

## Why is South Asia Vulnerable to Climate Change?

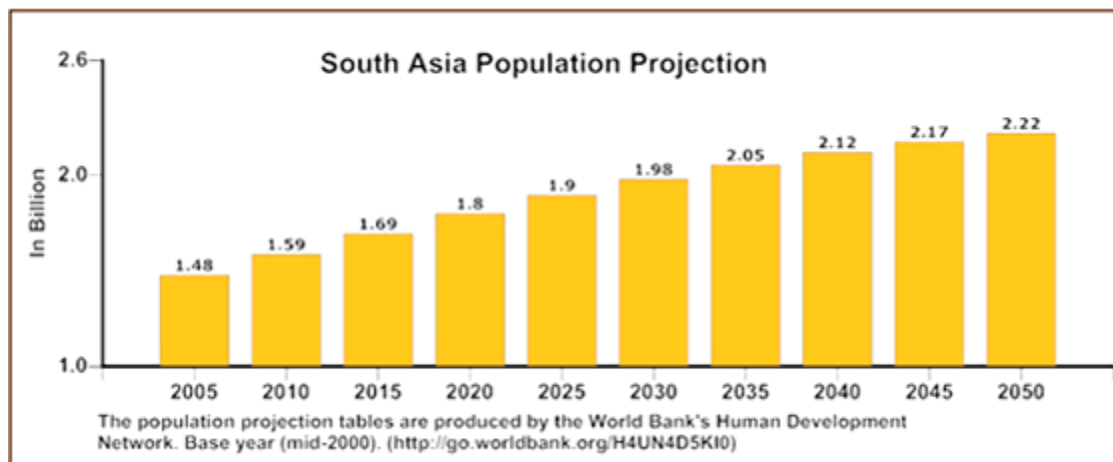
**December 1, 2009** - Geography coupled with high levels of poverty and population density has made South Asia especially vulnerable to the impacts of climate change.

Speaking ahead of the **United Nations Climate Change Conference in Copenhagen, Denmark** from December 7 to 18, 2009, **Richard Damania**, World Bank Lead Environmental Economist for the South Asia Region said the region faces daunting climate-related development challenges.

*“Impacts ranging from of higher temperatures to more variable precipitation and more extreme weather events are already being felt in South Asia. It has been projected that these will intensify.”*

High population levels mean greater pressure on an already stressed natural resource base. By 2050, South Asia’s population is likely to exceed **2.2 billion from the current level of 1.5 billion**.

*“With an estimated 600 million people currently subsisting on less than \$1.25 a day in South Asia, even small climate shocks can cause irreversible losses and tip a large number of people into destitution,”* said **Damania**.



About 70% of South Asians live in rural areas and account for about 75% of the poor. Most of the rural poor depend on agriculture for their livelihoods. **Damania** said agriculture employs about 60% of the labor force, but contributes only 22% of regional GDP. *“With their rural economies closely tied to climate sensitive sectors such as agriculture, the poor are likely to be disproportionately affected by climate change.”*

### Mountains and Rivers

South Asia is endowed with great rivers, which are the lifelines of the regional economy. The ice mass covering the Himalaya-Hindu Kush mountain range is the source of the nine largest rivers of Asia, including the Ganges, Brahmaputra, and Indus. **The Himalayan system shapes the**

**critical and often unpredictable monsoon dynamics.** It acts as a natural reservoir for sustaining crops and providing groundwater recharge.

The Himalayan ecosystem also sustains some 1.5 billion people who live directly in the floodplains of its many rivers.

