

Presentation prepared for the July 28, 2015 event:

Climate Change Adaptation and Population Dynamics in Latin America and Caribbean: Key Issues for Policy Dynamics



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Climate Change Adaptation and Population Dynamics: Water and Population

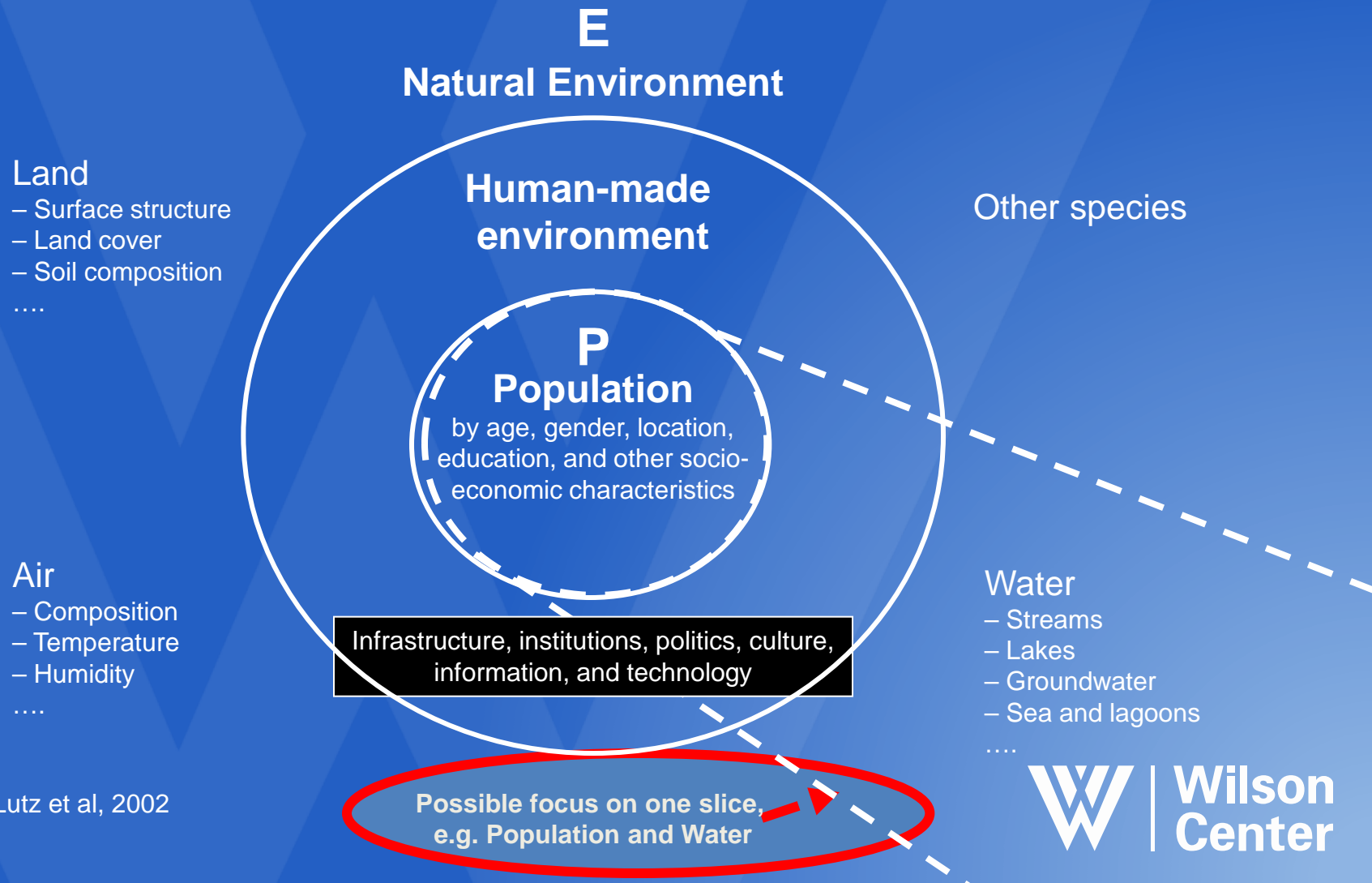


Roger-Mark De Souza
Director of Population,
Environmental Security and
Resilience
July 28, 2015

Challenges for Water Management in the region

- Wide differences of climate within the region
- Different levels of economic development between and within countries
- Vast social inequities
- Deficiencies in public administration that make it difficult to implement policies and strategies that will resonate with the citizenry
- Problems with supply and quality aggravated by poor and inequitable service

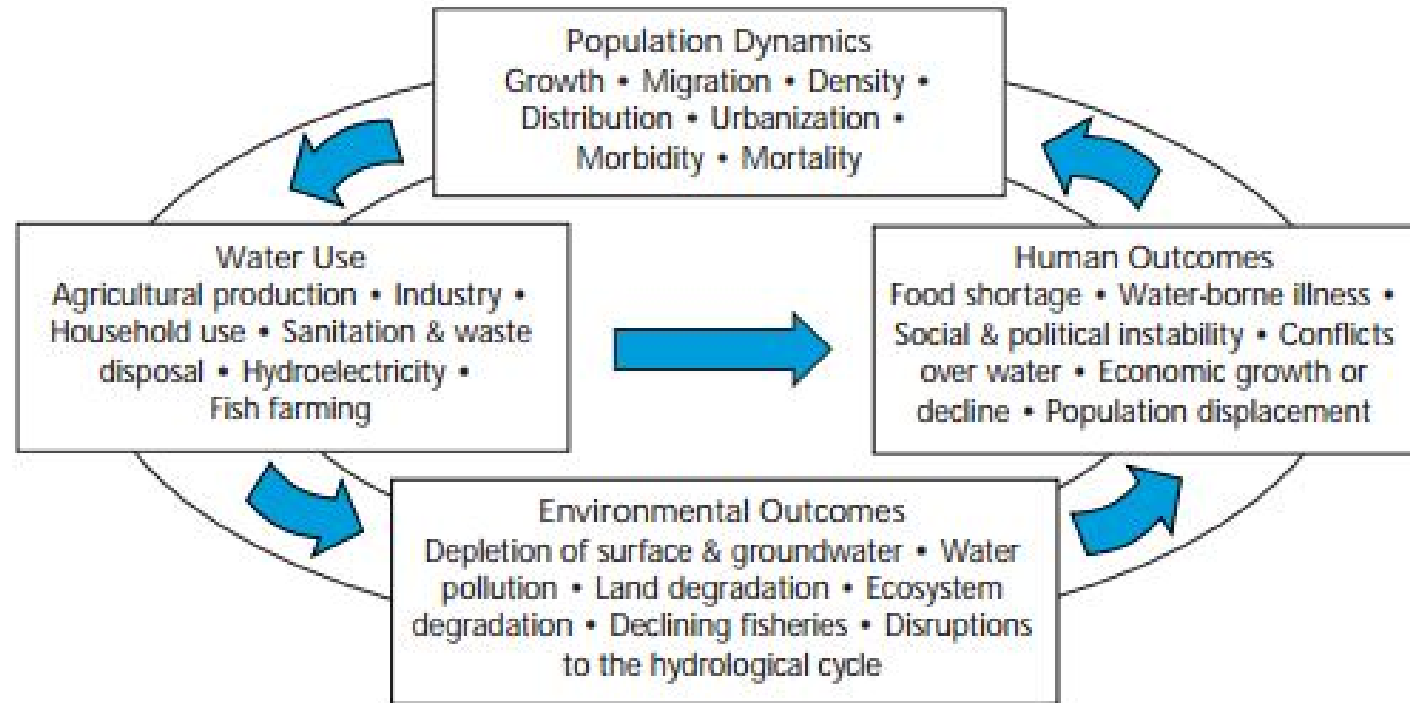
An Integrated Approach Deconstructs Reality...



