

Fact sheet - Central and South America

Climate Change Impacts and Risks

Vulnerability and climate change impacts

Central and South America are highly exposed, vulnerable and strongly impacted by climate change, a situation amplified by inequality, poverty, population growth and high population density, land use change particularly deforestation with the consequent biodiversity loss, soil degradation, and high dependence of national and local economies on natural resources for production of commodities (*high confidence*). {ES-Ch12} Many extreme events are already impacting the region and are projected to intensify; such events include warming temperatures and dryness, sea level rise, coastal erosion and ocean and lake acidification, resulting in coral bleaching, and an increasing frequency and severity of droughts in some regions, with a concomitant decrease in water supply, which impact agricultural production, traditional fishing, food security and human health (*high confidence*). {12.8}

Ecosystems

Ocean and coastal ecosystems in the region such as coral reefs, estuaries, salt marshes, mangroves and sandy beaches are highly sensitive and negatively impacted by climate change and derived hazards (*high confidence*). Coral reefs are projected to lose their habitat, change their distribution range and suffer more bleaching events driven by ocean warming (*high confidence*). {ES-Ch12}

The distribution of terrestrial species has changed in the Andes due to increasing temperature (*very high confidence*). Up to 85% of natural systems (plant and animal species, habitats and communities) evaluated in the literature for biodiversity hotspots in the region are projected to be negatively impacted by climate change (*medium confidence*). {ES-Ch12}

The Amazon forest, one of the world's largest biodiversity and carbon repositories, is highly vulnerable to drought (*high confidence*). The Amazon forest was highly impacted by the unprecedented droughts and higher temperatures observed in 1998, 2005, 2010 and 2015/2016 which are attributed partly to climate change. This resulted in high tree mortality rates and basin-wide reductions in forest productivity (*high confidence*). The combined effect of anthropogenic land use change and climate change increases the vulnerabilities of terrestrial ecosystems to extreme climate events and fires (*medium confidence*). {ES-Ch12}

Cities and Settlements

Urban areas in the region are vulnerable for many reasons, notably high rates of poverty and informality, poor and unevenly distributed infrastructure, housing deficits, and the recurrent occupation of risk areas (*high confidence*) {12.8; 12.5.5}. This vulnerable condition is boosted by unstable political and governmental institutions, which suffer from ongoing corruption, weak governance and reduced capacity to finance adaptation {12.5.5.1}. Impacts of climate events on urban water supply, drainage and sewer infrastructures are the most frequently reported in the region {12.3; 12.5.5; Figure 12.9}.

Water

Glacier retreat, temperature increase and precipitation variability, together with land-use change, have affected ecosystems, water resources, and livelihoods through landslides and flood disasters (*very high confidence*). {ES-Ch12}

Increasing water scarcity and competition over water are projected. Disruption in water flows will significantly degrade ecosystems such as high-elevation wetlands and affect farming communities, public health and energy production (*high confidence*). {ES-Ch12}

Food/Agriculture

Since the mid-20th century, increasing mean precipitation has positively impacted agricultural production in Southeastern South America, although extremely long dry spells have become more frequent, affecting the economies of large cities in southeast Brazil. Conversely, reduced precipitation and altered rainfall seasons are impacting rainfed subsistence farming, particularly in the Dry Corridor in Central America and in the tropical Andes, compromising food security (*high confidence*). {ES-Ch12}

Impacts on rural livelihoods and food security, particularly for small and medium-sized farmers and Indigenous peoples in the mountains, are projected to worsen, including the overall reduction of agricultural production, suitable farming area and water availability (*high confidence*). {ES-Ch12}

Migration

The Andes, northeastern Brazil and the northern countries in Central America are among the more sensitive regions to climatic-related migrations and displacements, a phenomenon that has increased since AR5 (*high confidence*). Climatic drivers interact with social, political, geopolitical and economical drivers; the most common climatic drivers for migration and displacements are droughts, tropical storms and hurricanes, heavy rains and floods (*high confidence*). {ES-Ch12}

Synthesis of observed and projected impacts to main sectors in Central and South America

