in terms of people serviced, since 70% of the inhabitants receive water and sanitation services from this community-based provisioning sector. The case of El Salvador is particularly noteworthy; while there are significantly fewer OCSAS than in Honduras and Guatemala, the average number of people serviced is not only greater than in those countries, but also surpasses the combined average of the Northern Triangle and even Central America.

Despite the strategic importance of these community-based organizations, or OCSAS, in delivering water and sanitation services, it must be acknowledged that **the great majority have organizational, logistical, technical and financial weaknesses.** Only about 20% of them are said to have sufficient institutional solidity and sustainability.[102]

99 It should be clarified that the model has been far more effective at delivering water supply. There are relatively few instances of sanitation services, although promising community management experiences exist. | **100** Prepared by authors based on information in Sancho, Rivera, and Arce, *Proceso Regional de Las Américas Foro Mundial del Agua...*, 27. | **101** While these have different names in each country, OCSAS, or *Organizaciones Comunitarias de Servicios de Agua y Saneamiento*, is generally accepted as their common and generic name at the regional level. | **102** This is the expert opinion of Rolando Marín, who for several years was president of *Confederación Latinoamericana de Organizaciones Comunitarias de Agua y Saneamiento* (the Latin American Confederation of Community-Based Water and Sanitation Organizations), as heard in person at several conferences.

Housing situation

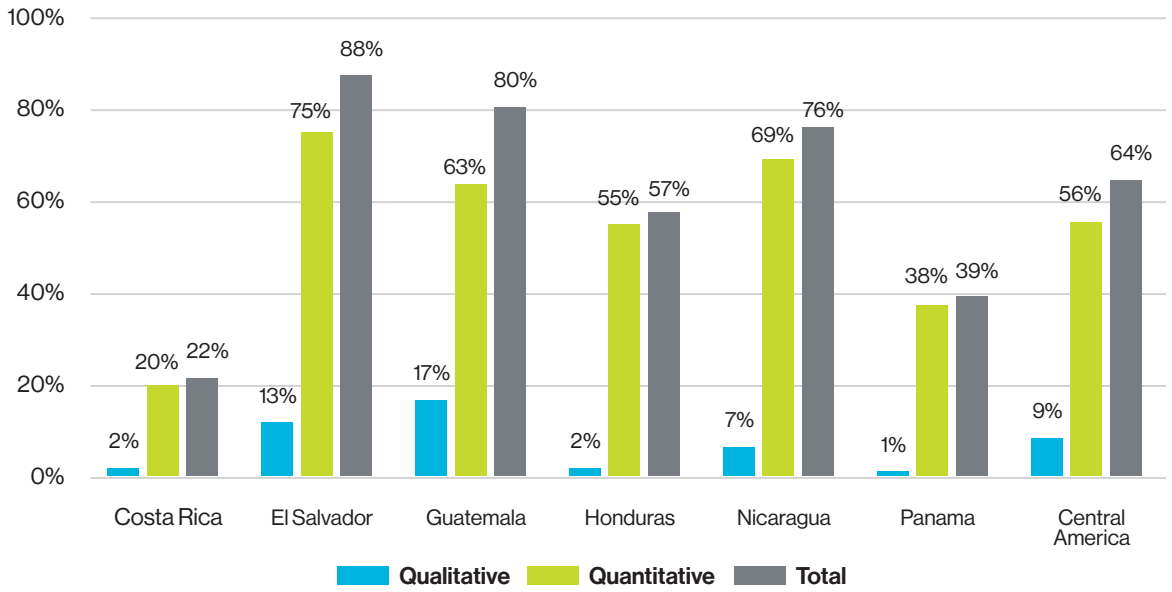
No secondary sources have been found on this specific topic for the CDC as a whole or for each Northern Triangle country. Nor is data available at a municipal disaggregation level, which is needed to represent the situation in the Dry Corridor. Only Guatemala has a recent census (done in 2018).

Table 13 replicates key elements from a 2016 report on the state of housing in Central America[103] by Habitat for Humanity Latin America and the Caribbean with the support of Instituto Centroamericano de Administración de Empresas. Although the information is at the country level, it is indicative of habitation in the context of the Northern Triangle CDC (recall that El Salvador's entire national territory lies within the Dry Corridor).

