

Vulnerability to Climate Change

In Latin America and the Caribbean in the context of the pandemic

Edited by:

Latin American Network for Economic and Social Justice -Latindadd

Jr. Mariscal Miller 2622, Lince, Lima – Peru

Telephone: (51)(1)711-1914

latindadd@latindadd.org

www.latindadd.org

Written by:

Carola Mejía Silva

Comments and contributions:

Patricia Miranda

Mario Valencia

Daniela Berdeja

Design and layout:

José Luis Mancilla - Latindadd

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Main findings

- Latin America and the Caribbean (LAC) is one of the most vulnerable regions to climate change, even though it is not largely responsible for this global problem.
- In more than half of the LAC countries analyzed, family agriculture accounts for more than 80% of the farms, which is significant because workers in this sector face several challenges to produce food and survive with their daily activities due to climatic shocks mainly associated with floods, frost and prolonged droughts.
- Prolonged droughts and changes in rainfall patterns, which come in short periods but with great intensity, are resulting in significant losses of water resources. For example, all the countries analyzed in LAC have experienced losses of water resources in the last decade.

- In more than half of the countries, the loss of water resources exceeds 11% and it is estimated that, due to climate change, this problem will worsen.
- The response capacity of LAC countries is insufficient. As the Atlas of Vulnerabilities shows, more than 79% of countries show a lower capacity to respond to climate change than the world average.
- Many vulnerable LAC countries have also had to face and deal with the physical damage and large economic losses from natural disasters, which are becoming more frequent and devastating as global temperatures rise. In the region, Mexico, Brazil and Honduras are the countries that have registered the greatest economic losses derived from adverse climatic events in the last 20 years.

VULNERABILITY TO CLIMATE CHANGE IN LATIN AMERICA AND THE CARIBBEAN IN THE CONTEXT OF THE PANDEMIC

In addition to all the vulnerabilities that Latin America and the Caribbean (LAC) faces as a result of existing structural problems, which were deepened by the COVID19 pandemic, it is also one of the regions most vulnerable to climate change, even though it is not largely responsible for this global problem.