Source: Lutz et al, 2002

Population Dynamics and Water

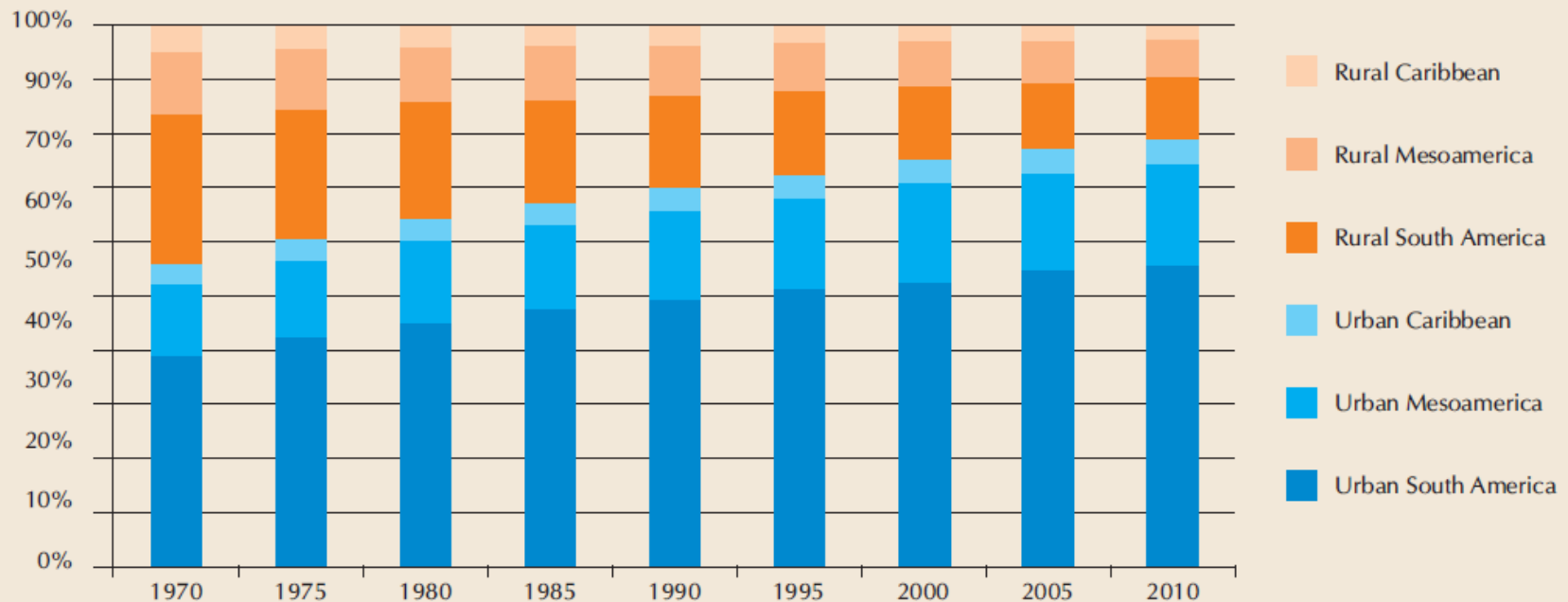
Water–Population Links



Source: Population Reference Bureau, Water and Population Dynamics, 1996

Urban and Rural Population

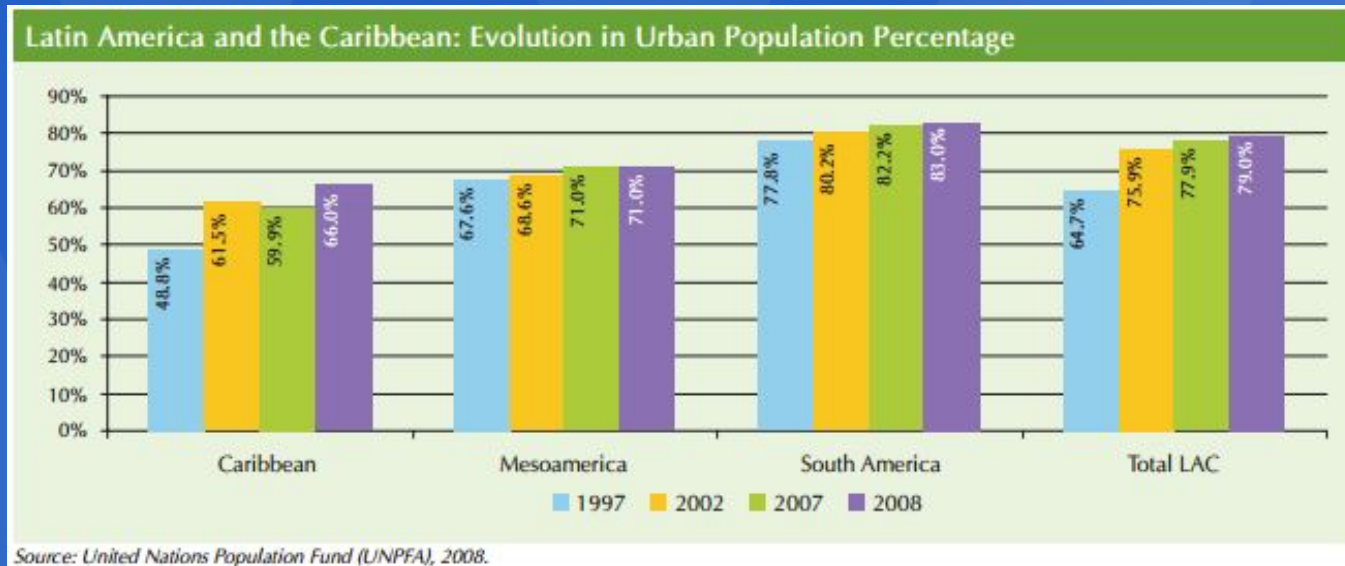
Latin America and the Caribbean: Urban and rural population distribution 1970-2010
(As a relative percentage from the total)



Source: Prepared by UNEP with statistics from the CEPALSTAT database. Consulted October 2009.

