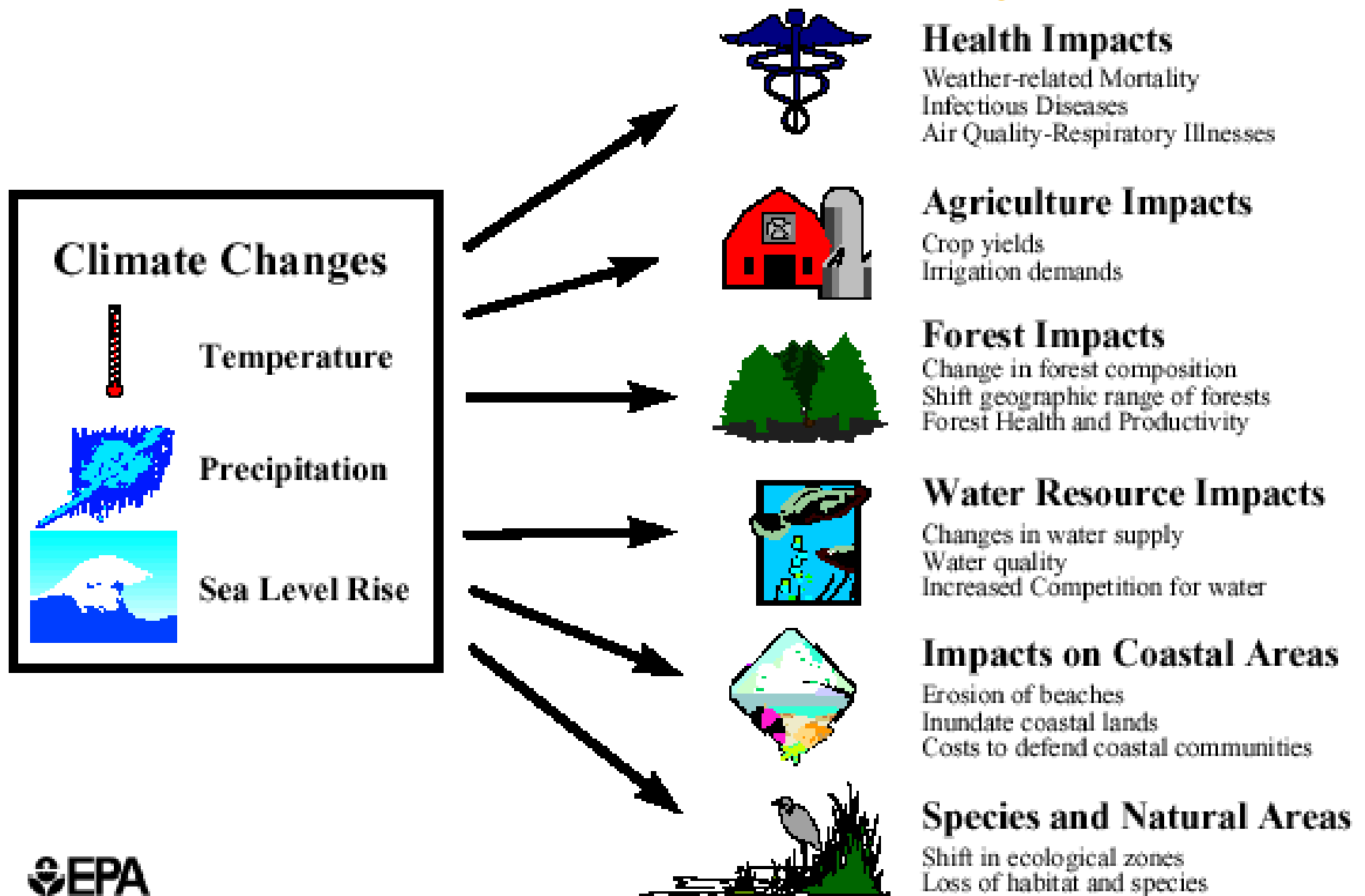




# **Challenges to Adaptation to Climate Change in South Asia**

Sanjay Vashist, CANSA

# Potential Climate Change Impacts



# Climate change and food

**Climate Change**

Hydrologic and CO<sub>2</sub> changes

Nitrogen fertilization

**Food supply and demand**

Extensification

Loss of crops genetic diversity

Salinization and erosion

Fertility loss

**Land degradation**

**Unsustainable forestry**

Loss and fragmentation of habitats

**Biodiversity loss**

# Context...

- ❑ Shared Natural Resources – Water, Monsoon, Coastal line, etc...
- ❑ Complex Political Relations
- ❑ Second highest population density
- ❑ Economic disparity among countries – LDCs, Emerging Economies, etc...
- ❑ Widening income gap between Rich and Poor



# Climate Change – *a ruthless Reality in South Asia*

- ❑ South Asia identified as being the most vulnerable region (IPCC 2007)
- ❑ Faster melting of the Himalayan glaciers could affect half a billion people in the Hindu Kush–Himalaya region (Stern, 2007).
- ❑ Himalayan glaciers are likely to shrink from the present 500,000 square kilometers to 100,000 square kilometers by 2035 (World Wildlife Fund, 2005)
- ❑ up to 20% more rain falling in India and Bangladesh by 2050 (IOM 2008).



