

Segundo Borrador WGII
AR6 IPCC
Centro y Sur América

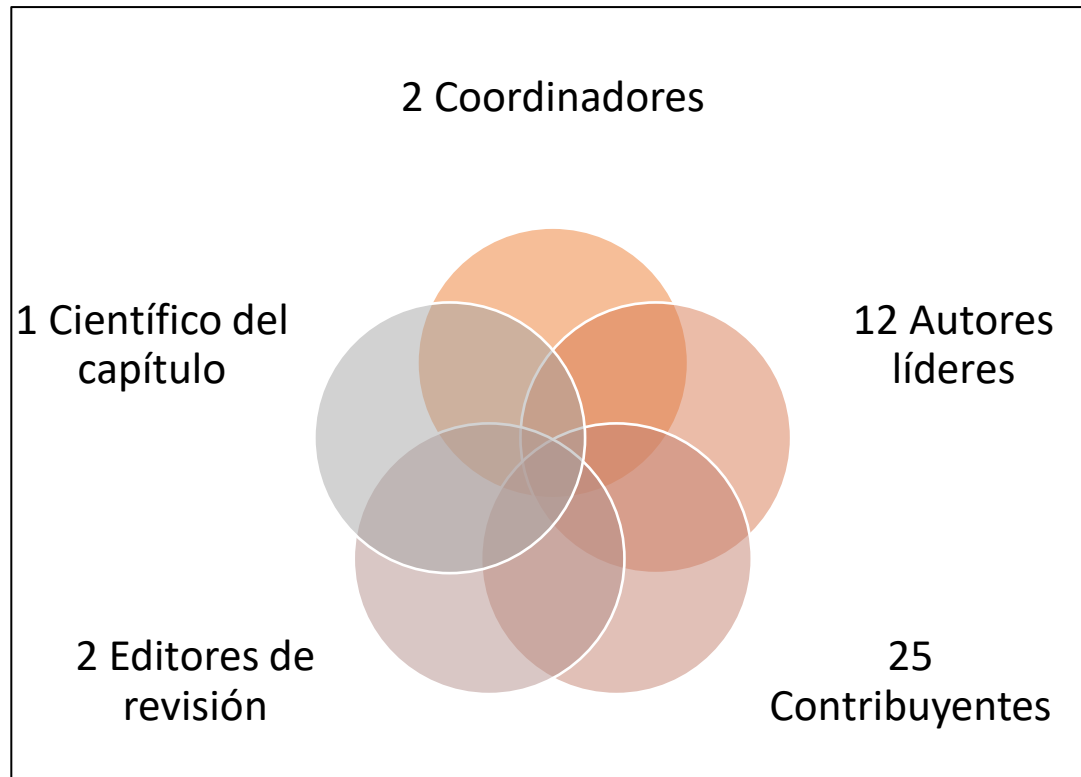
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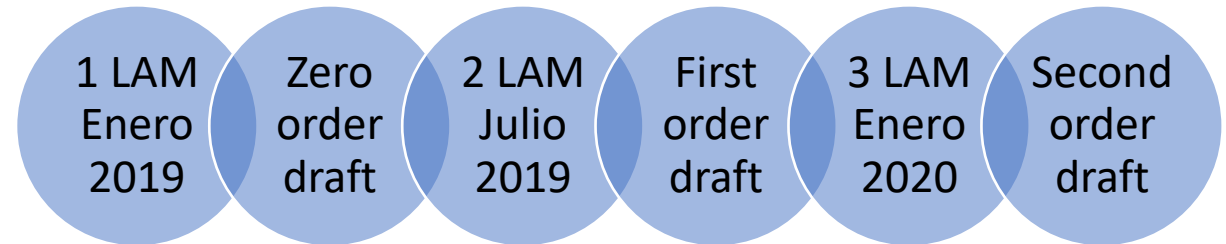
Autor Líder - Capítulo 12 - Central and South America (CSA)