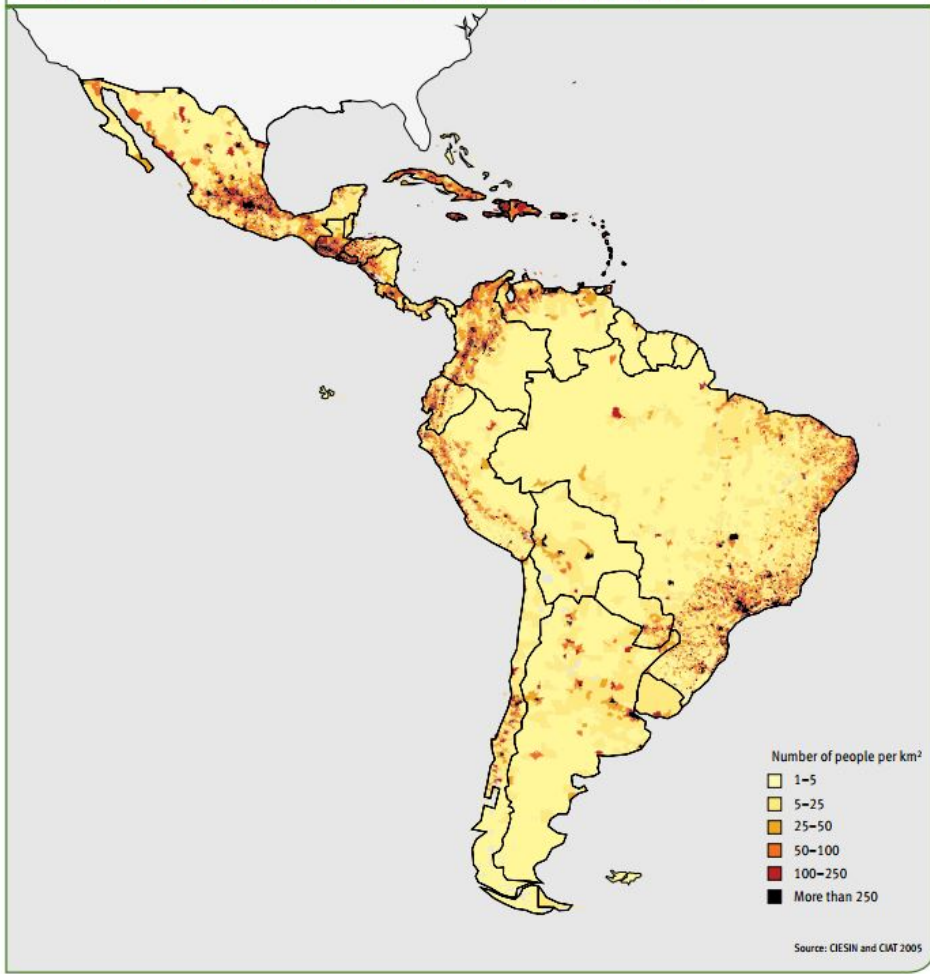
Urbanization

- One of the most urbanized regions in the world with 79% of its population living in towns and cities.
- Population projected to increase from 618 million today to 773 million in 2050.



Population Dynamics

Figure 12.5 Estimated population density in Latin America and the Caribbean, 2010



More urban areas create concentrations of population require an updated water infrastructure

Can Water Keep up with Population?

- Even though LAC has met goals on safe-drinking water, improvements must continue to keep pace with population growth

Population growth has outpaced gains in sanitation and drinking water coverage, especially in urban areas