Table 13 *- Quantitative and qualitative housing deficit in Central America*

Country	Total households	Total homes	Deficit		Total	Qualitative deficit (geographical zone)		Deficit		Total
			Quantitative	Qualitative		Urban	Rural	Quantitative	Qualitative	
Costa Rica 2015	1 370 732	1 348 253	22 479	269 651	292 130	186 059	83 592	2.0%	20.0%	22.0%
El Salvador 2014	1 722 075	1 530 265	191 810	1 147 699	1 339 509	585 326	562 372	13.0%	75.0%	88.0%
Guatemala 2014	3 250 000	2 774 297	475 703	1 747 807	2 223 510	664 167	1 083 640	17.0%	63.0%	80.0%
Honduras 2013	1 881 577	1 838 527	43 050	1 011 190	1 054 240	434 812	576 378	2.0%	55.0%	57.0%
Nicaragua 2014	1 285 694	1 203 298	82 396	830 276	912 672	423 441	406 835	7.0%	69.0%	76.0%
Panama 2010	912 590	900 413	12 177	343 057	355 234	236 710	106 348	1.0%	38.0%	39.0%
Total	**10 422 668**	**9 595 053**	**827 615**	**5 349 679**	**6 177 294**	**2 530 514**	**2 819 166**	**9.0%**	**56.0%**	**64.0%**

Figure 15 *- Central America 2015: Quantitative and qualitative housing deficit (percentages)*



103 Porfirio Guevara and Ronald Arce, *Estado de la vivienda en Centroamérica*, (San Jose: Habitat for Humanity-LAC, 2016), 26-41, http://www.rniu.buap.mx/infoRNIU/ene17/2/estado-vivienda-centroamerica_pguevara-rarce.pdf Unless indicated otherwise, all tables, figures and individual data presented in this section come from that document.

As can be observed in both Table 13 and Figure 15, **qualitative deficits are especially high** in the Northern Triangle countries. El Salvador and Guatemala exceed the regional average, while Honduras is practically at the same level. In a breakdown that approximates the situations seen most in the Dry Corridor region, the proportion of qualitative deficit is significant in rural areas in Guatemala, while in Honduras the gap is narrower. Urban qualitative deficit is higher in El Salvador because of the coinciding geography. The Salvadoran part of the Dry Corridor would be the most highly urbanized, at least in relative terms.

Table 14 - Quantitative deficit and percent contributions in Central America

Country	Characteristics		Quality of materials			Basic services		Qualitative deficit
	Type of housing	Tenure	Roof	Walls	Floor	Potable water	Sanitation service	
Costa Rica	0.4%	11.7%	0.5%	5.4%	1.3%	0.4%	2.2%	20.0%
El Salvador	3.5%	24.0%	25.0%	24.0%	20.0%	27.0%	8.0%	75.0%
Guatemala	9.6%	12.6%	2.8%	22.4%	29.0%	9.5%	44.4%	63.0%
Honduras	4.5%	6.4%	10.7%	31.2%	23.0%	16.8%	25.1%	55.0%
Nicaragua	1.0%	46.0%	4.0%	13.0%	27.0%	10.0%	36.0%	69.0%
Panama	10.9%	5.4%	2.9%	6.2%	8.0%	4.8%	31.1%	38.0%