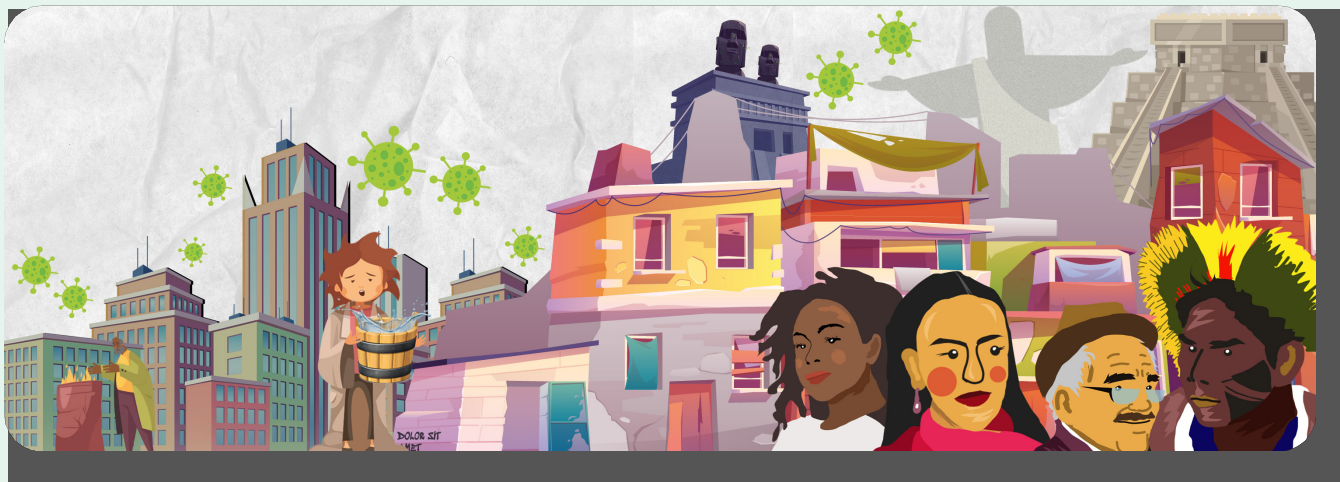
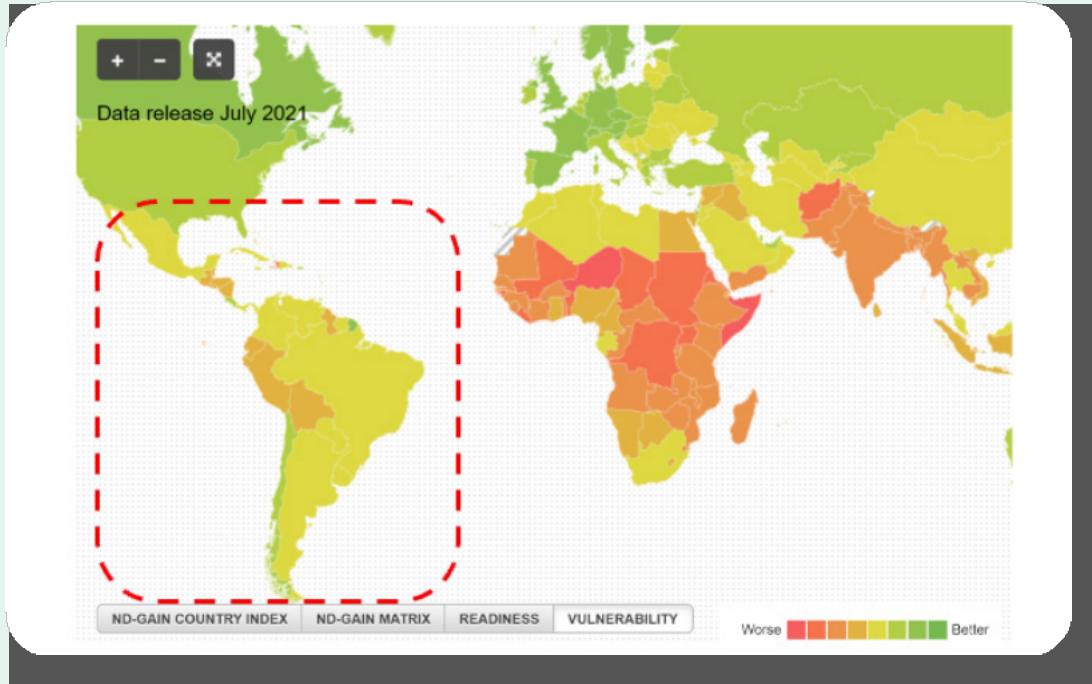


Figure 1. Vulnerability to climate change by region



Source: ND-Gain Country Index, University of Notre-Dame, 2019

An example of this is the increasingly frequent occurrence of extreme weather events, such as hurricanes, mainly in Mexico and Central American countries; prolonged droughts, storms and frosts that result in floods and damages to food production throughout the region, as well as damages to infrastructure. Other effects have to do with the retreat of glaciers, the spread of diseases such as dengue fever, and increasingly uncontrollable forest fires in the Amazon region and in forested areas throughout the continent.

All these climate-related events result in disasters that affect the population and ecosystems, generate substantial economic losses that must be covered with the countries' own fiscal resources or through debt, generate migrations of affected groups, and jeopardize food, water and energy security, as well as the survival of many species. All this considering that science has given a timeframe of less than 10 years to address the current climate crisis, through profound and unprecedented transformations in current development models, in search of alternatives that do not depend on the consumption of fossil fuels and allow us to live in harmony with nature, respecting the planetary limits.