# Agriculture and Food Security in South Asia – *on the verge of collapse*

- ❑ agriculture sector employs about 60% its workforce and contributes around 22% of its GDP.
- ❑ rise in temperature by 1.5°C and 2 mm increase in precipitation may lead to a reduction of rice yield by 3-15% for India
- ❑ crop yields might decrease up to 30% in South Asia by the mid-21st century. (-23% in rice; -57 % in wheat; -36% in maize)



# Disasters Vulnerability in South Asia...



Source: National Centre for Social Applications of Geographic Information Systems, University of Adelaide, from multiple sources.



# Vulnerable sectors

- Poverty Alleviation
- Health Improvement & Disease Control
- Risk Financing
- Land development
- Agriculture & Allied Services
- Forestry & Biodiversity
- Water Resources
- Disaster Management
- Coastal, Marine & Ocean Management





# Vulnerability in South Asia

	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
Sea Level Rise	No	Yes	No	Yes	Yes	No	Yes	Yes
Glacier Retreat	Yes	Yes	Yes	Yes	No	Yes	Yes	No
Increase in intensity of Floods	Not so far	Yes	Yes	Yes	Yes	Yes	Yes	Not so far
Increase in Intensity of Droughts	Yes	In some parts	No	Yes	No	No	Yes	No
Temperature Rise	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