Projections averaged across scenarios and 21st century

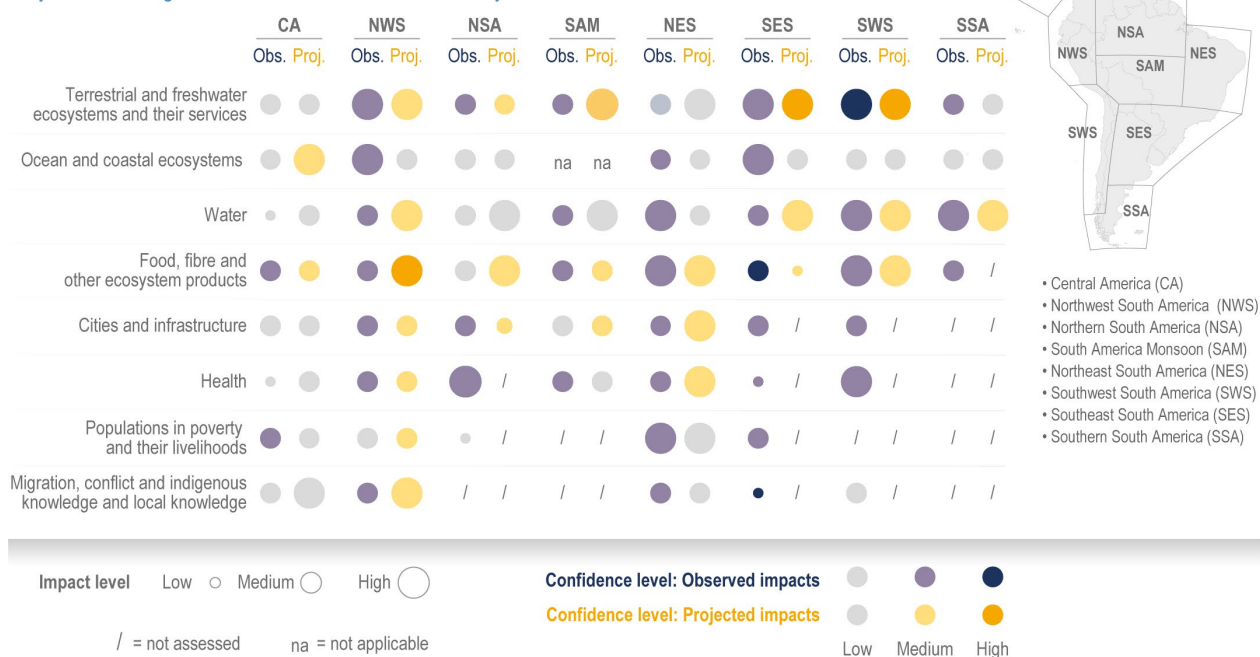


Figure 1: Synthesis of observed and projected impacts, distinguished for different sectors and each subregion of Central and South America. Observed impacts refer to a time-period of the last several decades. Projected impacts represent a synthesis across several emission and warming scenarios, indicative of a time-period from mid- to end of the 21st century. {Figure 12.10}

Health

Climate change affects the epidemiology of climate-sensitive infectious diseases in the region (*high confidence*). Examples are the effects of warming temperatures on increasing the suitability of transmission of vector-borne diseases, including endemic and emerging arboviral diseases such as dengue fever, chikungunya, and Zika. In coming decades, endemic and emerging climate-sensitive infectious diseases are projected to increase (*medium confidence*). {ES-Ch12}

Adaptation Options and Barriers

Adaptation options

Policies and actions at multiple scales and the participation of actors from all social groups, including the most exposed and vulnerable populations, are critical elements for effective adaptation (*high confidence*). {ES-Ch12}

Research approaches that integrate Indigenous knowledge and local knowledge systems with natural and social sciences have increased since the 5th IPCC Assessment Report (*high confidence*) and are helping to improve decision-making processes in the region, reduce maladaptation and foster transformational adaptation through the integration with ecosystem-based adaptation and community-based adaptation (*high confidence*). {ES-Ch12}

Barriers

The most reported obstacle for adaptation in terrestrial, freshwater, ocean and coastal ecosystems is financing (*high confidence*). There is also a significant gap in identifying limits to adaptation and weak institutional capacity for implementation. {ES-Ch12}

Institutional instability, fragmented services and poor water management, inadequate governance structures, insufficient data and analysis of adaptation experience are barriers to addressing the water challenges in the region (*high confidence*). {ES-Ch12}

Climate Resilient Development

Social organisation, participation and governance reconfiguration are essential for building climate resilience (*very high confidence*). Dialogue and agreement that include multiple actors are mechanisms to acknowledge trade-offs and promote dynamic, site-specific adaptation options (*medium confidence*). {12.5.7.2; ES-Ch12}

Initiatives to improve informal and precarious settlement, guaranteeing access to land and decent housing, are aligned with comprehensive adaptation policies that include the development and reduction of poverty, inequality and disaster risk (*medium confidence*). {ES-Ch12}