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Environment and Energy Landscape in Latin America and the Caribbean: An Analysis of Trends 2020-2030

Increased Planetary Health Issues

December 2020

“Planetary Health is an emerging field focused on understanding the human health implications of the anthropogenic disruption and transformation of our planet’s natural systems”
– Planetary Health Alliance

Sources:. Planetary Health Alliance, https://www.planetaryhealthalliance.org/planetary-health, consulted on August 11, 2020.

There is growing evidence that environmental degradation has wide-ranging impacts on human health

Health-Related Challenges

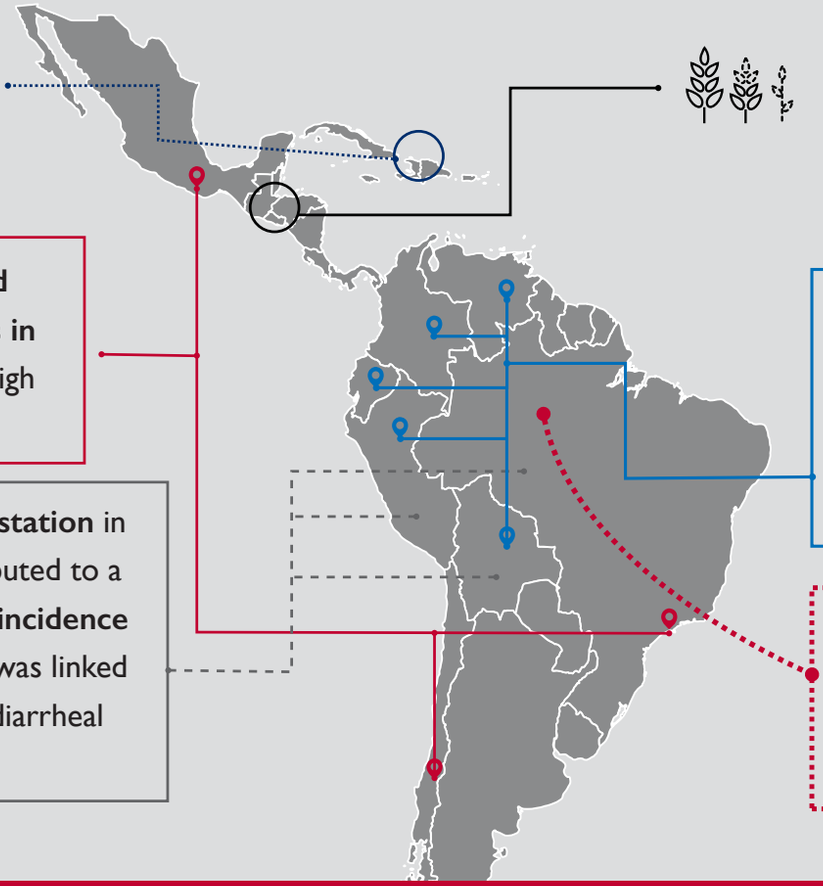
Environment-Related Problems	Non-Communicable Diseases	Infectious Diseases	Nutrition	Displacement	Mental Health
Deforestation	✓	✓		✓	✓
Climate Change	✓	✓	✓	✓	✓
Air Pollution	✓				✓
Biodiversity Shifts		✓	✓		
Water Scarcity		✓	✓	✓	✓
Changing Food Systems	✓		✓	✓	
Natural Disasters			✓	✓	✓
Examples	Cardiovascular diseases, respiratory diseases	Dengue, Zika, malaria, COVID-19, SARS	Malnutrition, obesity, food Insecurity	Forced migration, civil strife	Anxiety

Source: Planetary Health Alliance, https://www.planetaryhealthalliance.org/planetary-health, consulted on August 11, 2020.

There are a host of planetary health challenges in LAC; diseases stemming from changes in vector ecology and air pollution are among the most acute

From 1980 to 2016, more than 4,000 natural disasters, **affecting 297 million people and killing 290 thousand**

50-60% of Central America's annual harvests have been lost due to water scarcity and higher temperatures, putting over **3.6 million people in conditions of food insecurity**



Air pollution is associated with around 6% of deaths in LAC, compared to 4% in high income countries

Higher temperatures are driving vector-borne diseases (VBD) outbreaks in unprecedented high-altitude locations in countries like **Peru, Ecuador, Colombia, Bolivia, Venezuela**

A **10% increase in deforestation** in the Amazon region contributed to a **3.3% increase in malaria incidence** between 2003-20153 and was linked to other diseases such as diarrheal disease in children

The Amazon is the region in the world with the most undiscovered zoonotic diseases transmitted by wild mammals such as bats

Given their threat to human health, interdependence with other environmental trends, and alignment with USAID experience, this report will focus on diseases resulting from changes in vector ecology (e.g., dengue, malaria, chikungunya, Zika) and air pollution (e.g., cardiovascular and respiratory issues)

Sources:. 1. IDB, "Seven things you need to know about disasters in Latin America and the Caribbean," 2018; 2. Global Burden of Disease Collaborative Network, "Global burden of disease study," 2017; 3. PNAS, "Amazon deforestation drives malaria transmission, and malaria burden reduces forest clearing," 2019; 4. FAO, "Dry Corridor Central America – Situation Report," 2016; 5 The New Humanitarian, "Is global warming driving the spread of dengue across Latin America?," 2020; 6. Nature, "Host and viral traits predict zoonotic spillover from mammals," 2017.

