

Friday, 20<sup>th</sup> June 2025

L) 10:00 am - 01:00 pm (PST)

NDMA Auditorium, Islamabad

To commemorate World Environment Day 2025, a high-level seminar titled "Bridging the Climate-Adaptation Divide Across the Food-Water-Agriculture Nexus" is being organized on 20<sup>th</sup> June 2025. The event aims to raise awareness about the disproportionate climate impacts faced by the agriculture sector in the Global South, with a particular focus on Pakistan. It will highlight the escalating threats of rising temperatures and water scarcity on crop productivity, nutrition, and the livelihoods of rural communities. The seminar will also serve as a platform to showcase innovative practices and policy solutions for climate-resilient agriculture, while fostering collaboration and knowledge exchange among national and international stakeholders. Ultimately, the event seeks to strengthen collective efforts in supporting Pakistan's food security goals and Nationally Determined Contributions (NDCs) under the Paris Agreement.

# **BACKGROUND AND RATIONALE**

The Global South, which is inhabited by almost 85% of the global population, is suffering most from the worsening climate crisis. Nowhere is this more evident than in agriculture—increasingly vulnerable to temperature changes, water shortages, and weather-related disasters. In nations like Pakistan, India, Bangladesh, Nigeria, and Ethiopia, the agricultural industry sustains millions of livelihoods but is being severely threatened by worsening climatic conditions.

According to the IPCC Sixth Assessment Report (2023), agricultural productivity growth has slowed globally due to climate change, with South Asia and Sub-Saharan Africa experiencing some of the steepest declines. The FAO (2023) estimates that over 828 million people suffer from undernourishment globally, with 70% of them residing in climate-vulnerable rural areas of the Global South.

Pakistan presents a critical case study. The 2022 Climate Risk Index ranked Pakistan as the most affected by extreme weather events globally—a reflection of its acute exposure to climate-induced shocks and their cascading effects on food security. Pakistan has been ranked by the Global Hunger Index 2024 at number 109 among 127 nations and has been classified as belonging to the "serious" hunger category. Though an agrarian economy with 37% of its workforce working in agriculture and having a 23% GDP contribution, the industry is facing a crisis owing to extended

# OBJECTIVES

- Elucidate the multidimensional impacts of climate change on agricultural productivity and rural welfare, with a contextual focus on Pakistan.
- Analyze systemic vulnerabilities associated with extreme heat, hydrological variability, and declining irrigation efficiency.
- Showcase technologically appropriate and culturally contextualized adaptation strategies, from indigenous ecological knowledge to advanced digital platforms.
- Examine structural and financial impediments to large-scale adoption of climate-smart agricultural (CSA) practices.
- Build linkages among national and international stakeholders and cross-sectoral partnerships to support Pakistan's efforts to achieve national food security targets and NDC commitments

## **EXPECTED OUTCOMES**

- Enhanced stakeholder awareness on agriculture-climate nexus
- Policy recommendations for integrating climate resilience in food systems
- Knowledge exchange and collaboration
  pathways across stakeholders
- Media coverage to amplify awareness of food security challenges
- Contribution to Pakistan's climate diplomacy and adaptation planning

droughts, glacial melting, monsoon pattern changes, and record heatwaves.

In 2024, Pakistan endured an unprecedented heatwave, leading to significant yield losses in major crops such as wheat, cotton, and rice—triggering market disruptions, price volatility, and increased reliance on imports. Meanwhile, the Indus River system, Pakistan's irrigation lifeline, is facing extreme stress due to glacial melt and over-extraction. Groundwater in Punjab and Balochistan is being depleted by 1–2 meters every year, with less than 50% water-use efficiency in conventional irrigation systems.

Without immediate adaptation, climate change can decrease Pakistan's agricultural productivity by 18–20% by 2050 (World Bank, 2022), with disastrous effects on food security, rural livelihoods, and national economic stability.

### **KEY FOCUS AREAS**

#### 1. Climatic Stressors and Agrarian Systemic Risk

- Biophysical impacts of thermal anomalies, cryospheric melt, and disrupted precipitation patterns on crop viability and animal husbandry.
- The degradation of the Indus River Basin and aquifer systems: implications for irrigation reliability and agricultural sustainability.

#### 2. Socioeconomic Vulnerability and Structural Inequities

- Differential exposure of smallholder farmers, gendered dimensions of food insecurity, and nutrition-related vulnerabilities.
- Systemic fragilities in agri-value chains and rural economies under cumulative climatic and market stresses.

#### 3. Innovation-Driven Adaptation and Knowledge Integration

- Deployment of climate-resilient germplasm, precision irrigation systems, and drought/salinity-tolerant varietals.
- Integration of indigenous agroecological practices with scientific innovation for synergistic adaptation.
- Utilization of AI, satellite-based analytics, and digital extension services for anticipatory decision-making and risk reduction.

#### 4. Catalyzing Climate Finance and Enabling Mechanisms

- Strategic alignment of public and private finance streams, including GCF, IFAD, Islamic Development Bank, and blended finance models.
- Addressing institutional and policy bottlenecks inhibiting farmer-led sustainable transformation.
- Development of bankable adaptation portfolios: inclusive of biofertilizers, low-emission storage systems, and community-managed seed banks.

#### PARTNER ORGANIZATIONS

- COMSATS Commission on Science and Technology for Sustainable Development in the South
- MoCC&EC-Pakistan Ministry of Climate Change and Environmental Coordination, Pakistan
- UNEP-NAP Pakistan United Nations Environment Programme - National Adaptation Plan Pakistan
- **ECOSF** Economic Cooperation Organization Science Foundation
- NDRMF National Disaster Risk Management Fund (Pakistan)
- ICARDA International Center for Agricultural Research in the Dry Areas
- **NDMA** National Disaster Management Authority (Pakistan)
- WHH Welthungerhilfe
- **FACE** Food Security and Agriculture Centre of Excellence

## **CONTACT PERSONS**

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|                   | 09:00 - 09:45 | Registration   |
|-------------------|---------------|--|
| P R O G R A M M E | 09:55         | Arrival of Chief Guest   |
|                   | 10:00 - 10:45 | Welcome and Opening Remarks by Representatives from:<br>COMSATS – MoCc&EC, NDMA - NDRMF - ECOSF - FACE - Welthungerhilfe (WHH) – UNEP - ICARDA               |
|                   | 10:45 – 10:55 | <b>Address by the Chief Guest</b><br>Federal Minister, Ministry of Climate Change and Environmental<br>Coordination (MoCC&EC), H.E. Mr. Musadik Masood Malik |
|                   | 10:55 – 11:10 | Keynote Address by Honourable Mr. Justice Jawad Hassan, Judge Lahore High Court  |
|                   | 11:10 – 11:30 | Group Photo & Coffee Break   |
|                   | 11:30 – 13:00 | Thematic Panel Session, Open Floor Dialogue and Q&A  |
|                   | 13:00 onwards | Lunch & Networking Reception   |