Within the "Climate" dimension of the Atlas of Vulnerability: Developing Countries and the Pandemic¹ there is information for 4 climate indicators that are linked to the response capacity or resilience of LAC countries to the pandemic and future crises:

1 www.atlasdevulnerabilidades.org

- a. Percentage of family agriculture
- b. Loss of water resources
- c. Climate resilience
- d. Economic losses related to climate disasters

The following is a brief analysis of each of these four indicators.

a) Percentage of family agriculture

Family farmers belong to a highly vulnerable group, not only to climate change, but also to any type of crisis, since they are among the lowest income groups and are mainly concentrated in rural areas, with difficulties in accessing basic services.

The Atlas of Vulnerability to the pandemic² reveals that in more than half of the LAC countries analyzed, family agriculture accounts for more than 80% of farms (see Table 1). This is significant because workers in this sector face serious challenges to produce food and survive with their daily activities due to climatic impacts associated mainly with floods, frosts and prolonged droughts. In Andean countries, climate change has also negatively affected cultural practices, such as the agricultural calendar.

2 www.atlasdevulnerabilidades.org

Table 1. Family Agriculture Indicator by Country

Country	% Family Agriculture
Honduras	97.2 %
Bolivia	96.4 %
Paraguay	93.1 %
Chile	92.0 %
Guatemala	86.5 %
Ecuador	84.5 %
Brazil	84.4 %
Panama	81.5 %
Peru	79.3 %
Jamaica	78.7 %
Colombia	78.4 %
Mexico	75.7 %
Argentina	65.6 %
Costa Rica	55.4 %
Uruguay	46.9 %

Source: Atlas of Vulnerability. Available at www.atlasdevulnerabilidades.org

Despite all the adversity that the COVID-19 pandemic has posed to local small producers, it has managed to make visible the important role they play in the provision of basic food baskets, especially at a time when borders were closed and trade in goods between countries was interrupted or halted due to the spread of the pandemic. This is a sector that did not stop despite the pandemic, and guaranteed food security in several countries, demonstrating its great value to society, despite the fact that they generally do not receive the State support they need.

b) Loss of water resources

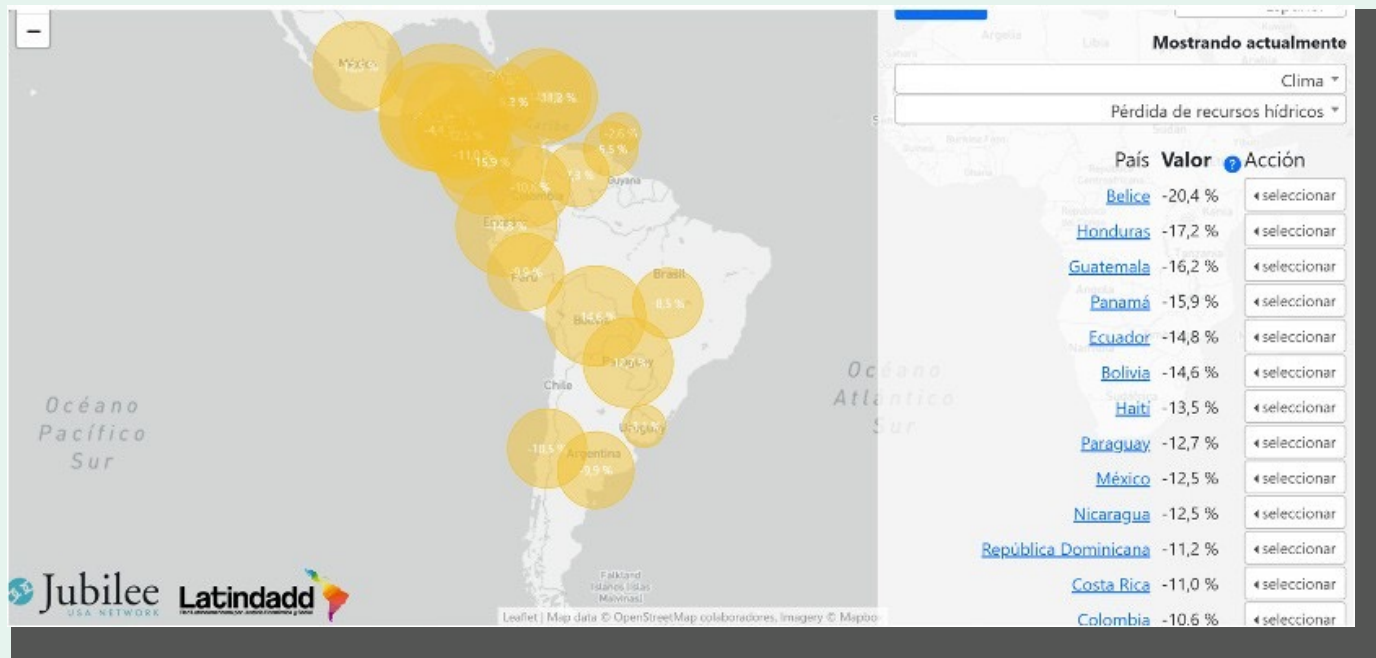
Prolonged droughts and changes in rainfall patterns, which come in short periods but with great intensity, are resulting in significant losses of water resources, i.e., WATER, which, as the pandemic showed us, is essential for life and for ensuring people's health.