DISEASES FROM CHANGES IN VECTOR ECOLOGY

A host of changes driven by human activities in LAC are contributing to the increased frequency and severity of vector-borne disease (VBD) outbreaks

- Deforestation
- Agriculture
- Road construction
- Mining
- Hydropower development
- Settlement
- Urbanization

Ecosystem Change

- Average temperature and variability
- Rainfall and humidity
- Amount and duration of sunlight
- Water currents
- Soil quality
- Vegetation
- Fauna

Human-Related Change

- Population density
- Immigration of non-immune people
- Spread of pathogens
- Nutritional status

Vector Ecological Change

- Breeding places
- Carrier survival probability
- Density
- Biting rates
- Resistance to insecticide
- Ability to adapt to and survive in urban spaces

Parasite Ecological Change

- Incubation period
- Resistance to drugs

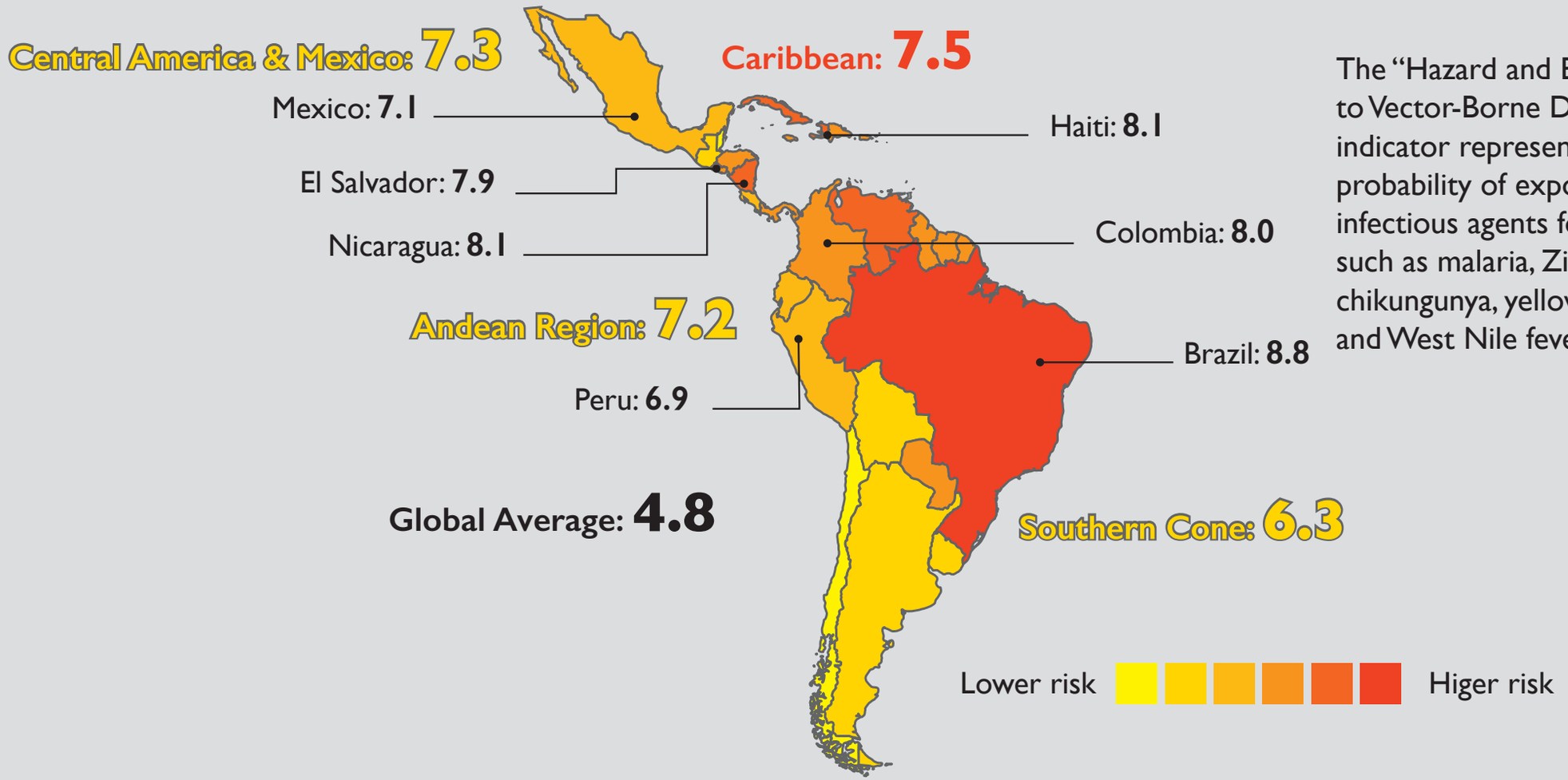
Increased vector-borne prevalence and incidence

Sources: 1. People, health, and forests: a global interdisciplinary overview, "Deforestation and malaria, revisiting the human ecology perspective," 2008; 2. The New Humanitarian, "Is global warming driving the spread of dengue across Latin America?" 2020.