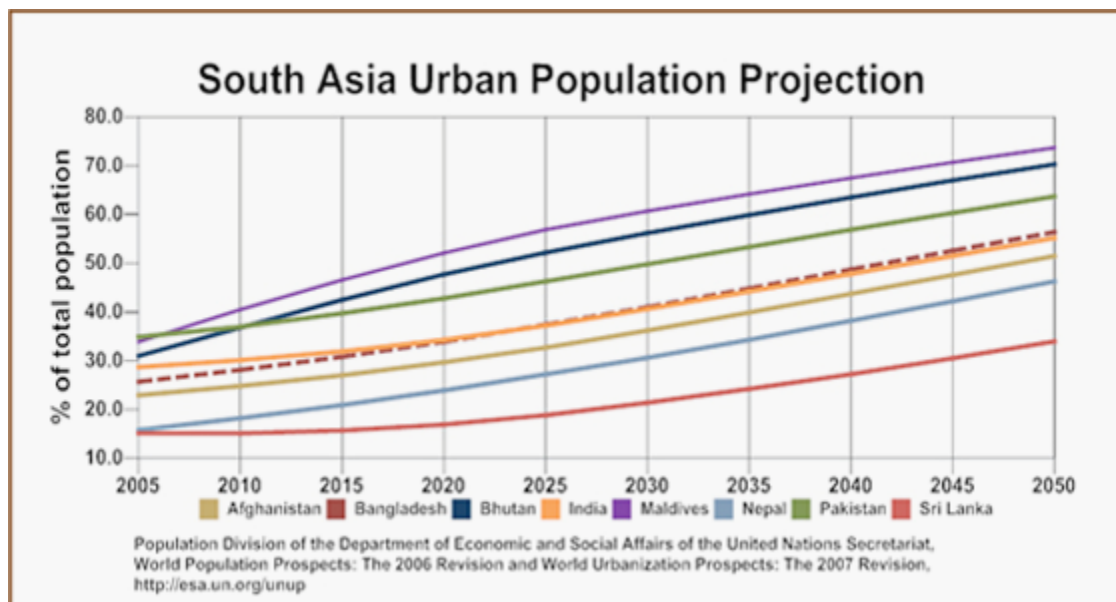
There is general agreement that widespread retreat of the global ice cover has been occurring since at least the early 1800s. *“With rising temperatures the ice mass of the Himalaya-Hindu Kush could retreat more rapidly than the global average in some locations,”* said Damania.

The receding trends of some glacier masses could threaten water supplies, livelihoods and the economy of the region. With melting of some glaciers, flood risks would increase in the near future. *“In the long term, there can be no replacement for the water provided by glaciers, and this could result in water shortages at an unparalleled scale,”* warned Damania.

### Rapid urbanization

South Asia is home to some of the fastest growing cities in the world. **By 2020, Mumbai will be the second largest city in the world, closely followed by Delhi, and Dhaka.** With Karachi and Kolkata, **5 of the world’s 11 megacities (10+ million) will then be in South Asia.**

In Mumbai, more than half the population is crowded into about 2,000 densely populated slums that are at risk from flooding and where settlements lack basic protective infrastructure. There are particular challenges in making cities climate resilient. *“This requires improving infrastructure, governance and finance,”* said Damania. *“Without a substantial investment in basic amenities and infrastructure in these large cities, climate change will exacerbate existing vulnerabilities.”*



In sum, high population densities, a large concentration of poverty, and climate variability have all combined to make South Asia highly sensitive to the consequences of climate change.

*“Climate change will likely compound the pressures on key resources associated with growth, urbanization and industrialization,”* said Damania.

### **Vulnerability to natural disasters**

South Asia suffers an exceptionally high number of natural disasters. Between 1990 and 2008, more than 750 million people—50% of the region’s population—were affected by at least one weather-related disaster, leaving almost 60,000 dead and resulting in about \$45 billion in damages. As climate-related risks intensify, there will be a need to respond proactively to build resilience through prevention and preparedness rather than through relief and response.

### **Need for regional cooperation**

Regional cooperation can play a key role in adaptation and development in the Himalayan region. With climate change, the monsoons and their associated droughts and floods are expected to become more intense and less predictable. Coping with these mounting extremes in the river basins of South Asia will require more basin-wide information to predict and warn against calamity. It will also call for more basin-wide river management, with coordinated capacity to lower flood peaks and augment low-season flows.