Proceso

Equipo



Línea de tiempo



Estructura del capítulo

12.1 Introducción

12.2 Resumen de reportes precedentes

12.3 Peligros, exposición, vulnerabilidades e impactos

12.4 Impactos y riesgos clave

12.5 Adaptación

12.6 Opciones de adaptación frente a los riesgos clave

12.7 Casos de estudio

12.8 Brechas de conocimiento

12.9 Conclusiones

8 subregiones

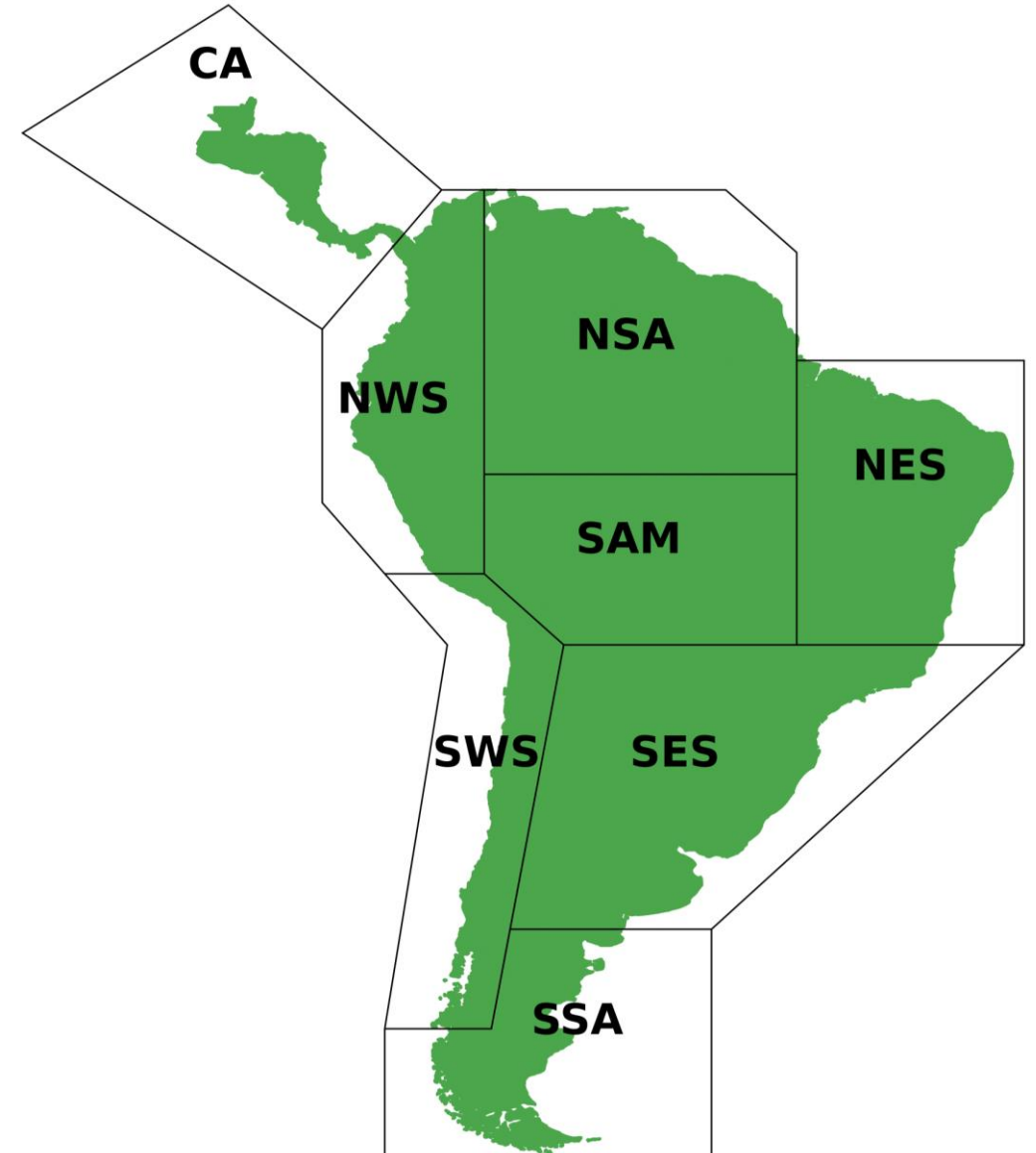
8 sectores

Subregiones

Sub-regions included in this chapter:

1. South Central America (CA)
2. Northwest South America (NWS)
3. North South America (NSA)
4. South America Monsoon (SAM)
5. Northeast South America (NES)
6. Southeast South America (SES)
7. Southwest South America (SWS)
8. South America (SSA)