LAC faces high risk of infections from VBDs, particularly in the Caribbean, Central America, and countries like Brazil and Colombia

Regional and National Hazard and Exposure to VBDs

(Index, 0 to 10 where 10 is the highest risk)



The "Hazard and Exposure to Vector-Borne Diseases" indicator represents the probability of exposure to infectious agents for diseases such as malaria, Zika, dengue, chikungunya, yellow fever and West Nile fever

Source: European Commission Disaster Risk Management Knowledge Centre, " INFORM Epidemic Risk Index," 2018.

LAC faces high risk of infections from VBDs, particularly in the Caribbean, Central America, and countries like Brazil and Colombia

	Key Locations	Total Cases in the Last 5 Years (million)	DALYs per 100k People	Recent Evolution in LAC
Dengue	**Brazil, Mexico, Colombia,** Nicaragua, and Honduras	10.6	21.9	**Reported cases increased 165%** between 2014 and 2019, with fluctuations in 2017-18
Malaria	**Venezuela, Brazil, Colombia,** Peru and Haiti	3.0	79.4	**Reported cases increased 96%** between 2014 and 2018 with a clear linear, upward trend
Chikungunya	**Brazil, Panama, Bolivia,** Colombia, and El Salvador	2.9	25.4	**Record of 1 million cases in 2014,** but downward trend ever since: ~177,000 cases in 2019
Zika	**Brazil, Colombia, Venezuela,** Honduras and Martinique	0.9	5.1	**Cases increased 7x between 2015-2016** and then decreased to 50% of 2015 levels in 2019
Leishmaniasis	**Brazil, Colombia, Peru,** Nicaragua, and Bolivia	0.3	273.1	**Cases are stable at an average of ~50,000** per year

Disability-adjusted life years (DALYs), is a measure of overall disease burden, expressed as the number of years lost due to ill-health, disability or early death. As a reference, DALYs per 100k people for appendicitis in LAC is 24 and diabetes mellitus is 839

Sources: 1. PAHO, "Data on Health Topics," consulted August 11, 2020; 2 The Lancet, "Global, regional, and national DALYs for 333 diseases and injuries and healthy life expectancy (HALE) for 195 countries and territories, 1990–2016," 2017; 3. The Lancet, "Global, regional, and national DALYs for 333 diseases and injuries and healthy life expectancy (HALE) for 195 countries and territories, 1990–2016," 2017; 4. International Journal of Infectious Diseases, "Burden of chikungunya in Latin American countries: estimates of DALYs lost in the 2014 epidemic," 2015; 5. International Journal of Infectious Diseases, "Economic costs of Chagas disease in Colombia in 2017: A social perspective," 2019; 6. Value Health Regional Issues, "Economic Costs of Chikungunya virus in Colombia," 2018; 7. IPCC, "The Latin American Region," 2018; 8. Climatenexus, "Climate risk and spread of vector-borne diseases," 2016. 9. PNAS, "Amazon deforestation drives malaria transmission, and malaria burden reduces forest clearing," 2019.

Vector-borne diseases also have economic and social implications, particularly for the most vulnerable populations (1 of 2)

Economy

- **Dengue and malaria** cost the region more than **$3 billion and $2 billion** per year, respectively, given strains on health systems, reduced employment, decreased workers productivity, etc.
- **Zika** is estimated to have caused economic losses of between **$7 and $18 billion from 2015–2017** across LAC, largely driven by impacts on the tourism industry

Sources: 1. WHO, "The power of integrated health and environment action," 2019; 2. WHO, "Zika virus, microcephaly and Guillain-Barré syndrome situation report," 2017; 3. The Independent, "Women, children more vulnerable to dengue, say experts," 2019; 4. Tropical Medicine & International Health, "Dengue fever and Aedes aegypti in indigenous Brazilians," 2018; 5. Pan American Journal of Public Health, "Economic impact of dengue fever in LAC: a systematic review," 2018; 6. UNDP, "A socio-economic impact assessment of the Zika virus in LAC," 2017; 7. WHO, "World Malaria Report," 2019; 8. Value Health Regional Issues, "Economic Costs of Chikungunya virus in Colombia," 2018; 9. PLOS, "Societal cost saving and budget impact of changing from systemic to intralesional pentavalent antimonial as the first-line treatment for leishmaniasis in Bolivia," 2019.

Vector-borne diseases also have economic and social implications, particularly for the most vulnerable populations (2 of 2)

Social

- **Women and children in rural areas are particularly affected by VBDs,** as they are usually more exposed due to assigned roles within households such as collecting water
- **Gender inequality in healthcare access and nutrition** as well as factors like menstruation and pregnancy, make women less immune than men to dengue
- **Indigenous populations are frequently marginalized** with lower access to basic household services and healthcare, making them **more vulnerable to VBD infections**
- **VBDs** can **have acute consequences in pregnant women and their babies,** as is the case of **Zika and the microcephaly syndrome associated with it**

Sources: 1. WHO, "The power of integrated health and environment action," 2019; 2. WHO, "Zika virus, microcephaly and Guillain-Barré syndrome situation report," 2017; 3. The Independent, "Women, children more vulnerable to dengue, say experts," 2019; 4. Tropical Medicine & International Health, "Dengue fever and Aedes aegypti in indigenous Brazilians," 2018; 5. Pan American Journal of Public Health, "Economic impact of dengue fever in LAC: a systematic review," 2018; 6. UNDP, "A socio-economic impact assessment of the Zika virus in LAC," 2017; 7. WHO, "World Malaria Report," 2019; 8. Value Health Regional Issues, "Economic Costs of Chikungunya virus in Colombia," 2018; 9. PLOS, "Societal cost saving and budget impact of changing from systemic to intralesional pentavalent antimonial as the first-line treatment for leishmaniasis in Bolivia," 2019.