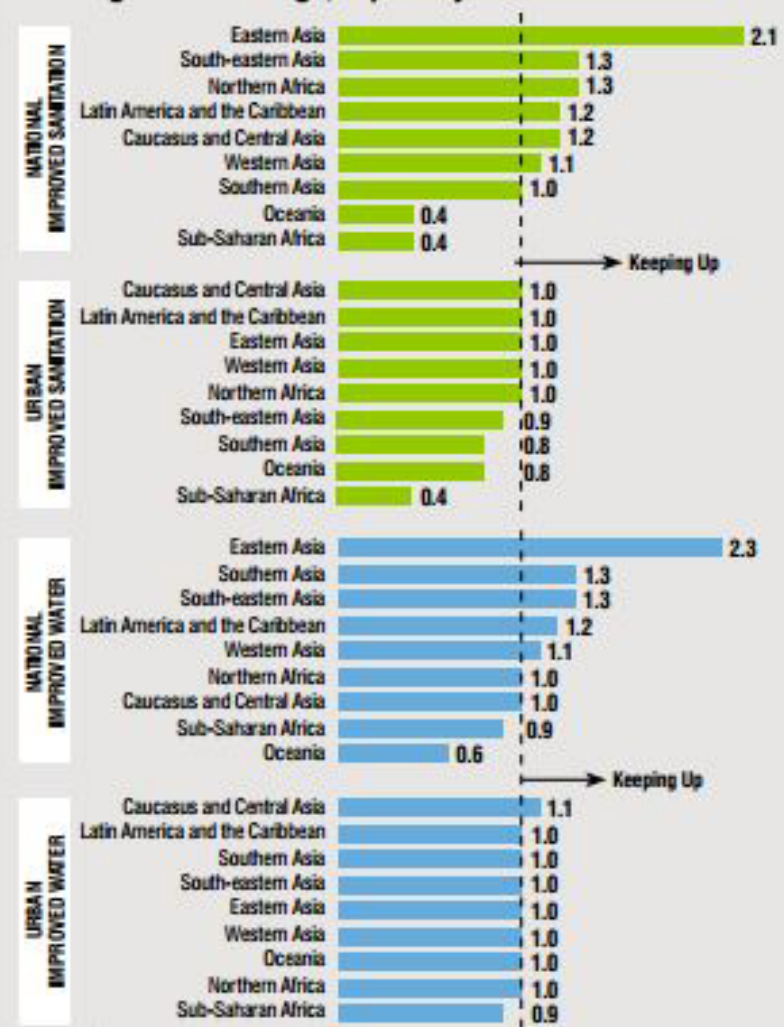
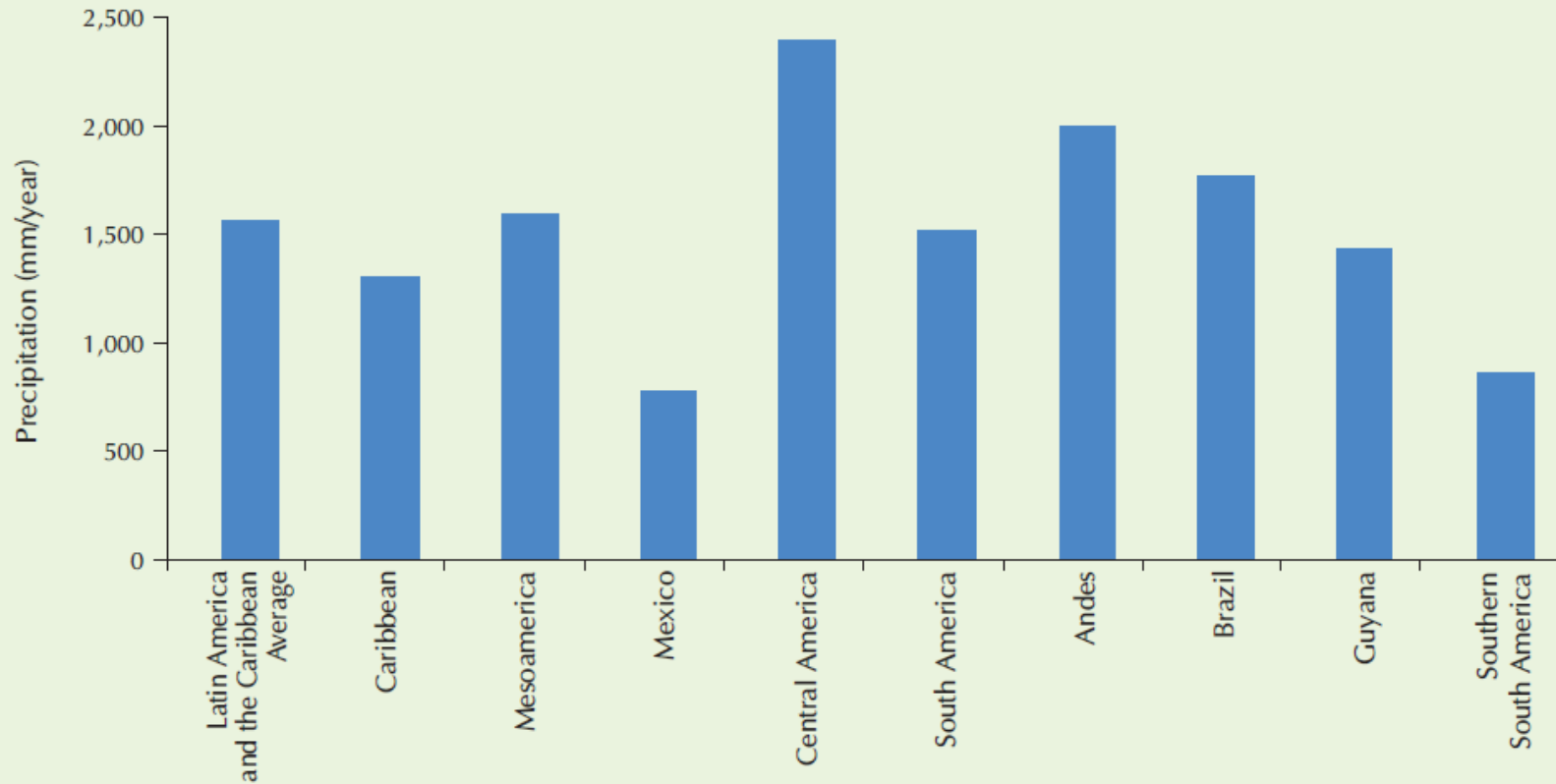


Fig.25

Ratio of population gaining improved water and sanitation to population increase (1990-2015)

Average Annual Precipitation

Latin America and the Caribbean: Average annual precipitations (mm/year)