Global warming is also causing glaciers to melt around the world, and in LAC the Andes region has been the most affected, putting the water and energy security of the populations living in that region at risk.

The Atlas of Vulnerability³ shows that all the countries analyzed in LAC have suffered water resource losses in the last decade (see Figure 2). In more than half of the countries, losses exceed 11% and it is estimated that, due to climate change, this problem will continue to worsen. The most affected countries are Belize, Honduras and Guatemala.

3 www.atlasdevulnerabilidades.org

Figure 2. Loss of water resources in LAC countries (%)



Source: Atlas of Vulnerability. Available at www.atlasdevulnerabilidades.org

c) Climate resilience

As mentioned previously, climate change is a reality and has been having tangible and growing impacts on the region for several years. Therefore, implementing adaptation measures will be essential to creating resilience and to be able to respond adequately, minimizing the impacts of climate change on the array of productive activities, as well as the risk associated with the occurrence of climatic events that could put the population at risk.

Unfortunately, however, the response capacity of LAC countries is insufficient. As the Atlas of Vulnerability shows⁴, more than 79% of the countries have a lower capacity to respond to climate change than the world average. When compared with the average of the Organization for Economic Cooperation and Development (OECD) countries, no country in the region obtains better results, since Chile, which is the best prepared country in LAC, has an index of 61.4/100, while the average for OECD countries is 64.8/100.⁵ On the other hand, Haiti is the country with the least capacity to respond to climate change in the region.

4 <https://d.docs.live.net/4c646d9fc28aa981/Documents/Escritorio/LATINDADD/Reunión CIF - banco mundial>

5 100 represents the highest level of climate change preparedness according to the ND-Gain index developed by the University of Notre Dame, estimated for 2019.

Table 2. Climate resilience index by country (from least prepared to most prepared)

Country	Climate resilience index
Haiti	35.4
Honduras	40.4
Venezuela	40.6
Bolivia	40.8
Nicaragua	41.3
Guatemala	43.5
Belice	43.9
Ecuador	44.9
El Salvador	45.2
Cuba	46.1
Dominican Republic	46.4
Paraguay	48.2
Colombia	48.4
Brazil	48.4

Mexico	48.5
Jamaica	48.6
Peru	48.7
Trinidad and Tobago	49.3
Argentina	49.3
Panama	50.1
Costa Rica	54.9
Uruguay	55.2
Barbados	58.0
Chile	61.4

Source: Atlas of Vulnerability. Available at www.atlasdevulnerabilidades.org

To improve the capacity to respond to climate change, it will be necessary for those countries most responsible for this global problem to channel more money towards finance adaptation measures, as adaptation currently receives only 1/4 of total climate finance.

d) Economic losses related to climate disasters

In addition to the pandemic, many vulnerable countries in LAC have also had to face and cope with the physical damage and heavy economic losses from natural disasters, which are becoming more frequent and devastating as global temperature rises.