A few approaches to address the consequences and environment-related causes of VBDs show promise (1 of 3)

Water Supply and Management

Solution:

Reliable potable water supply decreases the need for water-storage containers that serve as larval habitats. Water-storage containers can also be designed to prevent access by mosquitoes to deposit eggs. As this solution involves basic services provision, close collaboration with local governments is key

Example:

Partnership with local communities in Veracruz, Mexico to adopt safe water-collection systems. This project decreased dengue incidence in the region

Impacts:

Increased availability of potable water for rural communities and overall reduction of dengue disease burden

Sources: 1. WHO, "Methods of vector control," 2018; 2. Case Studies in the Environment, "Developing effective mosquito control strategies by utilizing vector mosquito life histories and ecology," 2019; 3. WHO, "Guidelines for malaria vector control," 2019.

A few approaches to address the consequences and environment-related causes of VBDs show promise (2 of 3)

Mosquito Habitat Management

Solution:

Seeks to prevent or minimize vector propagation by destroying, altering, or removing water accumulations that provide larval habitats

Example:

Wetland draining and mosquito-ditching to remove standing water have been effective in the Peruvian Amazon to reduce malaria transmission, although risks of affecting ecosystems and causing losses of other species though these practices must be assessed

Impacts:

Reduced concentration of favorable habitats for mosquito reproduction and decreased vector population

Sources: 1. WHO, "Methods of vector control," 2018; 2. Case Studies in the Environment, "Developing effective mosquito control strategies by utilizing vector mosquito life histories and ecology," 2019; 3. WHO, "Guidelines for malaria vector control," 2019.

A few approaches to address the consequences and environment-related causes of VBDs show promise (3 of 3)

Insecticide-Treated Nets (ITN)

Solution:

An ITN repels, disables or kills mosquitoes. ITNs can produce a "community effect" because of their impact on mosquito longevity and therefore vectorial capacity

More recent generations of ITNs must be introduced, as moderate resistance has been reported on older models

Example:

ITNs have been successfully implemented in regions of Colombia, Ecuador, Peru, Venezuela, and Nicaragua with presence of malaria vectors

Impacts:

Reduced child mortality by 83% and reduced severe malaria episodes by 56%

Sources: 1. WHO, "Methods of vector control," 2018; 2. Case Studies in the Environment, "Developing effective mosquito control strategies by utilizing vector mosquito life histories and ecology," 2019; 3. WHO, "Guidelines for malaria vector control," 2019.

CASE STUDY | Introduction of Natural Bacteria to Decrease Transmission of VBDs

"By breeding mosquitoes that carry safe and natural Wolbachia bacteria, we can effectively prevent diseases from spreading in whole cities and even regions. Our evidence shows that in areas where Wolbachia is self-sustaining at a high level, there have been no dengue outbreaks"
– World Mosquito Program

Challenge:

- In recent years, population growth, the movement of people from rural areas to cities, more international travel, and climate change have all increased the spread of *Aedes aegypti* mosquitoes, which carry viruses like dengue, Zika, chikungunya, and yellow fever

Approach to Adress the Challenge

- When *Aedes aegypti* mosquitoes carry the natural bacteria Wolbachia, the bacteria compete with the viruses. This makes it harder for viruses to reproduces inside mosquitoes and makes them much less likely to spread diseases
- "The World Mosquito Program breeds Wolbachia-carrying mosquitoes and, in partnership with local communities, releases them into areas affected by mosquito-borne diseases"
- Independent risk analyses indicate that the release of Wolbachia-infected mosquitoes poses negligible risk to humans and the environment. The program has received regulatory approval in all countries where Wolbachia-carrying mosquitoes have been released

Outcomes:

- Brazil: "dengue incidence ↓ 42–74% and chikungunya incidence ↓ 21–74%"
- Colombia: "No dengue outbreaks in Wolbachia-treated areas of city-wide deployments"

Source: The World Mosquito Program, "Mosquito-borne diseases fact sheets," 2019.

HEALTH ISSUES FROM OUTDOOR AND INDOOR AIR POLLUTION

A host of factors are driving outdoor and indoor air pollution in LAC, which are leading to serious health issues

Main Drivers

Outdoor Air Pollution

- **Transportation**
- **Electricity Generation**
- **Industry**
- **Other sectors** (e.g., commerce, agriculture, construction)

Indoor Air Pollution

- **Cooking and heating with solid and liquid** (e.g., kerosene) **fuels**
- **Others** (e.g., tobacco, building materials, products for household cleaning)

Outcomes

- **Cardiovascular diseases**
- **Chronic obstructive pulmonary disease and acute lower respiratory infections**
- **Lung Cancer**

Sources: 1. OLADE, "Sistema de información energética de Latinoamérica y el Caribe," consulted on August 23, 2020; 2. EPA, "Introduction to indoor air quality," 2019; 3. WHO, "Burden of disease from ambient air pollution," 2018.

