

COURSE UNIT TITLE: Climate Change in South Asia
COURSE CODE: DPR624
CREDITS - 03

Introduction to Climate System (4hrs)

Earth's Energy Budget, Global Climate System, The Four Spheres of the Earth, (*Atmosphere, Lithosphere, Hydrosphere, Biosphere*), Clouds, Winds and circulations, Ocean-Atmosphere Interaction. Introduction to the South Asian Region, Introduction to Climate in South Asia, Importance of ITCZ Zone, Climatology of Sri Lanka, Maldives and India, Monsoons.

Climate Variability and Predictability (4hrs)

El Nino and Pacific Ocean Influences, Indian Ocean Warming and Dipole, Madden-Julian Oscillation. Introduction to climate predictions, Statistical methods of climate prediction, Statistical Downscaling, Dynamical methods of climate predictions, Global Circulation Models, Downscaling Model Outputs, Skill of Predictions.

Climate Change and Projections (6 hrs)

What is Climate Change?, Indicators of Climate Change, Climate Scenarios and Climate Projections? Global Climate Highlights 2011-NOAA. Climate Change Skeptics Intergovernmental Panel on Climate Change (IPCC). Introduction to Global Warming, Causes and Effects of Global Warming, Green House Effect, Is global warming natural or man made or both?, What can you do to reduce/stop global warming? South Asia at a glance, Introduction to Climate of South Asia, How is the change of climate affecting the Maldives?, Some Examples of Climate projections for Maldives, Sri Lanka and India, Melting of Himalayan Ice Caps.

Climate Impacts (6 hrs)

Climate Impacts on Water, Agriculture, Energy, Disasters, Economy, and Health, Climate Impact Tipping Points. How Climate Change will affect the Asia? What Does IPCC say? Climate Change Impacts in South Asia, Who are the major contributors for the South Asia in tackling climate, change? Climate Change's Impact on the Maldives, Sri Lanka and India. IPCC Technical Guidelines for Assessing Climate Change Impacts and Adaptations, Tools for Assessing Climate Change Impacts, Scales of Analysis for Impact Assessments, What are the Prospects for Assessing the Impacts of Climatic Extremes and Variability?, How can Transient Effects be Included in Methods and Tools?, Integrated Assessment, Global Circulation Models (GCMs), Disadvantages of using GCMs for impact assessments, Disadvantages of using GCMs for impact assessments, Climate Change Impact Assessment on Uttaranchal Himalayan Glaciers.

Vulnerability, Mitigation and Adaptation to Climate Variability and Change (6 hrs)

Defining Terms, Why South Asia is vulnerable to Climate Change?, Priority vulnerabilities of the Maldives to climate change and variability, Priority vulnerabilities of the India to climate change and variability, Vulnerability Assessment, Steps to conduct climate change vulnerability

assessment, Issues to Consider When Beginning a Vulnerability Assessment. Mitigation Options, Examples for benefits from CC mitigation, Mitigation of Greenhouse gas emissions in Maldives, Mitigation of Greenhouse gas emissions in Sri Lanka, Mitigation of Climate Change in India, India Approach to mitigation. Adaptation to Climate Change, Identifying Adaptation Options, Amount of adaptation, Adaptation to Climate Change in Maldives, Adaptive Measures, Capacity to Adapt, Adaptation to Climate Change in Sri Lanka, Adapting agriculture to climate change in India, What is the difference between Adaptation and Mitigation?, Managing vulnerability with adaptation and mitigation.

Integrating Climate Concerns into National and Regional Resource Management and Policy Making (4 hrs)

Introduction, What is Sustainable Development?, Capacity Building, Gross Domestic Product (GDP), Climate Policy Integration (CPI) and sustainable development, Development path as important as specific climate mitigation policies, Integrating climate change considerations into development policies – selected examples in the area of mitigation, Decision-making, Conservation of Natural Resources, Policy and policy instruments. United Nations Framework Convention on Climate Change (UNFCCC), Kyoto Protocol, Kyoto Mechanisms, Why those mechanisms are important? , Eligibility requirements to participate in the mechanisms.