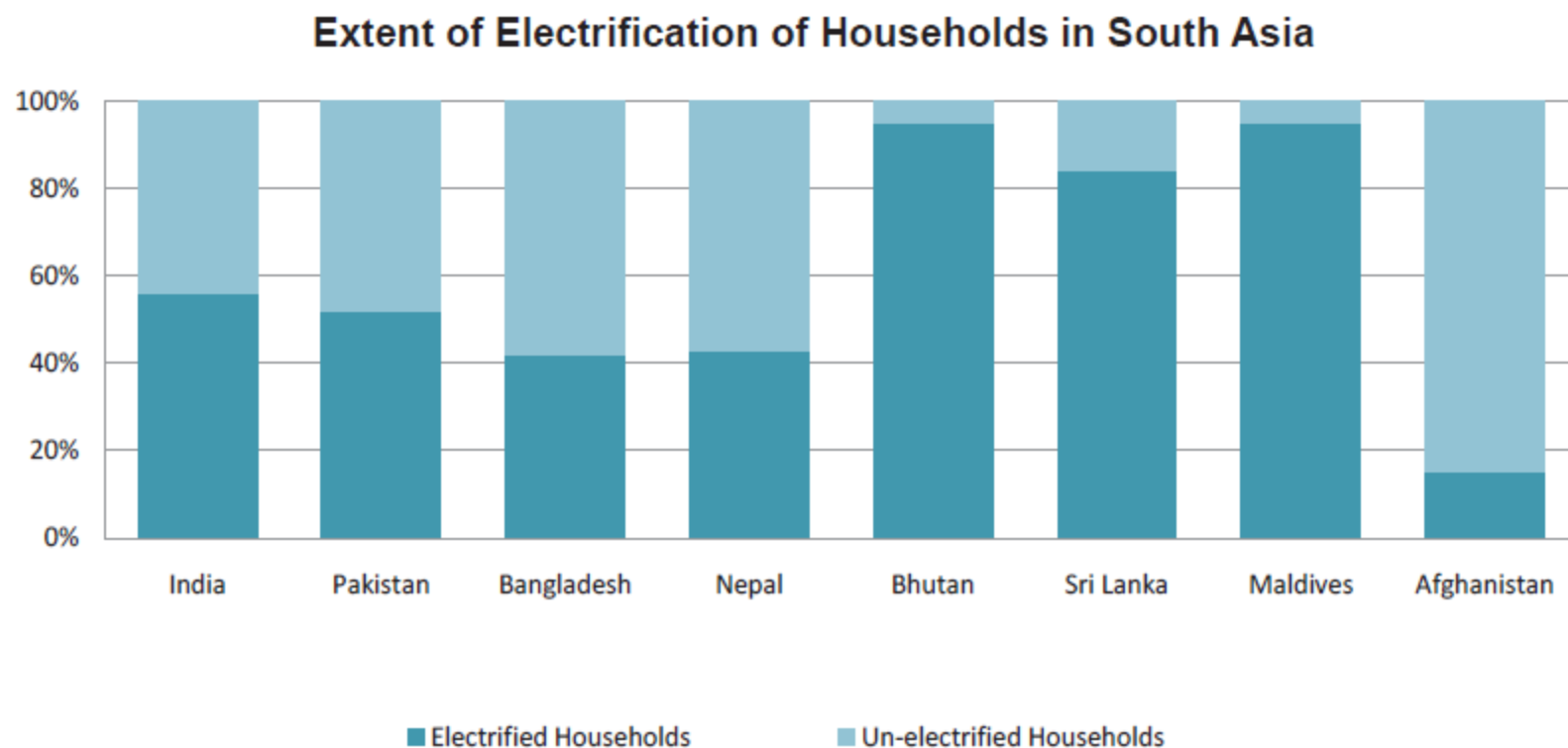
Some of the broad indicators of the countries in South Asia are as follows:

Table 1.								
	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
GDP (2009)	USD 11.6 bil- lion (2007)	USD 100.00 billion	USD 1.27 billion	USD 1,430 bil- lion	USD 1.36 bil- lion	USD 12.61 billion	USD 166.52 billion	USD 41.32 bil- lion
GDP per capita (2009)	USD 190 (2004)	USD 551	USD 1,832	USD 1,176	USD 4,388	USD 427	USD 981	USD 2,068
Population	28.15 mil- lion (2009)	162.22 mil- lion (2009)	0.70 million (2009)	1.12 bil- lion (2011)	0.40 million (2009)	29.33 million (2009)	180.81 million (2009)	20.24 million (2009)
Land area (%)	652,000 sq km	130,000 sq km	47,000 sq km	3,287,000 sq km	300 sq km	147,200 sq km	796,100 sq km	65,600 sq km
Agricultural land (%age of total)	58.3%	69.2%	12.6%	60.6%	47%	29.5%	35.1%	36.5%
Irrigated land (%age of cropped land)	33.8%	56.1%	5.3%	33%	Nil	47%	90.6%	39%
Forest area (%age of land area)	1.3%	6.7%	68%	22.8%	Nil	25.4%	2.5%	29.9%
GHG emissions (million metric tonnes of CO <sub>2</sub> )	8.8	143.2	0.4	1,863.4	0.7	40.6	243.7	13.8
Per capita emis- sions	0.3	0.9	0.6	1.7	2.4	1.5	1.6	0.7
Emission intensi- ty of GDP (metric tonnes of CO <sub>2</sub> )	-	874.5	178.1	763.4	605.6	1,558.80	716.1	197.7
No. of motor vehicles per 1,000 persons	0	2 (2008)	47 (2008)	23 (2010)	23 (2008)	9 (2008)	11 (2008)	61 (2008)
Source: World Bank, South Asia Report titled "Shared Views on Development and Climate Change"; WRI, Climate Tools; UNDP Human Development Index 2011; Wikipedia.								