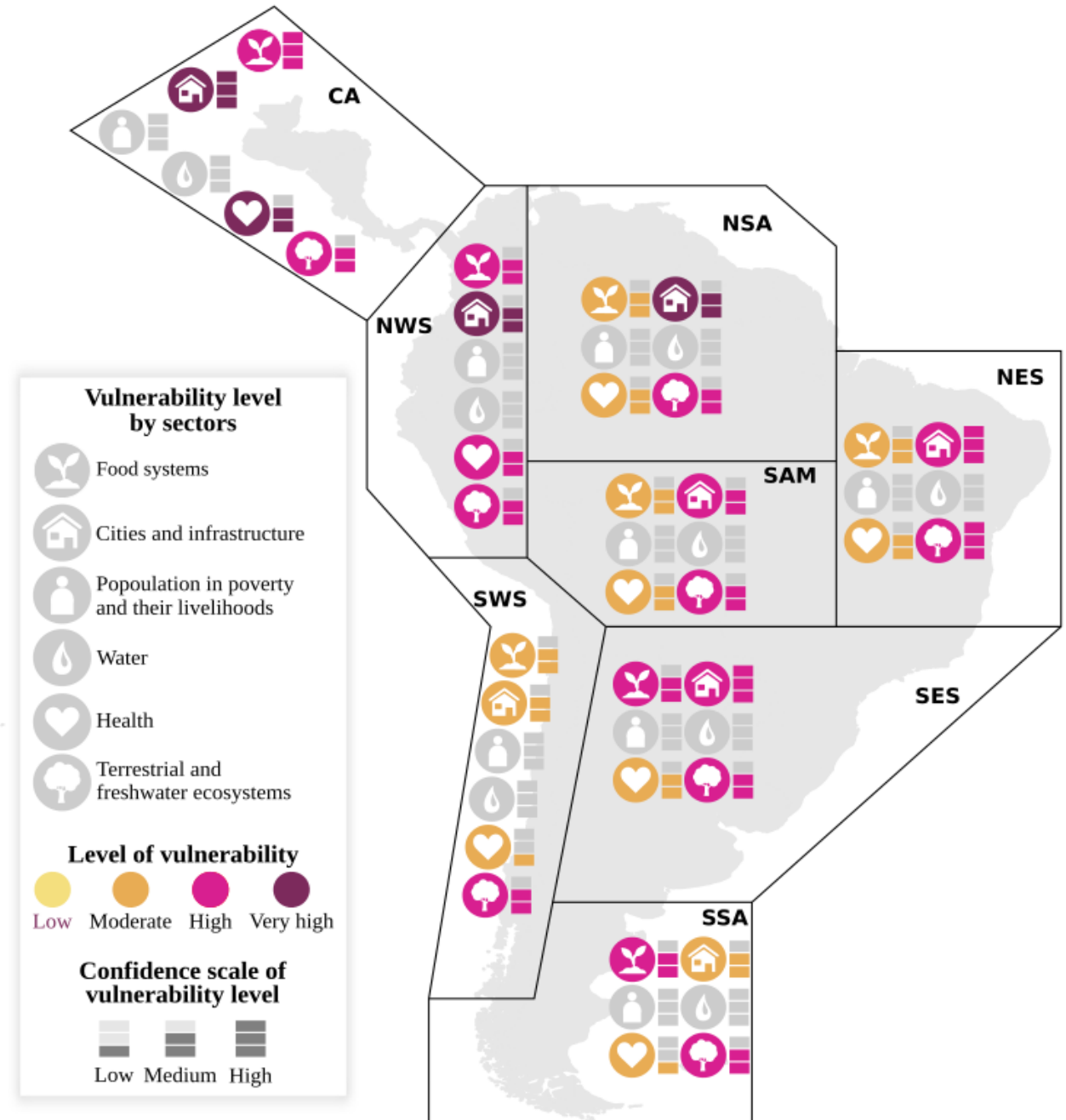
The climatic sub-region SCA from WGI includes the southern part of Mexico, a country assessed in Chapter 14 (North America)



Vulnerabilidad

Spatial and sectoral distribution of vulnerability levels to climate change for CSA

The vulnerability levels are based on studies that include: a) databases with climate change vulnerability indexes by country and sector (Data and Climate Vulnerable Forum, 2012; CAF, 2014; ND-Gain, 2020), b) researches that implement climate change vulnerability indexes by sector at the local, national, regional or global level and c) studies that define some vulnerability level based on the authors' expert judgment. Sectors in grey colour are under assessed.



