



**Country Presentation**  
**Climate Change and Technology**  
**Needs of Pakistan**

World Intellectual Property Organization  
Regional Forum on Intellectual Property  
(IP) and Environmentally Sound  
Technologies (EST'S) to be held at Sri  
Lanka 29-30 May 2012

## Sequence

- Basic Facts
- Pakistan's Vulnerability
- Impact & Threats
- National Climate Change Policy
- Challenges
- Way forward



# Basic Facts

## Pakistan: Key Statistics

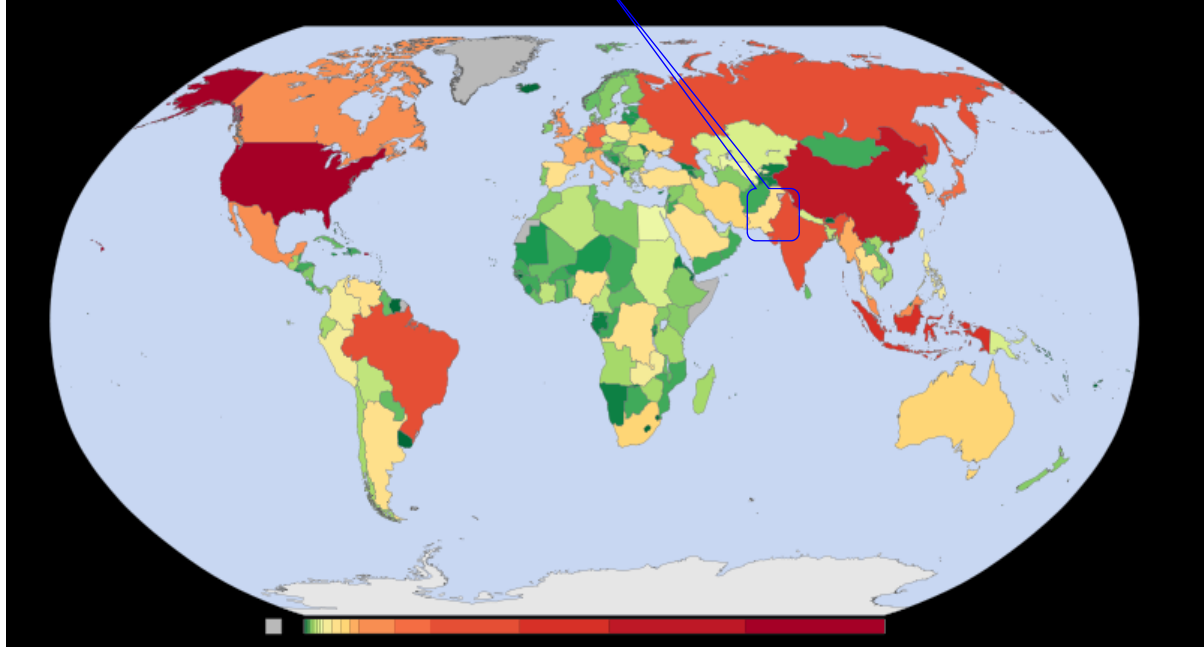
Official name	Islamic Republic of Pakistan
Capital	Islamabad
Area (Thousands of km <sup>2</sup> )	796
Total population	177.10 million
Population growth rate	2.06 %
Life expectancy for males**	64 years
Life expectancy for females**	66 years
Gross Domestic Product (GDP)growth	2.4 %
Agriculture Growth	1.2 %
Manufacturing Posted Growth	3.0 %
Total revenues collected	Rs 1899.0 billion
Gross National Income (GNI)per capita(constant 2005 PPP \$)**	2550* Source: Economic Survey 2010-11.