- Low Per Capita GDP
- Pressure on Natural Resources
- Agriculture is rainfed with low productivity
- Energy deficit



# Household Electrification Rate in South Asia

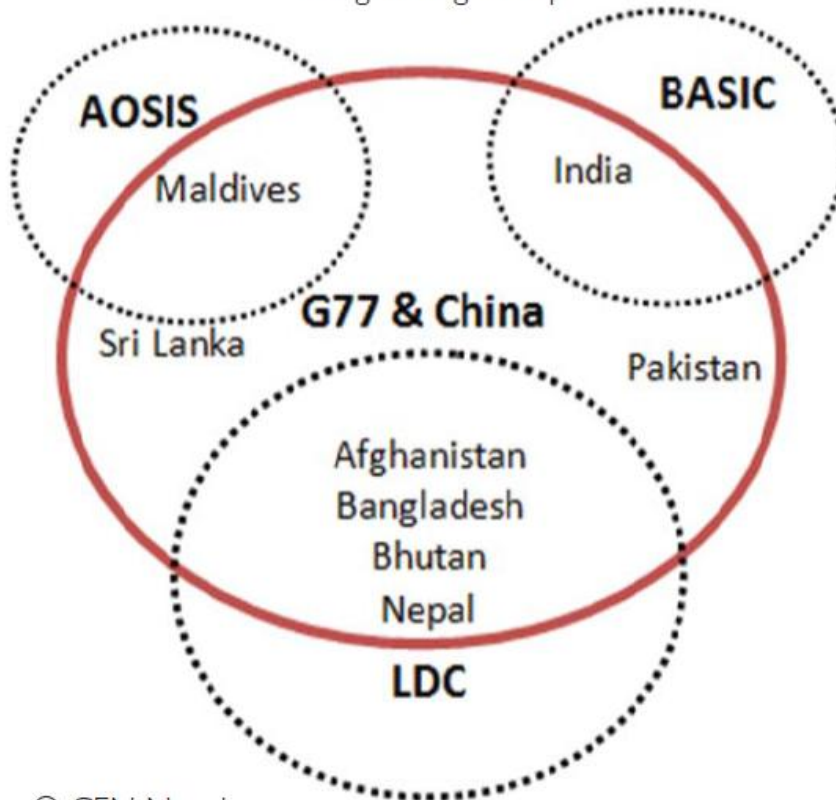


*Source: Energy or Power Ministry data from each country.*



# Participation in UNFCCC...

Figure 6: Current Membership of SAARC Countries as Different Negotiating Groups



© CEN Nepal

- Divided on positions
- Pursuing nationalistic agenda
- Not very strong voice within developing countries



# Challenges ...

- ❑ high levels of poverty and population density
- ❑ High dependence on natural resources
- ❑ Disaster Hotspot and highly vulnerable to Climate impacts
- ❑ Development imperative
- ❑ Slow economic growth
- ❑ Inward looking policy frameworks on Climate Change
- ❑ Divisive Political positions to address climate change
- ❑ Limited financial and technological resources
- ❑ Weak Regional Cooperation