Air pollution can lead to a variety of serious health issues for people at different stages of life

Health Impact through Lifetime

Pregnancy

- Low birth weight
- Premature birth
- Stillbirth

Adults

- Asthma
- Coronary heart disease
- Stroke
- Lung cancer
- Chronic obstructive pulmonary disease
- Diabetes

Children

- Asthma
- Slower development of lung function
- More wheezing and coughs
- Start of atherosclerosis

Elderly

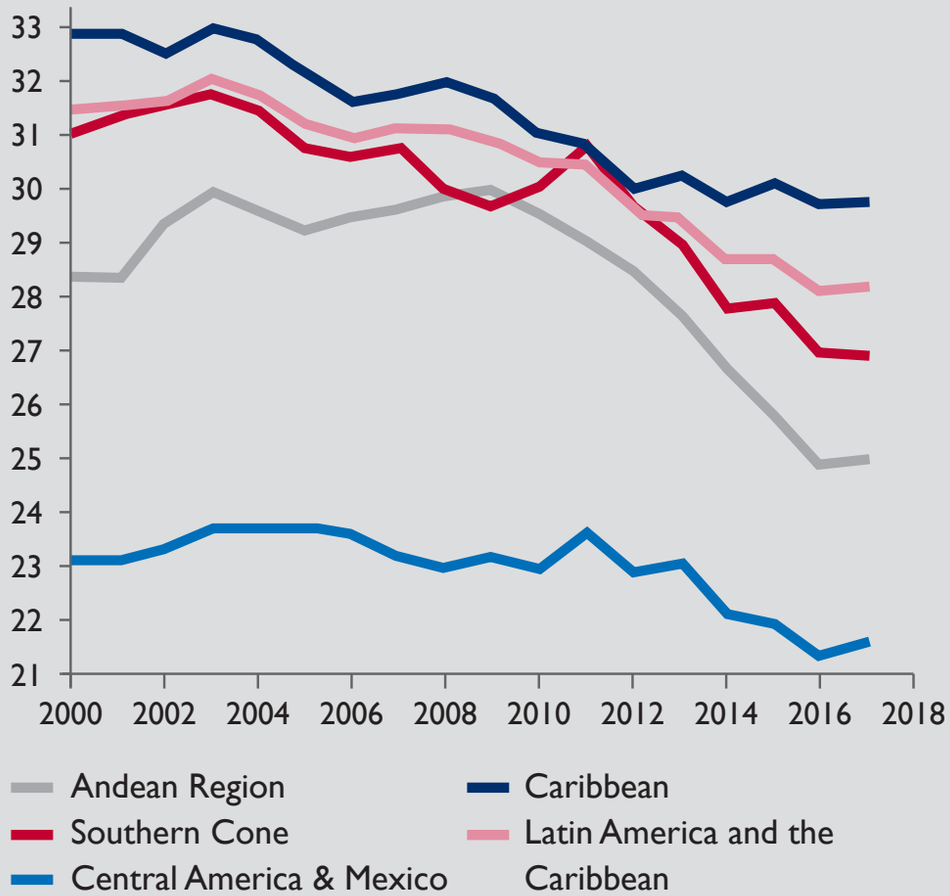
- Asthma
- Accelerated decline lung function
- Lung Cancer
- Diabetes
- Dementia
- Heart attack, heart failure, and stroke

Source: Public Health England, "Guidance: Health matters, air pollution," 2018.

While death rates from outdoor air pollution have declined across LAC, rates remain high and progress has been uneven

National Outdoor Air Pollution Death Rates (OAPDR)

Annual Deaths per 100,000 People



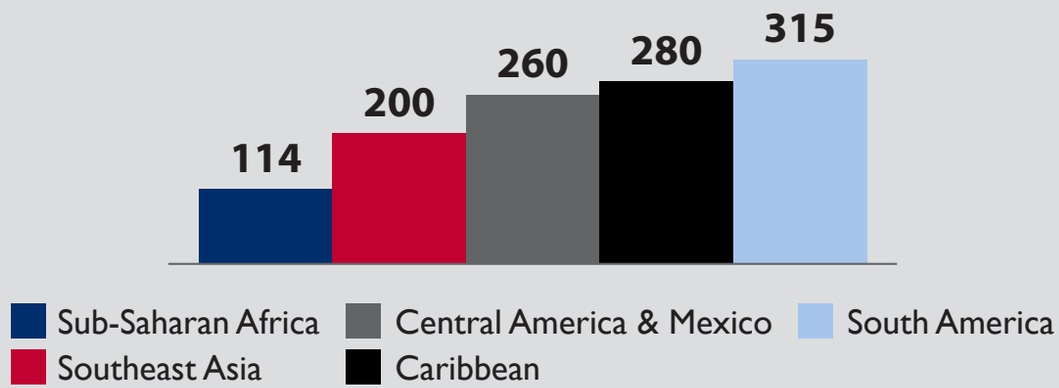
Overview of Health Impacts from Outdoor Air Pollution in LAC

Air pollution has been consistently among the **top 3 causes of death in the region**