Peligros observados y proyectados

Subregions		CA	NWS	NSA	SAM	NES	SES	SWS	SSA	CA	NWS	NSA	SAM	NES	SES	SWS	SSA	
Hazards		Observed Changes								Projected Changes								
Mean Temperature		***	***	***	***	***	***	***	***	***	***	***	**	***	***	***	***	***
Extreme Heat		***	***	***	**	***	***	***	***	***	***	***	**	***	***	***	***	***
Cold spell and frost		**	***	***			***	***	**	***		***			***	**	**	
Mean precipitation		*			***	**	***	***	*	***	*	**	*	**	***	***	***	
Extreme precipitation		*	*	***	**		***	*		*	*	***	*		***	**	**	
Drought, Dryness and aridity		*	*	***	*	***	**	**	**	*	*	***	**	***	**	**	**	
Flood and landslides							***					*	*		**			
Wildfire				***	**			***	*			***	**	***		*	*	
Wind speed												**	*					
Sea level				***			***	***				***			***	***		
Impacts		Observed level of impacts								Projected level of impacts								
Sectors	Systems / Components																	
Terrestrial and freshwater ecosystems and their services	Temperate Forests						**	***	**	**	*	**	**	***	***	***	**	
	Tropical Forests	*	*	***	**	*	**	**	**	**	*	**	**	***	***	***	*	
	Lakes, rivers and wetlands	*	**	**	**	**	**	***	**	*	***		**	***	***	***	*	
	Grassland and savanna				**		***	***	**				**			**	*	
	Deserts					***			*					***			*	
	Mountains	*	***				***	***	*	*	***			***		***	*	
Ocean and Coastal Ecosystems	Estuaries		*			**	***				*	*		*	*			
	Mangroves	**	***	**		**				**	***	**		***				
	Coral reefs	**	**							**	*	*		*				
	Sandy beaches	*			***		***			*		*		*				
	Kelps						***		**							*	*	
	Rocky shores						*	**	**		*					*		
	Saltmarshes	**	**	**		**	***	***	**	**	**	**						
	Exclusive Economic Zones (EEZs)	**	***	**		***	***	**	**	*	*	*		*	*	**		
Water	Cryosphere reservoir		***				***	***	***		***				***	***	***	
	Aquifers and groundwater		*			**	**	**		*	*			***				
	Streamflow	*	**		**	***	**	***		**	**	*		**	**	**		
	Water quality		*	**	**	***	**	**	*		*	*		**	**	*	*	
Food, fibre and other ecosystem products	Crop systems	**	***	*	**	***	***	***	*	***	***	**	**	***	***	**		
	Livestock and pasture		***		**	***	***		***	*	***		*	***	***			
	Fresh fruits production		***		**	***	***		***		***		**	***	***			
	Forestry and wood production		***	*	*	*	***	***	**	*	**	**	*	***				
	Fisheries and aquaculture systems		***	*		*	**	**	*		***	**		**		***		
	Cities and infrastructure	Housing stock	*					***			*							
Urban land and built environment																		
Land use		*		*	***	***	**			*			***	***				
Housing stock		*		**			***			*								
Water supply, Rainwater drainage and Sewer		*	***	**		***	**	***		*	***	**	*	**	***			
Energy			*		**					*	**		*	**	***			
Mobility and transportation systems		*		**			**	*	*	*		**		*	**	***		
Health		Labor productivity	*			**	**	**	***		*			*	***			
	Morbidity		**	**	**	**	**	**	**	*	***	***	**	**	**	**	**	
	Mortality			*		**	**	**	*	*	**	**	**	*				
Populations in poverty and their livelihoods	Territory				*									**				
	Livestock mortality					***	**							***				
	Income	**		*	**		***			*			**					
Migration and conflict	Migration and displacement		***			***	***			*	***							
	Conflicts						***											

Hazard	
Increasing	
Decreasing	
Increase and decrease	
No data / not assessed	

Impact by Climate Change	
Highly impacted	
Medium impacted	
Low impacted	
No data / not assessed	
As set not corresponding	