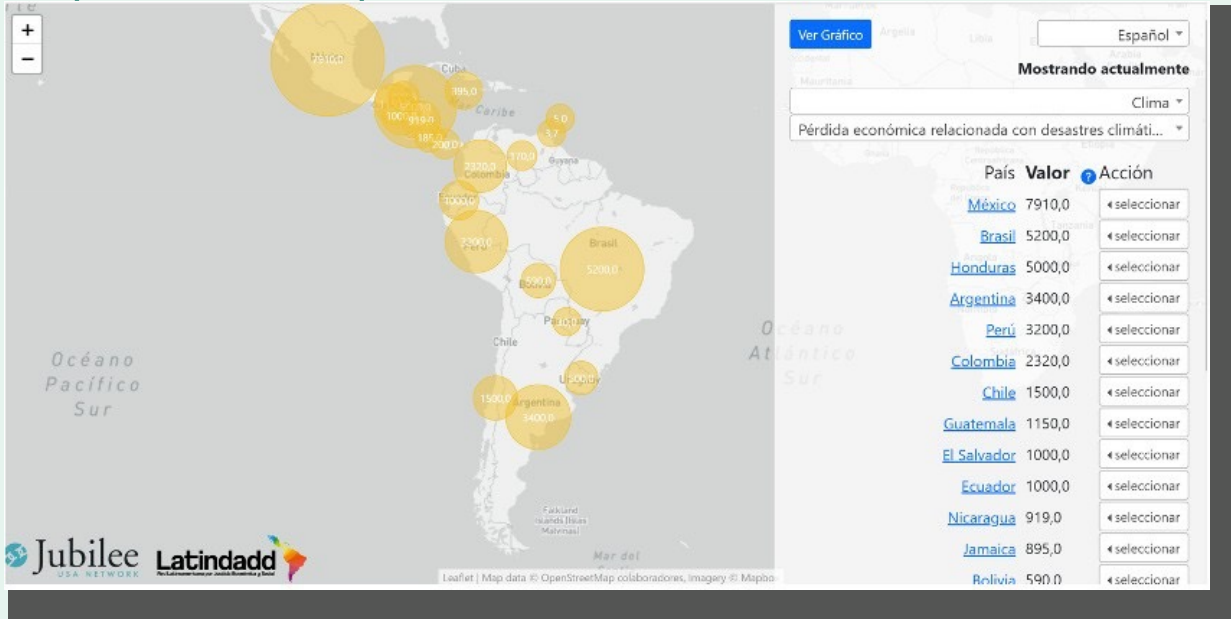
Generally, these damages and losses must be covered with fiscal resources or by increasing current levels of external debt, which reduces the fiscal margin to meet other needs of the population in each country, and/or to address climate change.

The Atlas of Vulnerability: Developing Countries and the Pandemic includes an indicator showing the greatest economic loss based on total damage from meteorological, hydrological, and climatological disasters per year over the past 20 years. Therefore, the higher this indicator, the greater the vulnerability and difficulties of the affected countries to cope with any type of crisis, such as the pandemic and the consequent socio-economic crisis.



As can be seen in Figure 3, Mexico, Brazil and Honduras are the countries that have suffered the greatest economic losses as a result of adverse weather events.

Figure 3. Data of the largest economic loss per year due to climate disasters in the last 20 years (in millions of dollars)



Source: Vulnerability Atlas. Available at www.atlasdevulnerabilidades.org

Against this backdrop, the clamor of those countries most vulnerable to climate change demanding from countries in the Global North a financial mechanism to help them cover damages and losses derived from climate change, within the framework of climate justice and the recognition of the historical climate debt owed by the most developed countries, makes a lot of sense. Unfortunately, at the most recent negotiations held at COP26, there was no progress made on the issue of loss and damage, despite the proposals made by G77⁶ countries and China.

⁶ This is a group of 77 developing and underdeveloped countries whose objective is to assist and support each other during United Nations negotiations.