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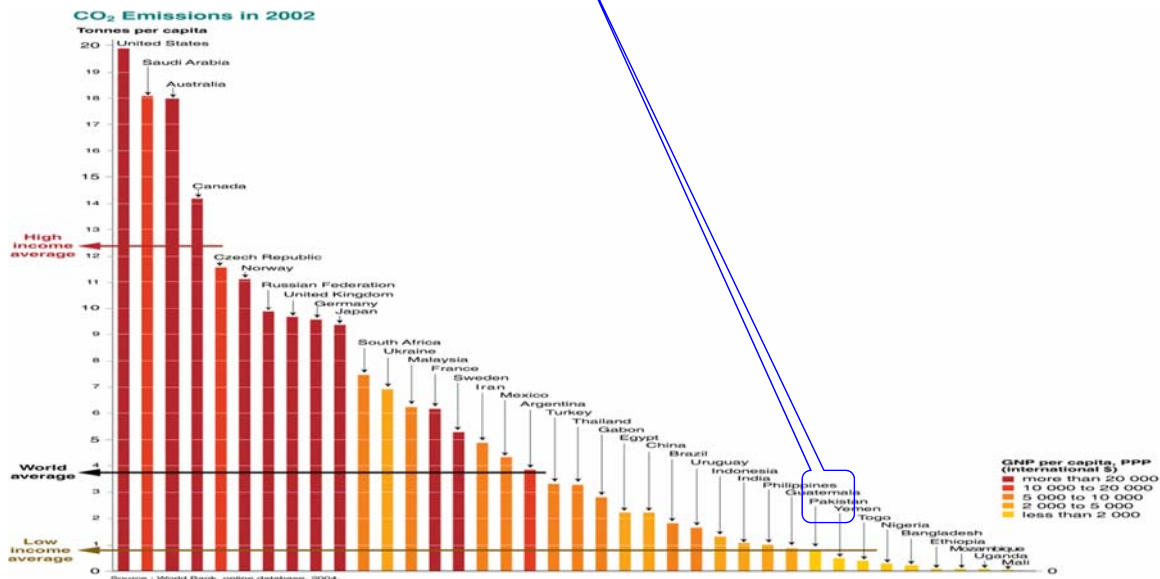
# Pakistan – where we are on the climate front ?