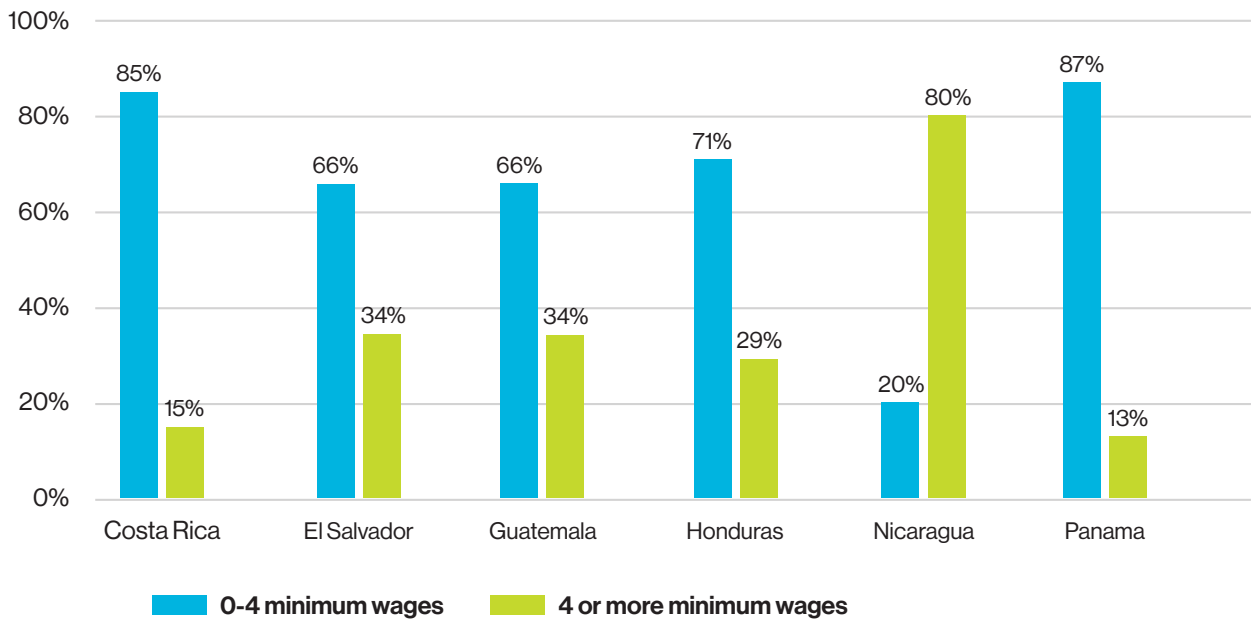
Source: Authors' calculations based on household surveys and housing censuses (Honduras and Panama).

Certain aspects of each Northern Triangle country stand out in the table above:

- **El Salvador:** The level of tenure insecurity, quality of materials, and access to drinking water (recall that this country is highly dependent on supply from outside its borders).
- **Guatemala:** The level in the quality of materials, access to sanitation, and to a lesser degree, insecure tenure.
- **Honduras:** Once again, strikingly insufficient quality of materials, access to sanitation, and to a lesser extent, safe water services.

From the standpoint of social stratification, as shown in Figure 16, it is noteworthy that the recurring qualitative deficit in the Northern Triangle extends to a larger portion of the strata that receives more than four minimum wages per household compared with countries in the southern part of the isthmus (Nicaragua is not included in the comparison because of its atypical pattern).

Figure 16 *- Central America 2015: Qualitative housing deficit and household income level*



This relatively greater presence of somewhat higher strata indicates the proportion of the qualitative housing deficit associated with factors other than household income. These factors might include dynamics observed in the Dry Corridor: domestic and international displacement of the population, migrant returnees, the sale of family assets, impacts of extreme weather events, etc. All of these other factors involve housing dynamics with special, more complex and changing characteristics that likewise call for more versatile response strategies.

In terms of habitation problems in the **urban context**, it is worthwhile to examine data from the census[104] made by TECHO, an international nongovernmental organization, in the Honduran conurbation of Tegucigalpa and Comayagüela. In this urban conglomerate, the country's largest and the CDC's most populous, there are **161 informal settlements** with a population of approximately **214,000 people**, representing around 16.5% (1 of every 6) of the inhabitants in the Central District, which is the capital. According to the census, the residents of these precarious settlements represent a little more than **85% of all people living in extreme poverty in the greater metropolitan are**a. These informal neighborhoods represent the most blatant manifestation of poverty in the country's main urban area.

The following map shows the settlements identified by TECHO, which detected 35 informal neighborhoods not even recorded in an official source. The settlements are mostly located in the greater metropolitan area periphery, constituting a precarious expansion of these cities.