# Climate Actions for Adaptation...

## □ National actions:

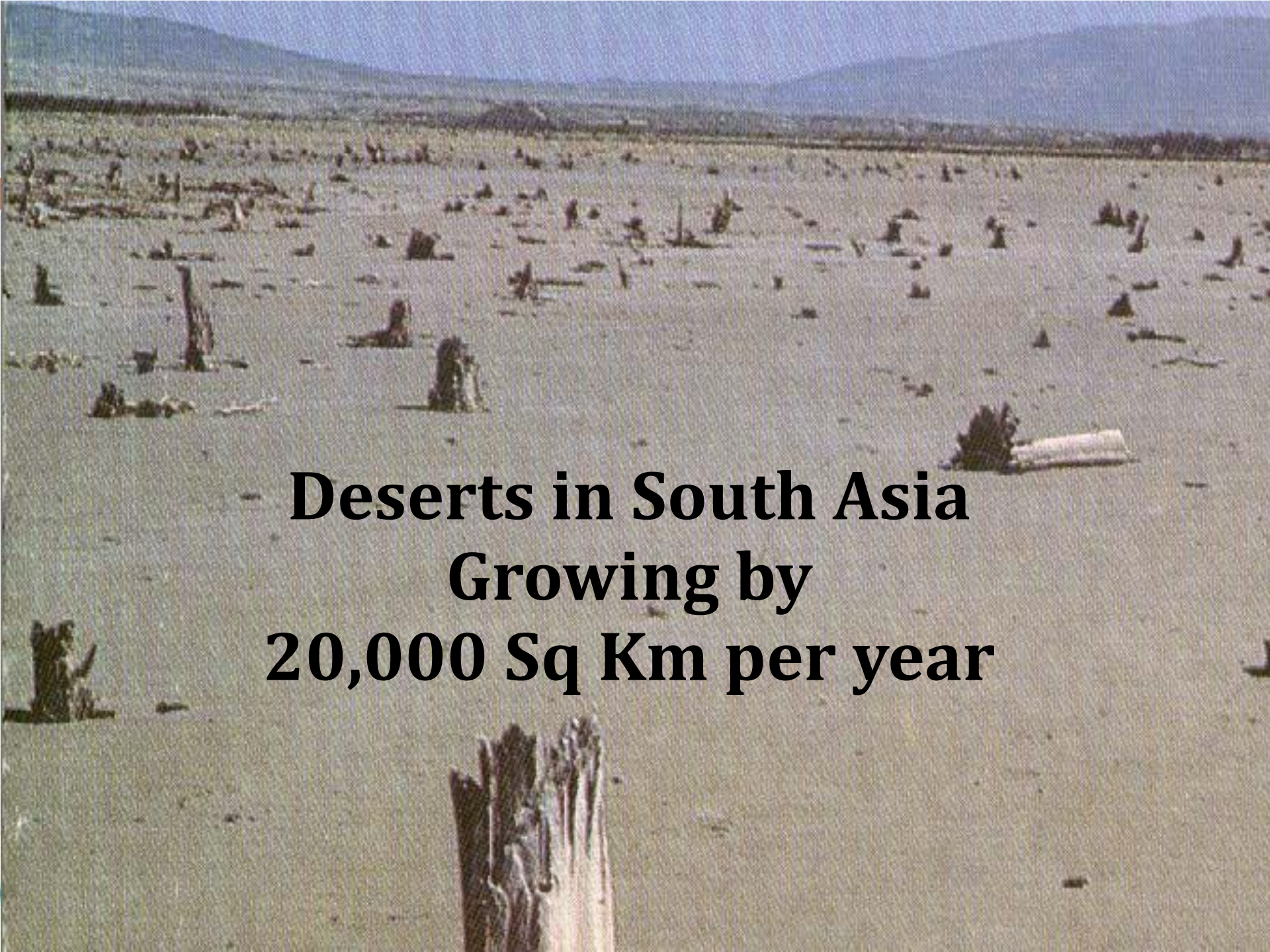
- ▣ Implementation of NAPAs/NAPCCs
- ▣ Mobilize top-up Climate Finance
- ▣ Integrated approach, thematic commonalities
- ▣ Replication w/t modification across region

## □ Role of SAARC:

- ▣ Set up short, medium, long term roadmap on CC
- ▣ Integration issues: international and national policies
- ▣ Increase visibility of Secretariat
- ▣ Generation/integration of knowledge content—international dissemination





A photograph of a dry, arid landscape. The ground is sandy and light-colored, with numerous dead, charred tree stumps scattered across the terrain. In the background, there are low, hazy mountains under a clear blue sky. The overall scene depicts a desert environment.

**Deserts in South Asia  
Growing by  
20,000 Sq Km per year**





Thank you !



[sanjay@cansouthasia.net](mailto:sanjay@cansouthasia.net)