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***Climate Change: Regional Perspective of  
Agriculture in South Asia***

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# Agriculture sector in South Asia-an overview

- Agriculture largest sector of the national economy in South Asia.
- Likely to remain so for a few decades in spite of efforts to industrialize due to poor infrastructure, largely illiterate labor force and inefficient marketing to compete in the global markets.
- Agriculture sector in Pakistan contributes 24% to GNP and is the main source of livelihood of more than 60% population in Pakistan.

# Characteristics of agriculture sector in South Asia

- Dominated by small farmers mainly practicing crop-livestock integrated farming system
- Main source of food and fiber, major determinant of national food security
- Provides raw material for the agro-industries including textiles, rice milling, sugar, dairy and leather industries etc.
- Main source of foreign exchange earnings
- *Agriculture therefore is the crucial sector which plays a decisive role in the national economy of South Asian countries , especially in alleviation of widespread rural poverty*

# Input intensive agriculture

- Agriculture in south Asia is in a state of transformation from low external input (including energy) to intensive chemical and energy input-based enterprise.
- This resulted in increased crop yields but also higher cost of production.
- Pollution from chemical residues and increased CO<sub>2</sub> emissions.

# Increasing demand, Shrinking resource

- Demand for agricultural commodities especially food grains have increased rapidly over the decades due to increasing population and rapid urbanization.
- Expansion of urban centers resulted in conversion of fertile agricultural land into non-agricultural uses thus reducing the total fertile agricultural land under cultivation.

# Irrigation requirements

- For arid and semi-arid countries where agriculture is possible under supplemental irrigation, the increasing shortage of irrigation supplies is becoming a major constraint in increasing agricultural production.
- In Pakistan the wheat crop is largely dependent on irrigation. This year the country is facing a whopping 40% shortage in irrigation supplies for the current wheat crop.

# WTO

- Current international trade policies especially for agricultural products are disadvantageous for the developing countries.
- WTO negotiations on agriculture are stalled on the issue of subsidies
- Unless this is resolved favorably for the developing countries, their agricultural exports will be at a disadvantage resulting in an overall negative effect on the national economies and exacerbation of the poverty incidence.

# *Climate Change and Agriculture*



# Global Climate change

- Global climate change is now unequivocal; the change will not be uniform but have a considerable variability.
- Climate change will have a significant impact, mostly negative, on agriculture production globally.
- Global temperature projected to increase from 1.8 to 6.0<sup>0</sup> C, and precipitation also to vary both in time, quantity and intensity.

# Climate change and crop productivity

- Climate change and impacts on agriculture will be vastly different in different sub-regions of individual countries.
- On the whole productivity of crops in the sub-tropical and tropical regions likely to decrease.
- Temperate regions at northern latitudes likely to have positive impact on crop productivity due to warming trend.
- Some arid and semi arid regions which are already hot and dry likely to be rendered unfit for most crops.
- To adapt agriculture to CC, it is essential to project detailed weather conditions at different locations at different times of the year.
- Changes in temperature and precipitation patterns as a result of climate change will necessitate a re-evaluation of the existing land use patterns especially the cropping patterns to ensure adequate productivity and net farm

# Adaptation of agriculture to changing climate

- Delineate sub-zones in different countries with similar projected changes in temperature and precipitation.
- Undertake detailed studies on various sub-zones to examine the viability of the current cropping patterns in the light of changed climate.
- Plan radical changes in the cropping patterns with elimination of some prevalent crops and introduction of other crops more suitable for the changed climate.
- Even if prevalent crop species retained, change the varieties of these crops to better suit changed climate.
- Comprehensive revision of the agronomic practices to derive the maximum crop yields and net income.

# CC effects on plant diseases and infestations

- Climate change likely to result in emergence of new plant diseases and infestations due to changes in the insect and pathogen complex.
- Need to monitor these changes carefully and take measures to meet the changed situation.

# Climate change impacts on animals

- Livestock plays a major role in the agricultural economy in South Asian countries.
- Contribution of livestock sub-sector is almost 50% of the total agriculture GDP. In Pakistan.
- Effects of climate change on animal health and other aspects of livestock production have been relatively neglected.

*Thank you*