104 TECHO, *Censo de Asentamientos Informales. Casco Urbano Distrito Central 2018*, (Honduras: TECHO, 2018) http://datos.techo.org/dataset/8efe820f-fda2-4ff6-a0a5-6c28b57596e6/resource/5e75ac50-44c9-4450-ab8b-872ba939bbc4/download/informe-censo-de-asentamientos-informales-casco-urbano-dc-honduras-2018-interactivo-light.pdf

Illustration 11 *- Settlement information for Tegucigalpa and Comayagüela, Honduras, 2018*

This data retrieved from TECHO about the housing conditions of these settlements shows the problems occurring there. Although it does not attempt to be statistically representative, it is indicative of situations with similar characteristics in other urban spaces of the CDC:

- Nine of every 10 precarious settlements **have dirt roads**, creating access problems for public transportation and other services (emergencies, commercial supply, etc.). Dirt roads are also a factor jeopardizing the health of settlement inhabitants.
- **Housing materials are deficient** in providing safe and healthy conditions, especially in a context marked by weather extremes: 90% of roofs are made from castoff materials; 53% of the houses have unrecoverable walls (because of deterioration or poor quality); and 27% have earthen floors, one of the unhealthiest types of foundation, especially for underaged children.
- In terms of **water access**, 35.5% of homes are supplied by tanker trucks (pipelines), requiring **inhabitants to pay 10 times more for each gallon of water consumed** than people who have a water connection in the formal network. Almost 22% of the households obtain water from a natural source, well or neighbor's supply; 35.5% access through a cistern (with no certification guaranteeing water quality), meaning that almost **60% obtain water from sources whose safety is doubtful.** Even so, 36% of homes do not treat the water they consume to make sure it is healthy.
- Nine of every 10 settlements have **no sewer system to remove wastewater.**
- Sixty-seven percent of the households **use firewood or charcoal to cook**, one of the methods most harmful to health given the carbon monoxide emissions, especially in housing spaces with few

divisions between areas and inadequate ventilation. In addition, combustion cooking technologies tend to be improvised and therefore lack adequate systems to extract and channel smoke. This especially affects women and children, who spend more time in the home.

- As for other public services, the spatial displacement of these populations is peripheral in nature, toward territories without value and little-connected with the benefits of the city. For example, **half of the settlements have no educational service whatsoever within their perimeter**. Sixty percent of the families must travel more than **30 minutes by vehicle to reach a health center, and 50% require over one hour of displacement** (some 50 blocks) to obtain social security services. For 43% of the population, accessing markets to obtain basic provisions or place some product of their economic activity takes an hour or more.
- Ninety percent of the settlements in this census are exposed to a natural element **constituting a hazard from the standpoint of disaster risk:** 72% are located by streams, and 57% are near gullies and ravines. This has important implications considering the extreme situations of heavy rainfall and hurricanes to which the Dry Corridor is prone.

Land tenure

The highly concentrated land tenure structure is a historical legacy in Central America dating back practically to colonial times. These inequalities appear in relation to land tenure for both productive and housing purposes.

We have already mentioned that small farmlands predominate in the CDC, particularly in relation to the production of basic staple crops. Although the data in Table 15 pertains to smallholder farming at the country level and is not exclusive to the CDC, it depicts the problems clearly materializing in that region:

Table 15 *- Percent distribution of farmlands in the Northern Triangle countries*

Country	Small farms as percentage of all farms	Percentage of national agricultural land in small farms
El Salvador	82.0%	29.0%
Honduras	71.9%	12.0%
Guatemala	86.6%	16.3%

Source: By authors based on Escobar, G., Estructura y tenencia de la tierra agrícola en América Latina y el Caribe, (Buenos Aires: Nueva Sociedad-Friedrich Siftung, 2016), 3, https://static.nuso.org/media/documents/tierra.pdf

In relation to **tenure according to gender**, the traditional, male-dominated pattern persists. Gender perspective was not a part of 1960s agrarian reform in Central America; these processes maintained the practice of registering land in the name of an adult male, since back when this practice started households were assumed to be led by men.