Death rates from outdoor air pollution in LAC (26 per 100,000 people) are **below the world average** (44), but **above the level for high-income countries** (17)

Despite the regional trend, deaths from outdoor air pollution are increasing in Jamaica, El Salvador, and the Dominican Republic

New Asthma Cases due to Air Pollution Exposure per Year, per 100,000 Children



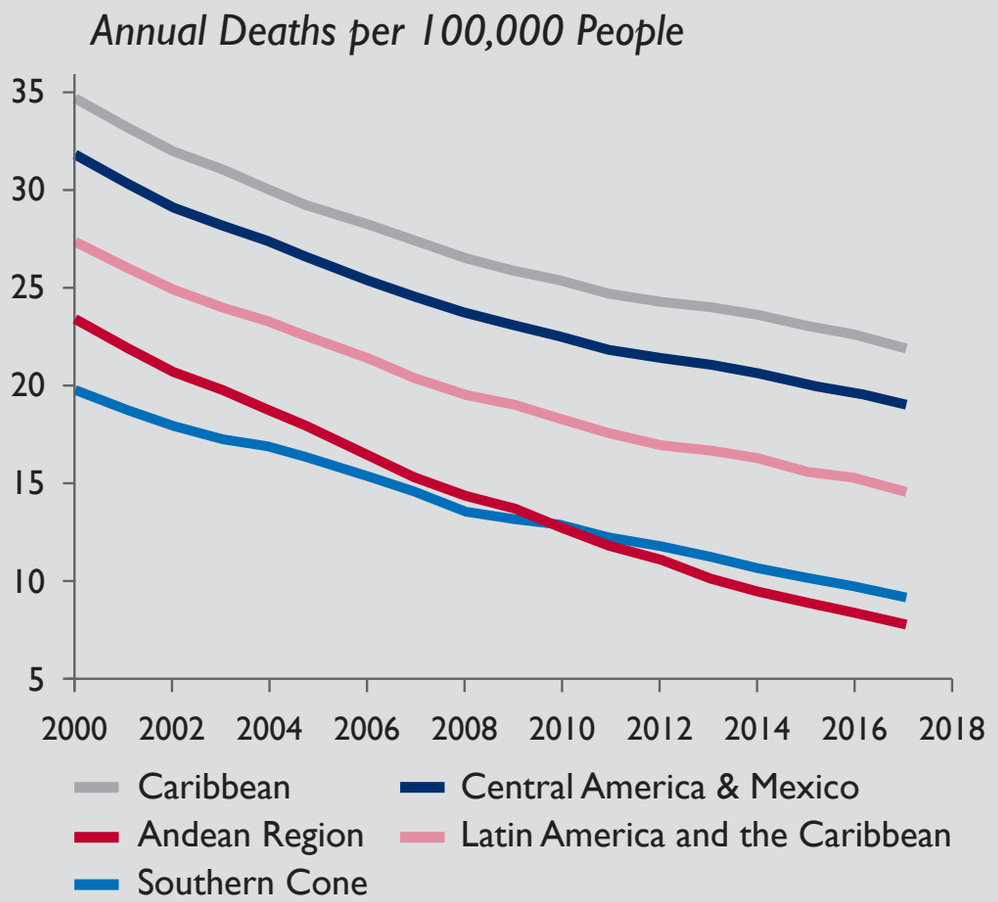
Source: N. Grima et al, Payment for ecosystem services (PES) in Latin America: Analyzing the performance of 40 case studies, 2016.

Death rates from indoor air pollution have also declined, yet a few countries continue to face relatively high rates

Overview of Health Impacts from Indoor Air Pollution in LAC

- In the last decade, deaths for indoor air pollution have decreased 30% in **Haiti, Guatemala, Honduras, Paraguay, Nicaragua and Bolivia,** but it remains ~4X times higher than the region's average
- Deaths from indoor air pollution in LAC are **considerably higher than in high-income countries** (9.3 vs. 0.2 deaths per 100,000 people in 2017)
- In Guatemala, cooking with traditional cookstoves and solid fuels is associated with a **30% increase in severe pneumonia among children < 18 months**
- In Peru, the use of cleaner cookstoves is associated with a **25% decrease in respiratory symptoms and attention deficits in children 2-14 years old**

National Indoor Air Pollution Death Rates (IAPDR)



Sources: 1. Global Burden of Disease Collaborative Network. "Global Burden of Disease Study," 2017; 2. High-income countries categorization according to the World Bank, refers to countries (83) with Gross National Income per capita above $12,055, e.g., United States, New Zealand, Malta, Hungary, etc. 3. Environ Health Perspect, "Children's health in Latin America: the influence of environmental exposures," 2014.