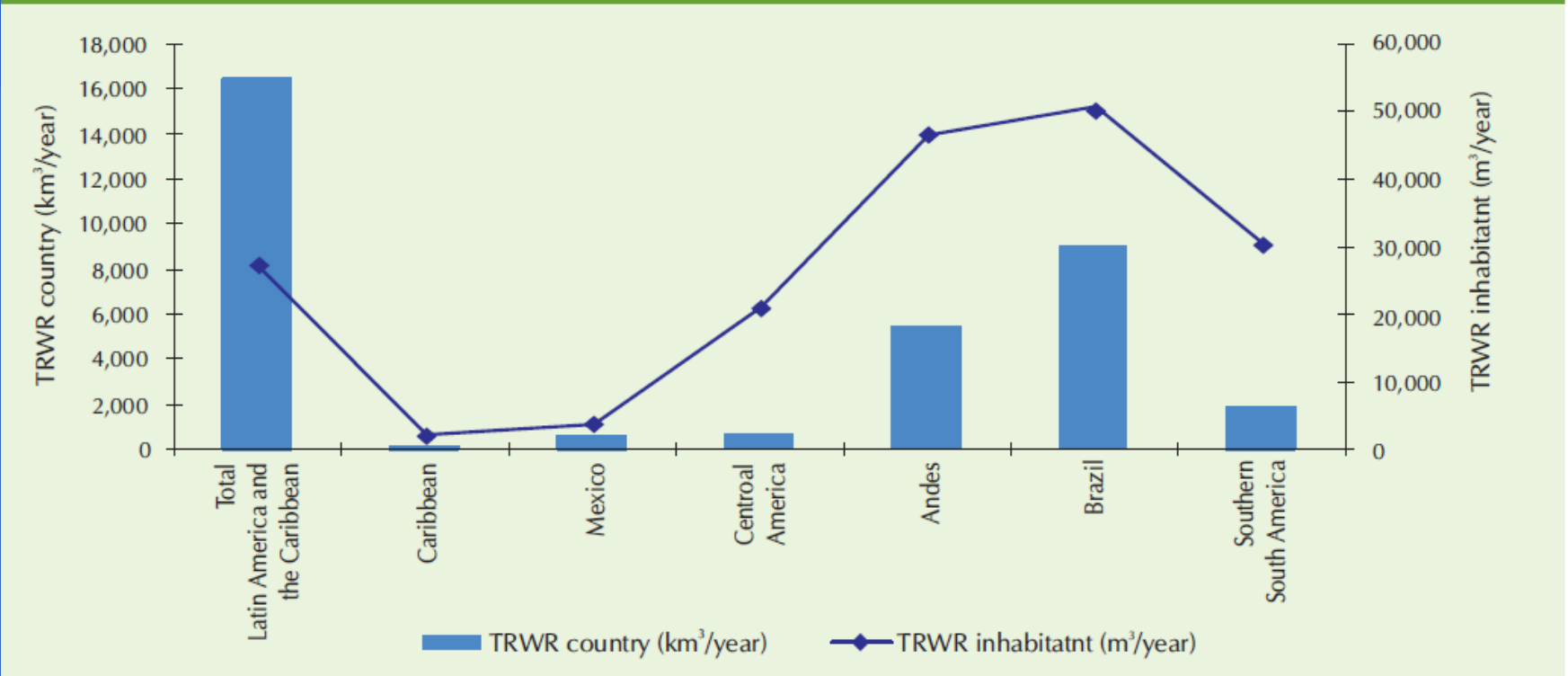


Source: Adapted from FAO, 2002; UNEP and others, 2002; UNEP, 2003a; FAO-AQUASTAT, 2004.

Note: Caribbean: Antigua and Barbuda, Barbados, Bahamas, Cuba, Dominica, Dominican Republic, Granada, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago; Mesoamerica: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama; South America: Andes: Plurinational State of Bolivia, Colombia, Ecuador, Peru, Bolivarian Republic of Venezuela; Guyana: Guyana, Suriname; Brazil: Brazil; Southern South America: Argentina, Chile, Paraguay, Uruguay.

Available Water Resources

Latin America and the Caribbean: Total Renewable Water Resources (TRWR) Available Per Year (Km³/year) and Per Person Per Year (m³/year) for Selected Countries



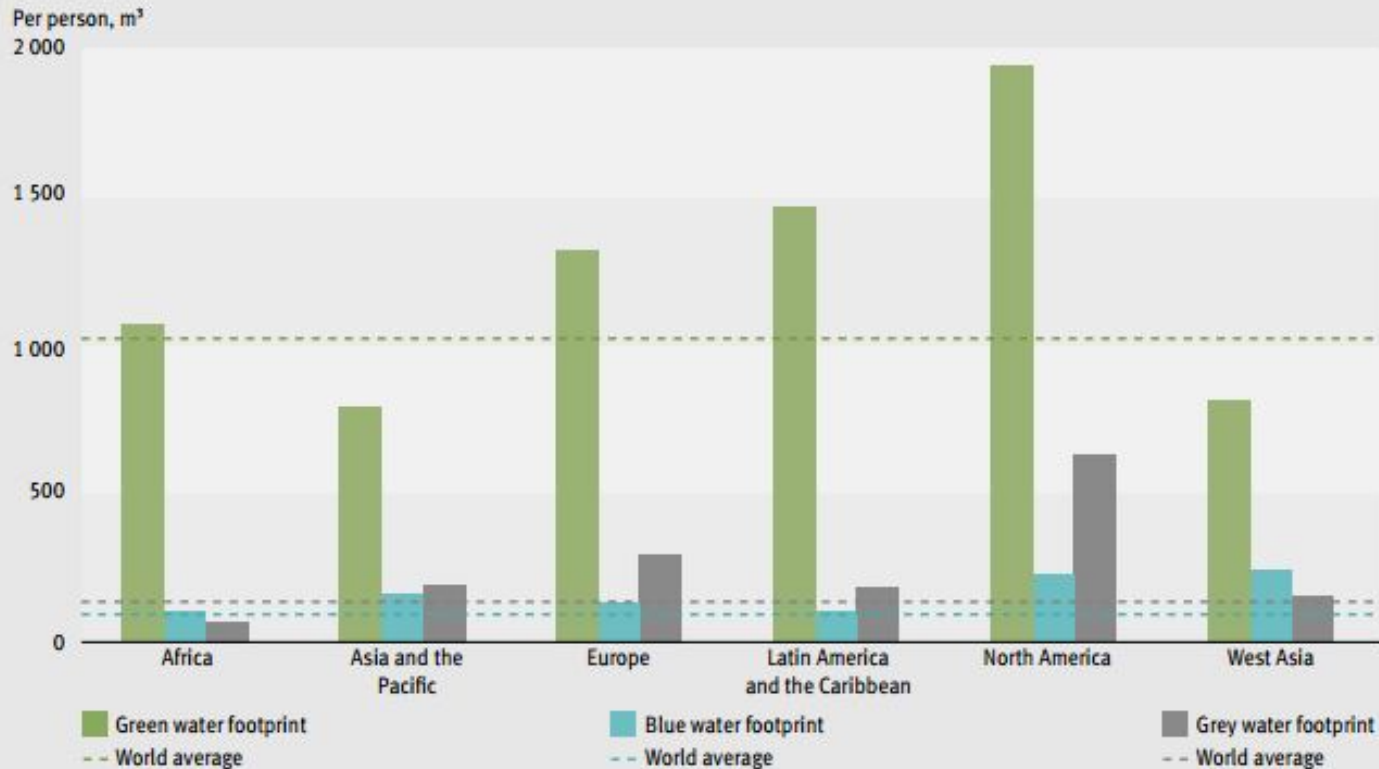
Source: Adapted from UNEP and others, 2002; FAO, 2003; FAO-AQUASTAT, 2004.

Note: Caribbean: Antigua and Barbuda, Barbados, Cuba, Dominica, Dominican Republic, Granada, Haiti, Jamaica, Saint Kitts and Nevis, Santa Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago; Mesoamerica: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama; South America: Andes: Plurinational State of Bolivia, Colombia, Ecuador, Peru, Bolivarian Republic of Venezuela; Brazil: Brazil; Southern South America: Argentina, Chile, Paraguay, Uruguay. Note: Guyana, French Guyana and Suriname are not taken into account, because their water per inhabitant is more than 300,000 m³/year.