Less than 0.5% of Global GHG emissions



# Pakistan – where we are on the climate front?

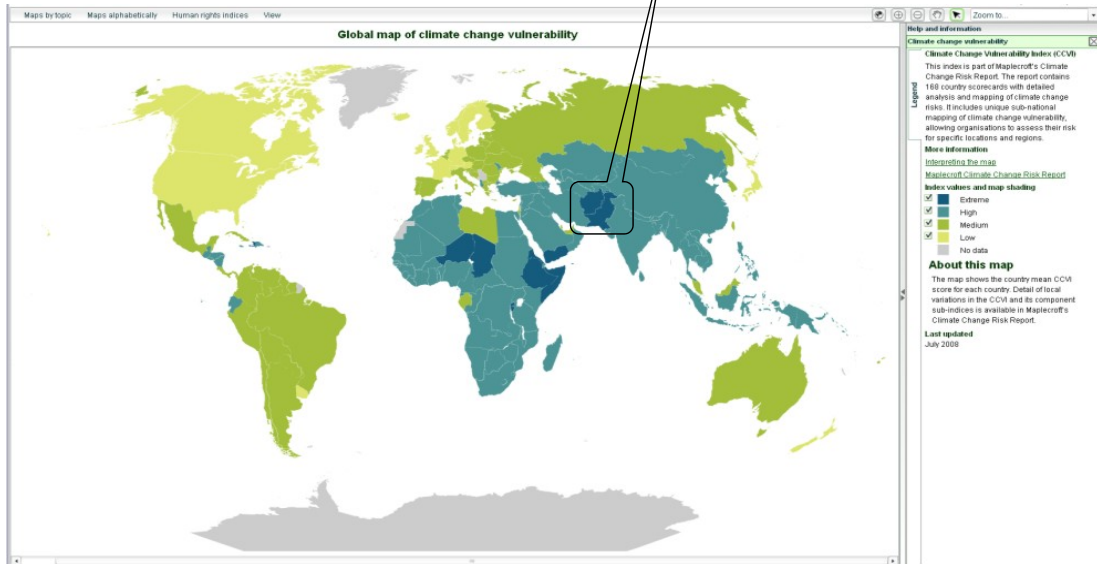
One of the lowest per capita emitters



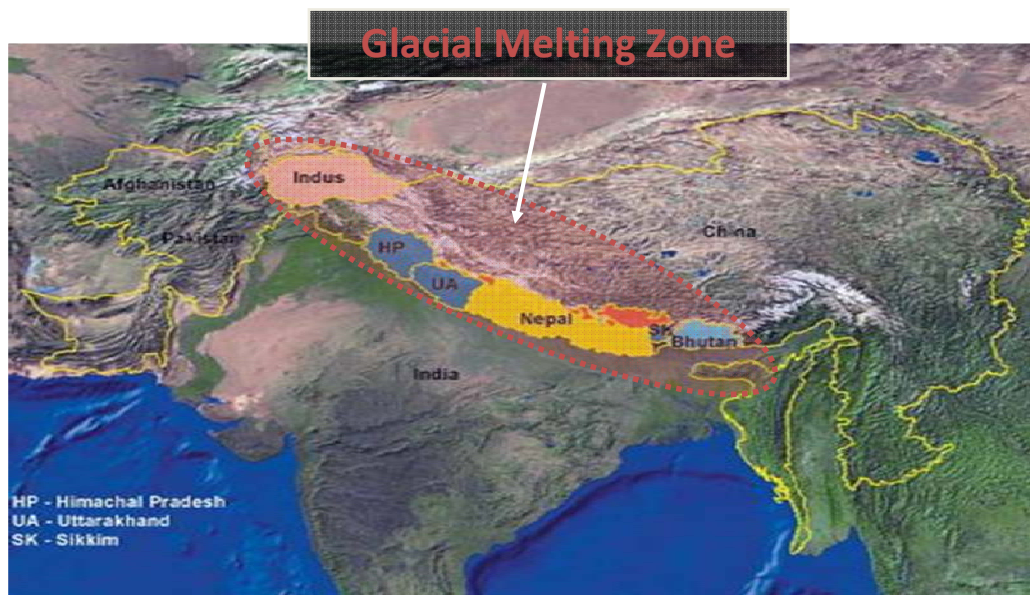
# Pakistan – where we are on the climate front?

Yet one of the **worst victims** of climate change & best examples of **climate injustice**

Maplecroft vulnerability index places us in **High/Extreme** category /Columbia Univ index does the same (<http://ciesin.columbia.edu/data/climate>)

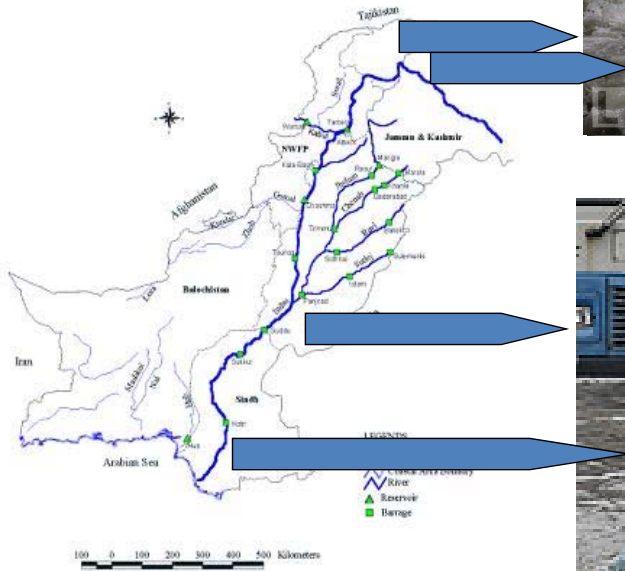


## The Impacts and Threats ?



.....In a neighborhood of **Unavoidable** "vulnerability".....

# The Impacts and Threats



This leads to.....

Massive displacements and climate refugees.....



# The Impacts and Threats

- **Climate impacts are very real** and menacingly showing their presence:
  - Loss of U\$3.57 billion over the past 18 years (WB)
  - Potentially risking 50% of the population
  - Glacial retreat, SLR, floods, droughts and temp rise
- Climate Change in Pakistan is a **direct threat** to
  - Food security
  - Energy security
  - Economic security
- Indirectly, it has the potential to be a security threat:
  - A **“Terrorism multiplier”** triggered by climate refugees and economic deprivation
  - A source for **Cross-border conflict** owing to a shared water resources
    - coming under extreme stress

## **Worst climate victim & agent of destruction**

### **- The “vanishing” Himalayan glaciers**

- Cover **17 %** of the mountain area storing about **12,000 bcm** of freshwater
- **15000 glaciers** (feed Indus, Ganga and Brahmaputra) –sustain and impact about **10% of the total human population**.
- The impacts of glacial melt are extremely far reaching and destructive and signs quite clear
  - The average rate of recession between 1985 and 2001 is about 23 m per year – **Gone up by 30% since last 10 years** (ICIMOD)
  - Total area of Himalayan glaciers will shrink from 500, 000 to 100,000 sq. Km (**4/5<sup>th</sup> of resource could be lost**) very soon.