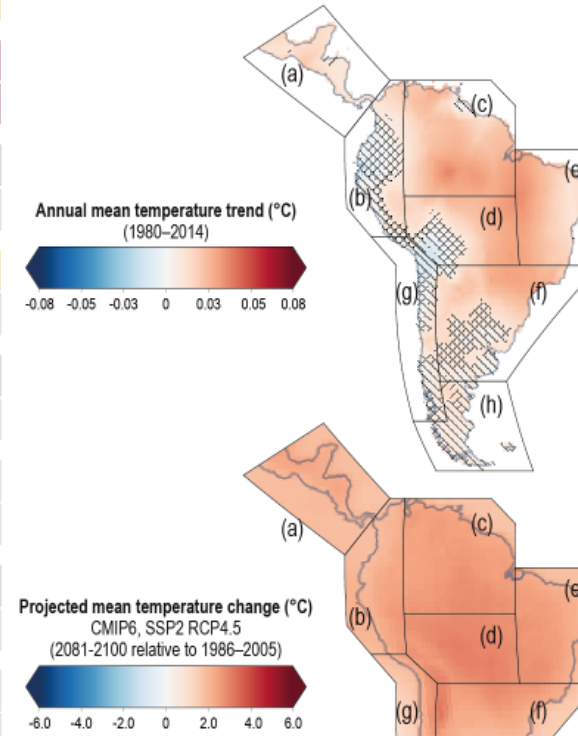
Confidence Level	
High	***
Medium	**
Low	*

Síntesis de impactos observados y proyectados

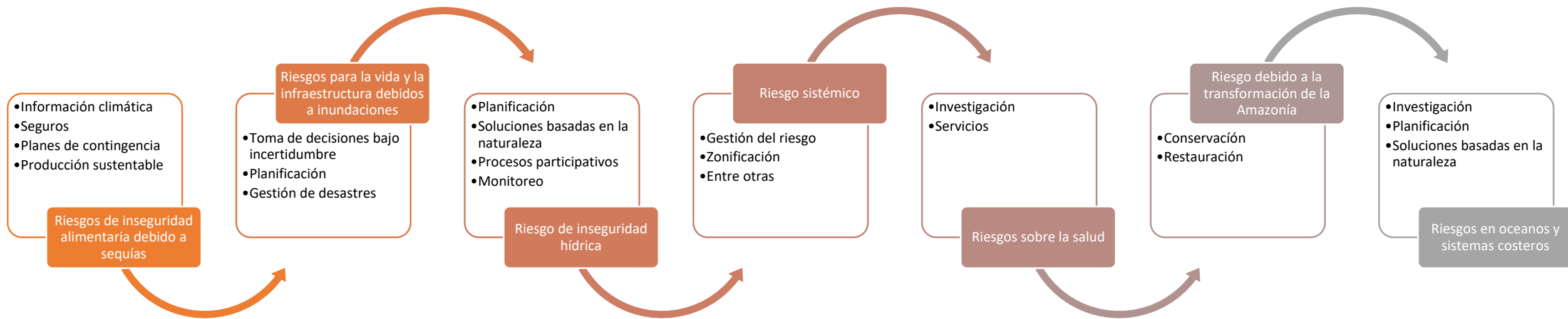
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 Figure 12.0_Observed D&A
 Iteration date: 6.11.2020

Synthesis of climate related observed and projected impacts in Central & South America

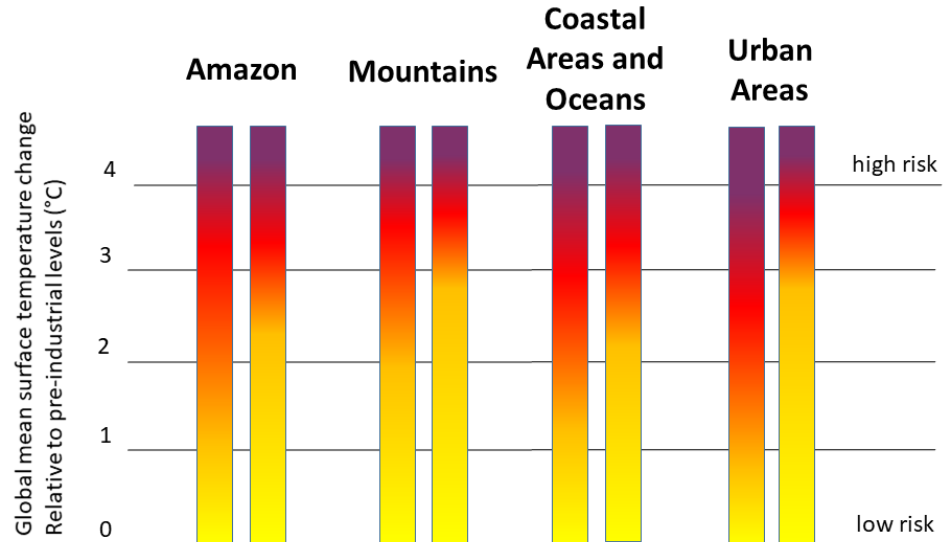
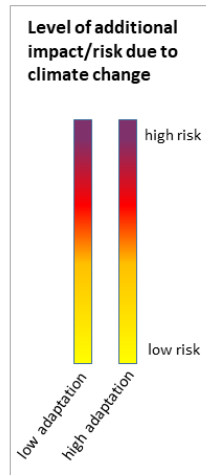
Sector		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
		CA	NWS	NSA	SAM	NES	SES	SWS	SSA
Terrestrial & freshwater ecosystems & their services	Observed	•	••	••	••	••	••	•••	••
	Projected	•	••	••	••	•••	•••	•••	•
Ocean & coastal ecosystems	Observed	••	•••	••	▨	••	•••	••	••
	Projected	••	••	••	▨	•	•	••	•
Water	Observed	••	••	••	••	•••	••	••	
	Projected	••	••			••	••	•	
Food, fibre & other ecosystem products	Observed	••	•••	•	••	••	•••	••	••
	Projected	•	••	••	•	•••	•••	••	
Cities & infrastructure	Observed	•	••	••	••	•••	••	•••	
	Projected	•	••	••	••	••	•••		
Health	Observed	•	••	••	••	••	••	•••	
	Projected	•	••	••	••	••	••	••	
Populations in poverty & their livelihoods	Observed	••		•	•	•••	••		
	Projected	•			••	•••			
Migration & conflict	Observed		•••		••	•	•••	••	
	Projected	•	•••						



