The IPCC 6th Assessment Report: Water Security in the Americas

Supporting Decision-Making for Climate Action

Introduction:

Based on the contributions of the Sixth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC), this policy brief, produced by the Inter-American Institute for Global Change Research (IAI) in collaboration with leading IPCC authors from the region, aims to condense the key messages from the report on water security for the Americas. This report focuses on projected changes and provides recommendations for climate action on mitigation and adaptation policies.

What is water security?

Water security is the capacity of a population to access water in sufficient quantity and quality for their human and socioeconomic development and to confront the risks of pollution and water-related disasters while preserving the ecosystems.

Water security and decision-making in the context of climate change:

Anthropogenic climate change is causing more frequent and severe extreme weather events such as heatwaves, floods, and droughts. While climate change affects all regions of the world, the impacts vary regionally, nationally, and locally. Access to regional information can assist in decision-making related to risk management, impacts, and strategies for adaptation and mitigation; it is also essential for planning strategies for water security and climate resilience. As highlighted in the latest IPCC Assessment Report, adaptation and mitigation measures need to be considered in the context of sustainable development and equity.

Trends and key impacts of climate change in the Americas:

The IPCC report shows an increase in the water cycle variability and related extremes in most regions of the world, projecting that this trend will continue and/or intensify under all greenhouse gas emission scenarios. The following are the most relevant trends and impacts for the region:

- **Water security and water management infrastructure:** Intensive exploitation of limited water supplies, especially in the western United States and northern Mexico, and the deterioration of freshwater management infrastructure have increased impacts and risks to water security (high confidence level).
- **Ecosystem and livelihood impacts:** Global warming has led to the loss of glaciers in the Andes by 30% to 50% of their surface area since the 1980s. Glaciers retreat, temperature increase, precipitation variability, and changes in land use have affected ecosystems, water resources, and livelihoods through landslides and floods (very high confidence level).
- **Water supply disruption:** Intensification of droughts and earlier runoff due to decreased snowpack will increase water scarcity during the period of peak demand in the summer, especially in regions in North America with extensive irrigation agriculture, leading to economic losses and increased pressure on limited groundwater resources as a substitute for declining surface water supplies (medium to high confidence level).
- **Water scarcity and competition:** Disruption of water flows will significantly degrade ecosystems in

Central and South America, such as high-altitude wetlands, and affect agricultural communities, public health, and energy production (high confidence level).

- **Potential conflicts over water management and security:** Adaptive water management has mainly focused on improving the quantity and quality of supply for Central and South America. However, large infrastructure projects are often contested and can exacerbate water-related conflicts (high confidence level).

- **Barriers to governance:** Institutional instability, fragmented services, poor water management, inadequate governance structures, and insufficient data and analysis on adaptation experiences are barriers to addressing multiple water-related challenges in Central and South America (high confidence level).

- **1.5°C scenario and projected risks:** Even if global warming is limited to 1.5°C, human life, security, and livelihoods throughout North America, especially in coastal areas, will be at risk from rising sea levels, severe storms, and hurricanes (very high confidence level).

Potential adaptation and mitigation measures:

- **The Sustainable Development Goals (SDGs)** can serve as a framework for assessing the implications of long-term mitigation and adaptation measures (high confidence level). However, climate actions can generate conflicting initiatives, as addressing this issue requires designing and implementing policies with diverse intersectoral objectives, cooperation between countries and regions, governance, capacity strengthening, financing, technology transfer, and considerations of development and social equity (high confidence level).

- **Social participation is critical to reducing future risks:** Equitable, inclusive, and participatory approaches, especially involving the most exposed and vulnerable populations, that integrate climate impact projections into short- and long-term decision-making reduce future risks (high confidence level).

- **Equity and transformative adaptation policies:** Current practices will become increasingly inadequate to address climate-induced risks (high confidence level), particularly if equitable and transformative adaptation policies focused on sustainable and resilient

land use, consumption patterns, economic activities, and nature-based solutions with safeguards are not pursued (high confidence level).

- **Self-determination, recognition of rights, and knowledge-based Indigenous adaptation:** Supporting Indigenous self-determination, recognizing Indigenous Peoples' rights, and supporting knowledge-based Indigenous adaptation is essential for reducing climate change risks and achieving adaptation success (very high confidence level). Research approaches that integrate Indigenous Knowledge and local knowledge systems with natural sciences are helping improve decision-making processes and reduce maladaptation in Central and South America (high confidence level).

- **Intersectoral approaches in adaptation strategies:** Planning, implementation, and coordination of short- and long-term adaptation across sectors and jurisdictions support equitable and effective climate solutions (high confidence level).

- **Actions for managing water resources in urban systems:** Green and blue urban infrastructure can mitigate climate change through carbon sinks, avoiding emissions and reducing energy use while offering multiple co-benefits (high confidence level).

Methodology:

The Intergovernmental Panel on Climate Change (IPCC) is a United Nations body that conducts periodic scientific assessments of climate change, its impacts, future risks, and options for adaptation and mitigation. The IPCC does not conduct research but evaluates globally published literature to generate reports. The IPCC consists of three working groups: WG1 focusing on the physical basis of climate change, WG2 dealing with impacts, adaptation, and vulnerability; and WG3 being dedicated to climate change mitigation.

This policy brief is the result of a series of meetings with leading IPCC experts facilitated by the Inter-American Institute for Global Change Research (IAI). Participants included Dr. Mercy Borbor Córdova, Dr. Inés Camilloni, Dr. Edwin Castellanos, and Dr. Evelia Rivera-Arriaga. From IAI, Dr. Anna Stewart-Ibarra and Dr. María Inés Carabajal participated.

References and Useful Resources:

Sixth Assessment Report from the IPCC:
https://www.ipcc.ch/assessment-report/ar6/

Sixth Report from WG2 of the IPCC:
https://www.ipcc.ch/report/ar6/wg2

North America Chapter of the WG2 report:
https://www.ipcc.ch/report/ar6/wg2/chapter/chapter-14

Central and South America Chapter of the WG2 report:
https://www.ipcc.ch/report/ar6/wg2/chapter/chapter-12

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