## 2010---Year of “Climate Catastrophe” in Pakistan

- **January** - Gojal-Hunza glacial “outburst” led to an avalanche & landslide :
  - Hunza river blocked
  - Glacial Lake formed
  - 20000 cut off, 5 km KKH in water
  - Lake rose 1 metre/day till it overflowed... **nature’s dam** still holding but :
  - For **how long ?**
  - **What if** it breaks ?
    - One of the main inflows to **Tarbella**
    - Would lead to our worst nightmare coming true – **GLOF !**



## 2010---Year of “Climate Catastrophe” in Pakistan

- **July**-All adjectives failed while describing the **horror and devastation** of the floods:
  - Heart wrenching – Shocking – Biggest human tragedy – Slow tsunami bigger than Haiti.....
- Two triggers
  - “**Freak**” **monsoons** in the Northern Areas
  - **Glacial Melt** due to heat wave
  - Combined to create the “**perfect storm**” for a hapless population
- Both attributable to the effects of a changing climate
- After 2 months .....
  - The endless nightmare and **tragedy continues**
  - Will this be **repeated ?**
  - How much **can we adapt to ?**



## **Observed Changes in Pakistan**

(Presented by Mr.R.K.Pachuri Chairman IPCC)

- Rise in mean temperature
- 0.6 to 1.0 °c in coastal areas since early 1900s
- Changes in precipitation
- 10 to 15% decrease in coastal belt and hyper arid plains over the last 40 years
- Increase in summer and winter precipitation in northern Pakistan.

**(Contd...)**

- Increasing frequency and intensity of droughts
- Consecutive droughts in 1999 and 2000, leading to sharp decline in water tables.
- Drying up of wetlands and severe degradation of ecosystems.



# Climate Change Vulnerability in Pakistan

## Ecological fragility:

- Monsoon belt are at risk of increasing sheet erosion and land slide.
- Communities living in the coastal zone are more vulnerable to swelling of sea level.
- Coastal mangrove are also under threat from intrusion of saline water and rising temperature.
- Displacement of communities in threatened ecological zone will leads to internal refugee crisis in Pakistan.

## Impact on Agriculture

- The productivity of major crops in Pakistan is at risk of decline because
  - land desertification
  - loss of soil fertility
  - water logging, salinity and flood.
- The growing prevalence of pest in warmer climates.
- Increased precipitation in off seasons and drought in growing seasons.
- By the year (2012-2013) a 12 million tons deficit in grain production is expected to occur due to irrigation water shortage.

# National Climate Change Policy

## Goal

- **The goal of this policy is to ensure that climate change is mainstreamed in the most economically important and vulnerable sectors of the economy and to steer Pakistan towards green economic growth.**

# Guiding Principles

- Enhance the capacity to address climate change;
- Contribute towards meeting national economic growth objectives;
- Promote conservation of resources and long term sustainability;
- Strengthen multi-sectoral and interdisciplinary linkages;
- Be cost effective and efficient;
- Promote use of appropriate technology;
- Particularly address needs of poor and vulnerable;
- Be consistent with international obligations and commitment.

## Environmentally Sound Technologies

### Policy Measures

- Ensure that the technology needs to support actions on mitigation and adaptation are nationally determined and are based on national priorities;
- Promote the development and use of local technologies in combination of innovation and technological advancement in the field of climate;
- Prepare detailed area analysis for possible wind and solar energy sites in Pakistan;
- Find technological breakthrough to harness the potential of the geothermal energy in the northern mountain areas of Pakistan;
- Explore new technological breakthroughs in the field of bio-fuels;
- Obtain and introduce clean coal technologies;
- Technology transfer for designing and manufacturing of emission monitoring equipments for installation near urban and industrial areas in Pakistan.
- Set a base for technology transfer and absorption at technical institutes, engineering colleges and universities;
- Transfer of technology for designing electric/ hybrid vehicles in Pakistan;
- Development new breeds of crops and livestock, which are less vulnerable to climate change impacts.

# IP issues & Challenges

- Intellectual Property (IP) is potentially both an incentive and an obstacle to the transfer of technology.
- The exact role of IP in the transfer of climate-related technologies remains unclear.
- The contribution of existing “Trade-related Aspects of Intellectual Property Rights” (TRIPS) flexibilities to climate-related technology transfer could be significant. Several provisions of the WTO TRIPS Agreement could be used to promote such transfer of technology.

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- No comprehensive study has been conducted on the impact of IP rights in the different categories of climate-related technologies.

# IP issues & Way Forward

- An in-depth study of the various aspects of the interaction between IP and the transfer of climate related technologies could provide the basis for more productive and evidence-based discussions;
- The need for negotiating expertise in the area of technology and IP rights is important;
- The use of existing TRIPS flexibilities to promote the transfer of climate-related technologies should be explored in full.
- Possible measures related to IP and other incentive schemes to promote transfer of technology within the climate regime should also be explored.



**Thanks**