Health impacts caused by air pollution in LAC also have economic and social implications

	Outdoor Air Pollution	Indoor Air Pollution
Economy	• **"Current welfare costs** from premature deaths due to air pollution in LAC account for $80 billion and will continue to increase up to $470 billion in 2060," including economic support to people out of work and healthcare costs	• **Rural and indigenous populations** (who are typically more exposed to indoor vs. outdoor air pollution) suffer a particularly high burden from respiratory issues due to economic insecurity and low access to healthcare
Social	• **Children** are particularly vulnerable to air pollution because their bodies are less able to metabolize, detoxify, and excrete the toxicants • **People with cardiovascular and/or respiratory disease:** Chronic morbidity of these kinds of diseases make individuals, who are generally in a more disadvantaged economic condition, more susceptible to experiencing acute consequences from air pollution	• **Women:** Particularly affected as they are frequently in charge of cooking activities and more present in areas with **high migration** rates, such as Haiti, Guatemala, and Honduras • **Rural and indigenous populations:** Limited access to cultural norms around clean cooking technologies increase exposure to air pollution and limited access to healthcare services makes air pollution impacts more acute for them

Sources: 1. OECD, "The economic consequences of outdoor air pollution," 2016; 2. WHO, "Air pollution and child health: prescribing clean air," 2018; 3. Global Burden of Disease Collaborative Network. "Global Burden of Disease Study," 2017.

Approaches to address the consequences and environment-related causes of air pollution show promise (1 of 3)

Upgrading Industrial Technology

Solution:

Incorporating best practices or upgrading to the best available technologies in industrial processes. These measures can be deployed quickly and implemented through sector-targeted policies by encouraging and regulating the change

Example:

Argentina and Brazil have both begun installing supermarket refrigeration systems utilizing mainly CO_2 and ethylene glycol instead of hydrofluorocarbons. Colombia is installing district cooling in the city of Medellin as part of its old-chillers replacement project

Impacts:

- Reductions in air pollutants
- Improved production efficiency

Sources: 1. Greenpeace, "Cool technologies: working without HFCs," 2016; 2. UNDP, "Experiences and case studies on energy efficiency in Latin America and the Caribbean," 2018; 3. Alternative Fuels Data Center, "Doing business in Mexico: automotive industry," 2014; 4. Clean cooking alliance, "Partners spotlight: Guatemala," 2013.

Approaches to address the consequences and environment-related causes of air pollution show promise (2 of 3)

Efficient Transportation Systems

Solution:

Renewal of the bus fleet with energy-efficient technology and cleaner fuels, providing alternative non-motorized transportation options and freight management. Enhancement of urban transit systems requires strong commitment and combined efforts and investment on behalf of local authorities and transport operators.

Example:

Through a fiscal incentive applicable when replacing freight units more than ten years old and for vehicles less than six years old, Mexico has eliminated more than 25,000 older units

Impacts:

- Reductions on black carbon, methane, and hydrofluorocarbon

Sources: 1. Greenpeace, "Cool technologies: working without HFCs," 2016; 2. UNDP, "Experiences and case studies on energy efficiency in Latin America and the Caribbean," 2018; 3. Alternative Fuels Data Center, "Doing business in Mexico: automotive industry," 2014; 4. Clean cooking alliance, "Partners spotlight: Guatemala," 2013.

Approaches to address the consequences and environment-related causes of air pollution show promise (3 of 3)

Behavioral Change Campaigns

Solution:

Encouraging behavioral changes such as clean domestic cooking practices; halting slash-and-burn practices in agriculture; and using less polluting kilns in artisanal brick production. Practices are often deeply embedded in cultural, economic, and social traditions, so the process of change may be lengthy and complex

Example:

EcoMal, Doña Dora, and Chispas stoves leverage multichannel communication campaigns to drive behavior change in Guatemala

Impacts:

- Reduced exposure to pollutants
- Reduced deforestation

Sources: 1. Greenpeace, "Cool technologies: working without HFCs," 2016; 2. UNDP, "Experiences and case studies on energy efficiency in Latin America and the Caribbean," 2018; 3. Alternative Fuels Data Center, "Doing business in Mexico: automotive industry," 2014; 4. Clean cooking alliance, "Partners spotlight: Guatemala," 2013.

CASE STUDY | Social Enterprise to Increase Local Production and Use of Clean Cookstoves

"These improved cookstoves are durable, cost-effective and meet all the family's cooking needs. Families save money by buying less wood or save time gathering wood, rid the house of smoke and reduce emissions" – Proyecto Mirador

Challenge

- 81% of rural households in Honduras use firewood for cooking
- More than 4 million people are affected by household air pollution
- "Open-fire cooking is wasteful, dirty, dangerous, and slow"
- Despite the obvious benefits, clean cookstoves have only achieved a 12% market penetration in Honduras

Approach to Address the Challenge

- Mirador is a franchise-like social enterprise system in which entrepreneurs are paid for building stoves
- Users' priorities have been taken into account, families are trained, stove designs are robust, and stoves are monitored and maintained
- The family does not pay in cash. They share in the cost of the stove by providing materials (worth about $12-15) and time

Outcomes

- One stove saves 15 tons of carbon pollution
- Almost 200,000 stoves have been installed
- "79% reduction in carbon monoxide and particulate matter inside the home"
- 172 direct and indirect employees

Source: Gold Standards, "Proyecto Mirador Monitoring Report," 2019.