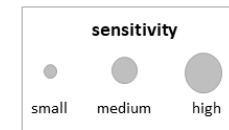
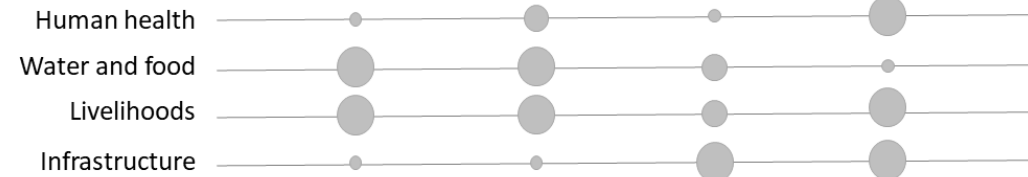
Opciones de adaptación



Impactos y riesgos asociados para 4 sectores



Key risks:



Análisis de factibilidad

System	Adaptation option	Evidence	Agreement	Dimension assessed					
				Economic	Technological	Institutional	Social	Environmental	Geophysical
Food, fiber and other ecosystem products	Agroforestry	Medium	High	No effect	Potential barriers	Significant barriers	Potential barriers	No effect	Potential barriers

Assessment developed according to Singh et al. (2020) was carried out to understand feasibility of adaptation options relevant for CSA in five dimensions

Mensajes desde el ES (vulnerabilidad)

1. Central and South America is highly exposed and vulnerable to climate change
2. The Amazon forest, one of the world's largest biodiversity repositories, is highly vulnerable to observed drought
3. Ocean and coastal ecosystems are highly vulnerable and impacted by climate change and derived-hazards
4. Species distribution in terrestrial, freshwater, ocean and coastal ecosystems is changing due to increasing temperature
5. Climate change in the Andes causes glacier loss and increases forest fragmentation
6. The Andes, the dry areas of the Amazonia, northern Brazil and the northern countries in Central America are more sensitive to climatic-related migrations and displacements than the rest of the region
7. Extreme precipitation events (floods and droughts) have impacted agricultural production in the region risking food security
8. Changes in timing and amount of precipitation are impacting agricultural production
9. The observed impacts of climate change include a wide-spectrum of conditions especially affecting the epidemiology of infectious diseases
10. The impacts of climate change are more severe for women because of socially constructed gender norms and associated structural gaps more severely affecting women

Mensajes desde el ES (adaptación)

1. Adaptation initiatives in ocean and coastal ecosystems are mainly focused on the implementation of conservation and protection measures
2. In the agriculture and forestry sectors, the main adaptations strategies observed are soil and water management, crop diversification, climate-smart agriculture, early warning systems, shifting plantation upward to avoid rising temperature and plagues, and improved management of pastures and livestock
3. Adaptation initiatives for cities in the region have included solutions in regulation, planning, sanitation, and housing
4. Adaptation initiatives for the health sector are mainly focused on subsidizing early warning systems, forecasting models, producing health vulnerability maps and surveillance of infectious diseases
5. Indigenous knowledge and local knowledge play an important role in adaptation and are vital components of many social-ecological systems

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