Although newer-style public policies have attempted to modify this situation, the tenure structure has a great deal of inertia, and transformation takes time because of the formalities and cultural factors involved. Land granted to women tends to be of low quality, and women's power of decision and control over this asset is co-opted by the impositions of masculine power in accordance with the patriarchal family structure.[105] The Red Centroamericana de Mujeres Rurales Indígenas y Campesinas (Central American Network of Rural and Indigenous Women) has documented low rates of women-held land tenure in the context of the Northern Triangle countries:[106]

- **Honduras:** 12% of the land.
- **El Salvador:** 13% of the land.
- **Guatemala:** 15% of the land.

More women than men face obstacles accessing land and housing because of the wage gaps usually placing them at a significant income disadvantage, along with the large amount of **unpaid work** they do, especially in domestic labors and caring for vulnerable members of the family group.

This is relevant not only from the standpoint of women's rights, but also in overcoming poverty. FAO estimates that, globally, equal access to means of production (land, among other essentials) for men and women farmers could reduce hunger for more than 100 million people[107].

Indigenous communities are another sector of the population particularly affected by land tenure issues, not only because of centuries-old discrimination and social exclusion, but also — and significantly — the lack of legal recognition or effective protection of their collective right to property, an ancestral practice.

This has fundamental importance, considering that approximately 3.5 million indigenous people live in the CDC, according to the International Labour Organization.[108] In Guatemala, 61% of the people producing staple crops are indigenous. In general, these are communities whose development level is below the national average and who are exposed to pressures on their territories from extractive industries (mining, hydroelectric plants) and extensive plantation agriculture. Because of their close economic, social and cultural ties to nature, these populations are exposed to the CDC's weather extremes, and migration is less feasible for reasons of culture and productive-labor patterns.

105 REDLAC, *El Impacto de la Violencia sobre el Derecho a la Vivienda Adecuada en el Norte de Centroamérica.* Boletín No. 5., (s.l.: REDLAC, 2019), 1-7, https://reliefweb.int/sites/reliefweb.int/files/resources/BOLETI%CC%81N%20REDLAC%205%20-%20JULIO%202018%20-%20ESPAN%CC%83OL.pdf | **106** Arantxa Guereña, *Tierra para nosotras. Propuestas políticas de las mujeres rurales centroamericanas para el acceso a la tierra* (Guatemala City: RECMURIC, 2015), 9, https://genderandsecurity.org/projects-resources/research/tierra-para-nosotras-propuestas-politicas-de-las-mujeres-rurales | **107** Ivannia Ayales, et al, *Migraciones climáticas en el Corredor Seco Centroamericano: Integrando la visión de género*, (s.l., InspirAction/Christian Aid, 2019), 23, https://migracionesclimaticas.org/documento/migraciones-climaticas-en-el-corredor-seco-centroamericano-integrando-la-vision-de-genero/ | **108** Federico Fraga, *Corredor Seco Centroamericano: Una visión exploratoria...*, 6.

Habitat for Humanity International Latin America and the Caribbean, along with its national organizations in Guatemala, El Salvador and Honduras, commissioned the "Characterization of the Dry Corridor in Central America's Northern Triangle" study to understand the environmental and climate change impacts on the population's living conditions in direct relation with the right to adequate housing.

As an international organization driven by the vision of a world where everyone has a decent place to live, Habitat for Humanity is using this study to present the problems afflicting the more than 22 million people who live in the Northern Triangle countries of Central America's Dry Corridor. The inhabitants of this region face great economic, social and environmental vulnerability, and it is for them that we advocate through the information presented in this document.

The experience of Habitat for Humanity International indicates that unless regulatory measures are taken, urbanization, migration and climate change will continue rising unchecked, and needs among the most vulnerable will be greater in coming years. For this reason, we have proposed a collaborative regional approach and strategic programmatic initiatives to mitigate threats and vulnerabilities in this territory as means for improving the living conditions of its population.

For more information about Habitat for Humanity, visit *www.habitat.org*

Habitat for Humanity®

Habitat for Humanity
Area Office - Latin America and the Caribbean
San Jose, Costa Rica
www.habitat.org/lac-es
Phone: (506) 4102-3359
lac@habitat.org