Water Usage

LAC considered “region of greatest concern” for green water footprint (volume of rainwater consumed during production process) nearly 500 m³ above global average

Figure 4.4 Annual global and regional water footprint, 1996–2005



Water Scarcity

- Despite having met the MDG goal on safe drinking water, extreme inequalities exist.

Use of improved drinking water sources among the poorest is catching up with the richest in rural areas of Latin America

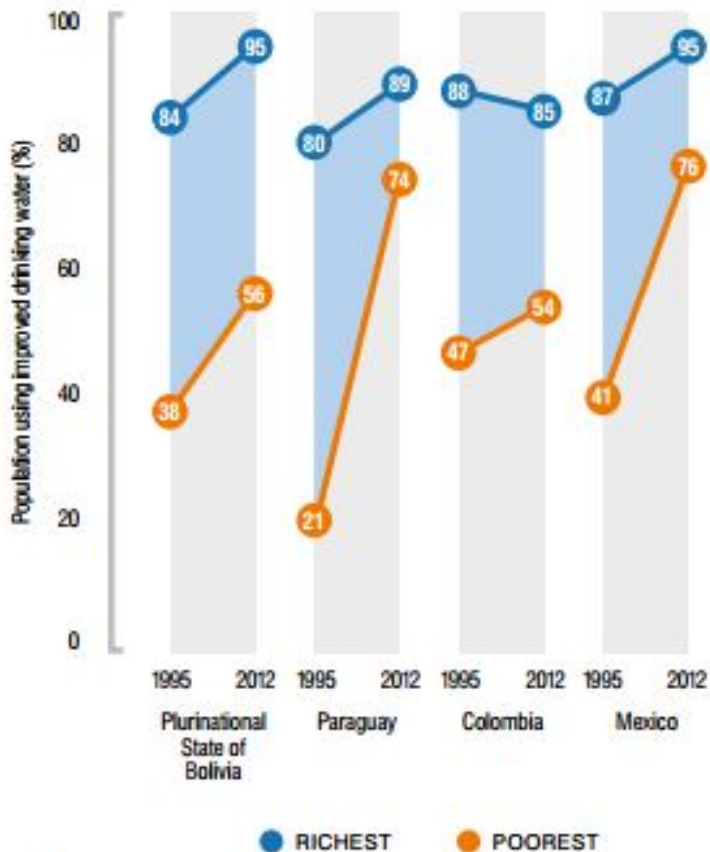
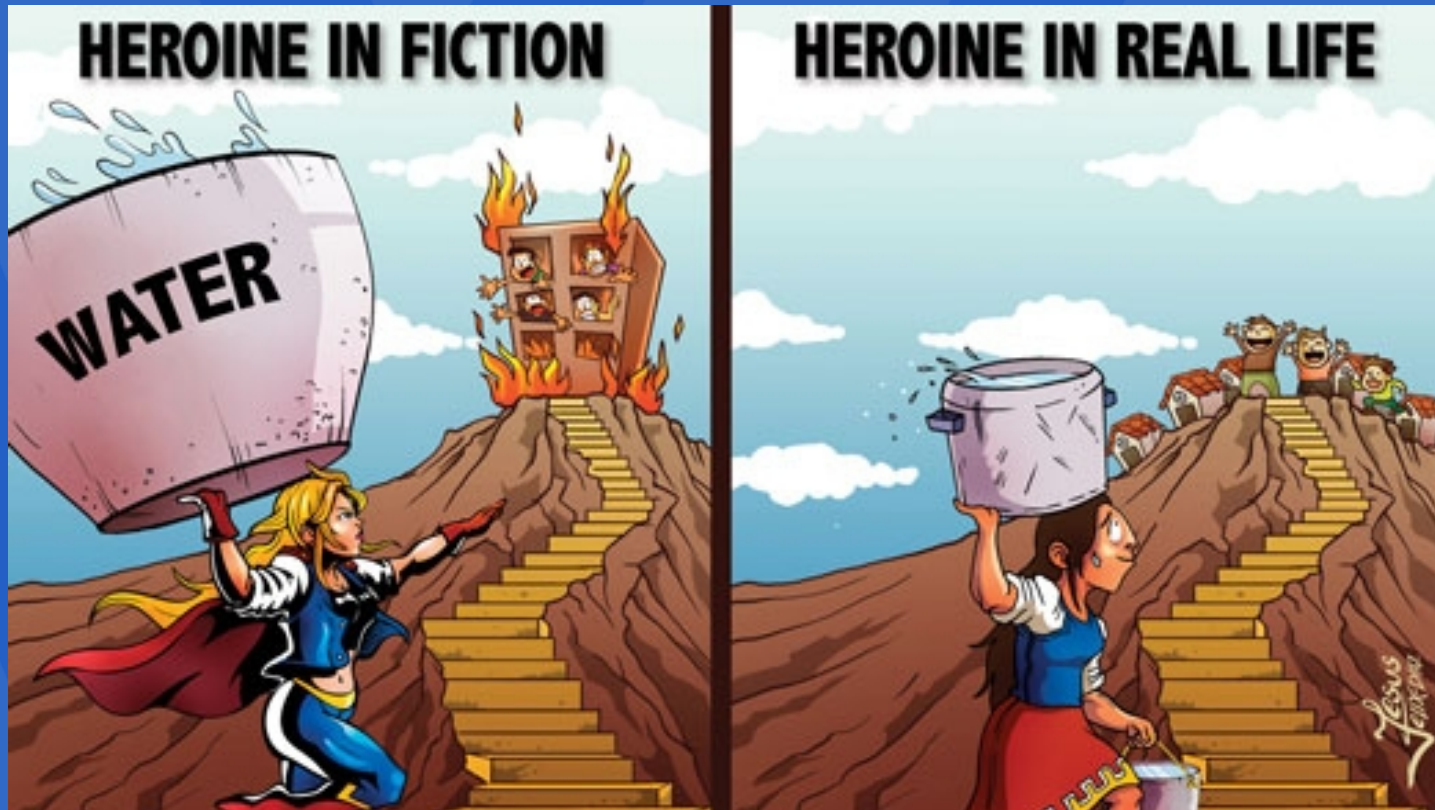


Fig.31

Trends in use of improved drinking water in the richest and poorest rural wealth quintiles, 1995–2012

Source: UNEP

Gender



World Bank Study: In communities like Rio Grande in Brazil, access to water allows women to devote more time to their farms and themselves, leading to an increased family income of up to 30%.