Photo: Isabella Juskova on unsplash

CALLS TO ACTION

Photo: Raphael Menesclou on unsplash

CALLS TO ACTION | A holistic, cross-sectoral approach is needed to tackle the underlying drivers of increased planetary health issues

Source: Dalberg analysis

The underlying drivers of environmental challenges are often systemic issues rooted in local economic, social, and cultural realities that are deeply challenging to address

Making progress on these challenges often requires cross-cutting approaches that draw on resources and capabilities from local communities themselves along with support from government, private sector, civil society, academia, and donors

The high-level ideas outlined in this section are often interdependent; they need to be implemented in tandem in order to be effective

They also require a keen understanding of local context to determine whether and how they might apply given the size and diversity of the region

Photo: Bill Oxford on unsplash

Calls to action | Reducing environment related health issues in LAC requires action and collaboration across sectors (1 of 7)

Public sector

Support sustainable livelihoods

- Support economic opportunities for communities whose economic insecurity forces them to engage in activities related to environmental health risks (deforestation, hunting wildlife, driving highly polluting cars)

Strengthen monitoring and tracking

- Implement monitoring stations to have real time data of air pollution levels
- Implement early detection systems in areas with high proximity to vectors and other wildlife

Strengthen regulatory framework and its application/enforcement

- Legislation to regulate fuels (avoid low quality fuels) and old vehicles (restrict circulation of old vehicles)
- Phase out unsustainable agricultural practices
- Develop and implement stronger biosecurity measures (e.g., biosecurity policies across the food chain)
- Develop national clean cooking plans

Photo: Bill Oxford on unsplash

Calls to action | Reducing environment related health issues in LAC requires action and collaboration across sectors (2 of 7)

Public sector

Expand utilities/public services coverage and quality of services

- Improve health governance with a planetary health approach by engaging environmental stakeholders
- Improve access to clean water and sanitation (i.e., decrease breeding sites for vectors)
- Increase access to other energy sources for cooking (i.e., provide options for a transition to cleaner fuels)
- Develop clean public transportation systems

Promote planetary health education to increase society's awareness of the relationship between the environment and human health

- Build awareness of potential risks of air pollution (e.g., cooking with open fires) and factors that increase risk of vector-borne disease spread (e.g., proximity to stagnant water)

Promote participation of communities

- Champion the integration of local communities into policymaking and implementation from early stages and onwards

Photo: Bill Oxford on unsplash

Calls to action | Reducing environment related health issues in LAC requires action and collaboration across sectors (3 of 7)

Private sector

Develop and adhere to voluntary guidelines and standards (e.g., SDG Impact Practice Standards for PE Funds)

- Implement policies to reduce emission and environmental degradation
- Track progress toward standards with independent/third party evaluations

Product innovation and business models

- Develop and offer improved cookstoves that are both high quality and affordable
- Develop more sustainable energy appliances that are more energy efficient (and cost savings for the company)
- Support research and development of vaccines for crucial vector-borne diseases

Photo: Bill Oxford on unsplash

Calls to action | Reducing environment related health issues in LAC requires action and collaboration across sectors (4 of 7)

Civil Society

Promote participation of communities

- Champion the integration of local communities into project planning and implementation from early stages and onwards

Drive behavioral change

- Address economic drivers for modifying cooking patterns and transition to cleaner energy sources or cleaner technologies (biomass improved cookstoves)
- Create incentives and offer access to new technologies for modifying water storage behavior and avoiding breeding sites for vector diseases
- Catalyze at-scale production of vaccines, treatments, and tests

Photo: Bill Oxford on unsplash

Calls to action | Reducing environment related health issues in LAC requires action and collaboration across sectors (5 of 7)

Academia/Research

Innovate

- Develop vector control techniques (e.g., genetic modifications, bacteria) that can decrease vector transmission rates
- Partner with the government and private sector to develop at-scale vaccines and medicine to treat emerging diseases

Research

- Expand scientific inquiry into the environmental dimensions of zoonotic diseases
- Develop research to better quantify the impact of environmental degradation on human health
- Create cross-disciplinary departments of research groups on Planetary Health challenges

Photo: Bill Oxford on unsplash

Calls to action | Reducing environment related health issues in LAC requires action and collaboration across sectors (6 of 7)

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Support governments in expanding monitoring systems

- Increase surveillance and control of areas (both for vector diseases and air pollution)
- Provide tools, training, and best practices to local authorities, including monitoring program implementation

Build awareness and research

- Build awareness on key stakeholders from the public, private, and philanthropic sectors about the relationship between environmental degradation and human health
- Fund research activity to address knowledge and capacity related to planetary health (e.g., similar to IDEAL in the food and nutrition security space)

Photo: Bill Oxford on unsplash

Calls to action | Reducing environment related health issues in LAC requires action and collaboration across sectors (7 of 7)

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Promote private sector engagement and partnerships

- Support governments when developing incentives/taxes that encourage market-based approaches i.e., transition to biomass improved cookstoves in rural areas cooking with open fires
- Deploy blended-finance mechanisms to mobilize private funding toward cross-sectoral investments in conservation, education, health, sustainable tourism, sustainable agriculture, etc. (e.g., USAID HEARTH)

Facilitate the exchange of knowledge across countries

- Disseminate learnings from other Missions worldwide that have supported prevention and recovery from vector-borne diseases to bring best practices that can help countries prepare for future outbreaks
- Disseminate learnings and best practices in terms of programs aiming to reduce air pollution e.g., USAID Clean Air Green Cities project in Vietnam

Photo: Bill Oxford on unsplash

Photo: Bill Oxford on unsplash

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