Women and Water

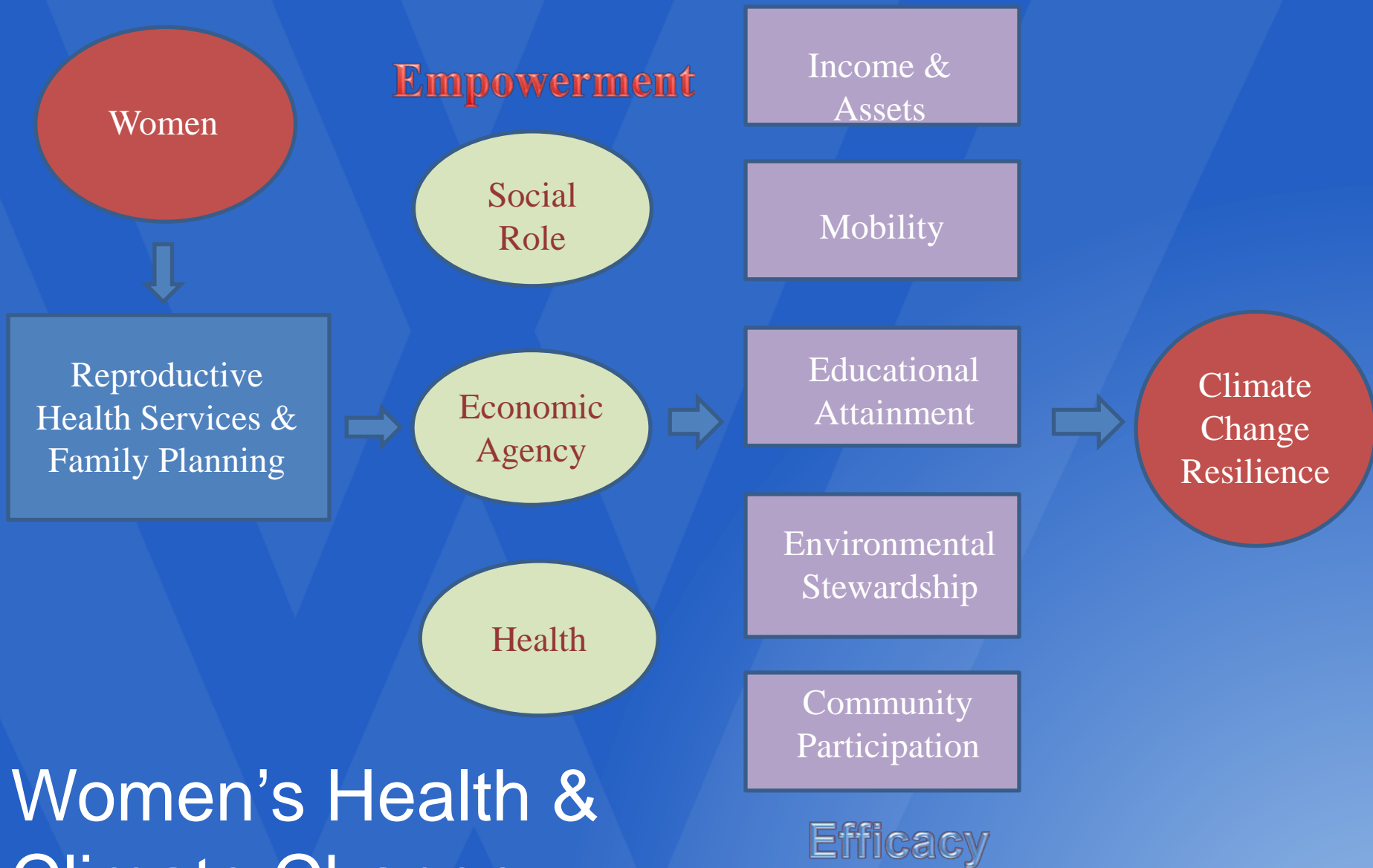


- In LAC, ratio of women to men in poor households increased more than 8% between 1997 and 2012
- Women and children walk longer distances to obtain water
- Women often shoulder more burden to ensure water as the traditional water bearers and guardians of the family's health

Women's Empowerment

- Time spent fetching water could be better used by women to improve their income and livelihoods
- Irrigated water projects can favor men's use, overlooking women's role in farming
- Legal protections may favor males as landowners





Women's Health & Climate Change Resilience

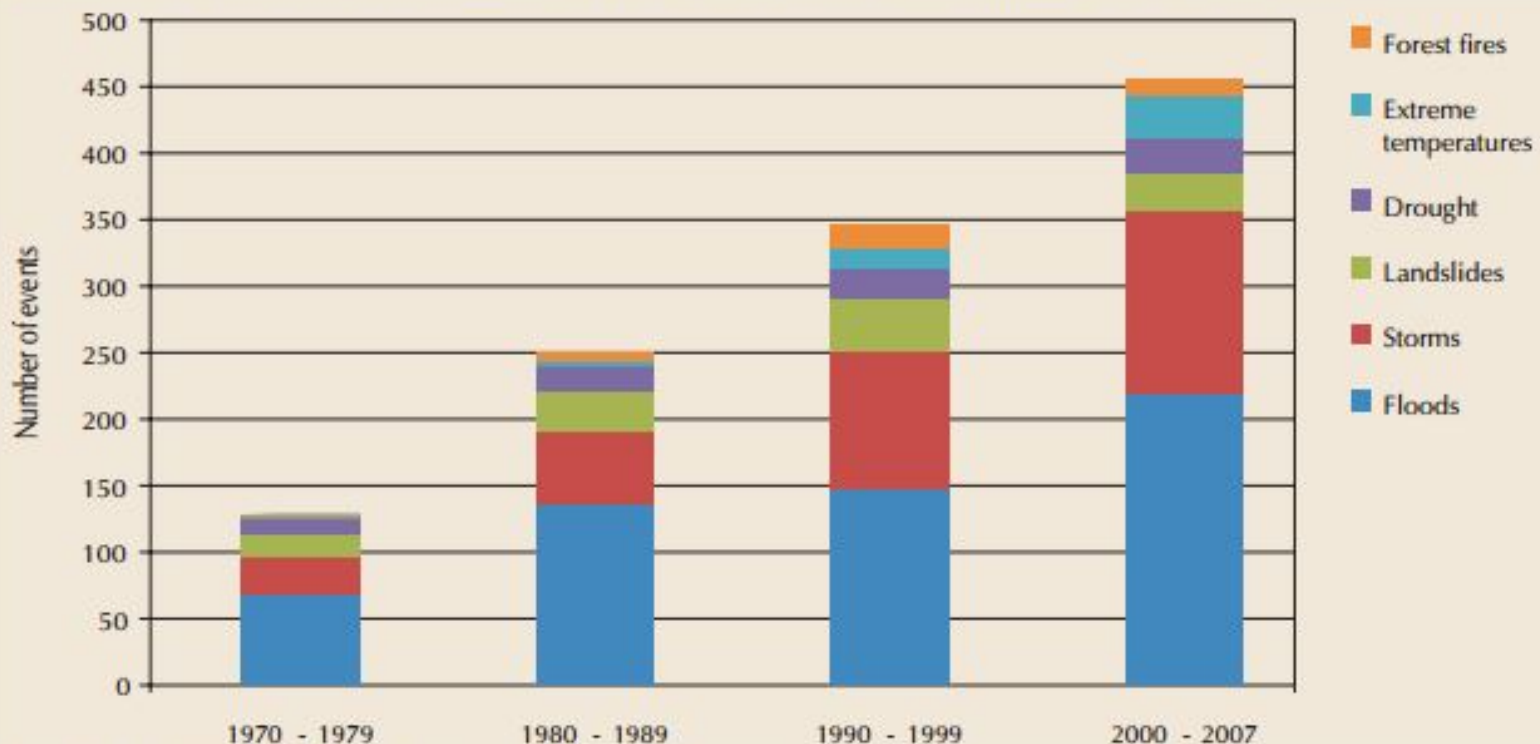
Climate Change Impacts

- Water shortages will be between 12 million and 81 million (2020)
- Glaciers in the Andes and in Argentine Patagonia show evidence of shrinkage, along with reduction in snow cover
- Loss of glaciers in the Andes, saltwater infiltration as sea levels rise will affect drinking water availability and agricultural production and tourism
- 70% of LAC population could be living in water stressed areas by 2025

Water-Related Extreme Events

- Latin America susceptible to Amazon Basin flooding, particularly vulnerable as dependent on rain-fed agriculture
- Small Islands at risk of tropical events, particularly vulnerable as low-lying area
- Still, lack of water causes more deaths than earthquakes and hurricanes combined

Latin America and the Caribbean: Frequency of Hydrometeorological events, 1970-2007



Source: Prepared by UNEP with data from ECLAC, 2009a.

Opportunities Moving Forward



Source: PAI

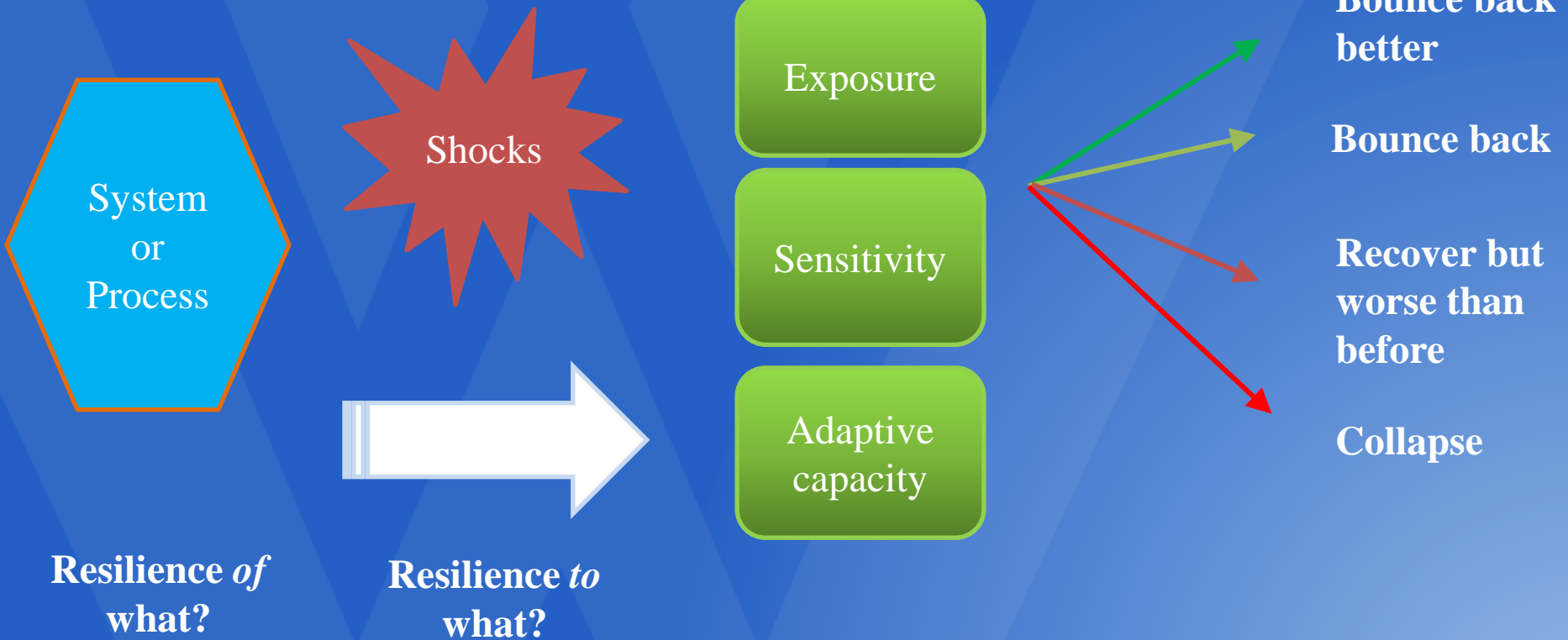
What Does it Mean to be Resilient?

1. Context
e.g. social group, region, institution

2. Disturbance
e.g. natural hazard, conflict, insecurity, food shortage, high fuel prices

3. Capacity to deal with disturbance

4. Reaction to disturbance
e.g. survive, cope, recover, learn, transform





How Can we Build Resilience?

- Resilience programs integrate livelihoods, disaster risk reduction, and climate change adaptation approaches into a single framework
- Build resilience of individuals, households, communities, or higher-level systems to deal with shocks and stresses
- Focus on capacity-building (absorptive, adaptive, and transformative) which are mutually reinforcing and exist at multiple levels

Resilience and Water

- Moving beyond engineering resilience
 - Water supply: Diversification and connectivity
 - Water demand: Flexibility
- Water resources planning
- Coastal resilience
- Community resilience
- Flood risk
- Population dynamics including gender

