



[2] Energy and Climate Change (EC)

[2.14] Impactful university program(s) on climate change



Use of Solar based irrigation equipments



3rd International conference on "Climate Smart Agriculture: The Way towards Ecosystem Restoration"

February 15-16, 2022 at MNS
University of Agriculture Multan
Punjab, Pakistan

Conference Background

World population is increasing with an expectation to reach 9 billion by 2050. The anthropogenic increase in greenhouse gases and heat trapping by such gases has now become an evidence for the warming of climate systems (IPCC). Climate change is a pervasive and growing global threat to biodiversity and ecosystems. Negative effects of climate change are already being observed across the globe in the form of ecosystem degradation. Ecosystems are being destroyed and degraded due to climate crises and lead to loss of ecosystem services and biodiversity. Global changes and climatic variations affect the agriculture production and food security across the globe. Climate change destroys the capacity of ecosystems to mitigate extreme events and disturbance, such as wildfires, floods, and drought. Food production systems are the most vulnerable to climate change and it is a serious threat to food and nutritional security especially in developing countries.

Pakistan is listed among the top ten most vulnerable countries to climate change (Global Climate Risk Index 2021) and has witnessed adverse impacts due to climate extremes in recent past. For instance, during the past two decades, the country has faced the effects of weather extremes, such as devastating floods (2010 and 2014), drought (1998-2002), heat waves and extreme dry spell, cyclones, smog and temperature extremes. Weather extremes also affect the ecosystem and food production systems leading to serious threat to food security and biodiversity losses especially in the developing countries. Erratic and unpredictable weather patterns leading to an outburst of biotic or abiotic stresses, which cause reduction in habitat and biodiversity and finally reduction in agricultural productivity. The condition becomes worst, as the country has already been declared as water-scarce. Sustainable agriculture production is under threat due to climate extremes and the weaker adaptive capacity of the common livelihood. It has threatened the food security and may produce devastating impacts on the livelihoods of poor farmers. Risks due to unprecedented climatic changes increase many folds due to lack of awareness to cope with situations or early warning system to avoid major losses. These situations are specifically damaging for small land holding farming communities. Therefore, it is the

time to explore recent technologies and approaches for ecosystem restoration and agricultural sustainability.

It is time for the protection and revival of the degraded ecosystems to achieve global goals for sustainable future. It is also crucial to develop climate-resilient agricultural production systems to ensure sustainability and biodiversity as directed by the United Nations for the decade (2021-2030). Only with healthy ecosystems we can enhance people's livelihoods, counteract climate change, and stop the collapse of biodiversity. Climate-smart agriculture (CSA) technologies and approaches contribute towards sustainable ecosystem which may bear the climatic shocks with minimum losses to infrastructure and ultimately food security and sustainability. Therefore, it is time to explore and implement recent technologies and approaches towards ecosystem restoration

Conference Objectives

The International Conference on "Climate Smart Agriculture: The Way towards Ecosystem Restoration" will be an opportunity for all agriculture stakeholders, scientists, researchers, students and other key stakeholders of climate smart agriculture (CSA) from national and international institutions will deliberate on ecosystem restoration options in the context of climate change to ensure the sustainability of agriculture system and promotion of ecosystem services, which is directly linked to Sustainable development goals (SDGs) 2, 6, 12, 13 and 15.

The overall aim of the conference is to bring knowledge, innovations and actions together to restore ecosystems and transform agriculture production system to achieve climate resilience".

Specifically, the event will be held to:

- 1- highlight, discuss and identify the options for the restoration of degraded and destroyed ecosystems, fight the climate crisis and enhance food security, water supply, ecosystem provisions and biodiversity.
- 2- discuss and application of innovative Climate Smart Agriculture (CSA) technologies and practices for the provision of climate resilient agriculture ecosystem and farming system.
- 3- organize a deliberate discussion of renowned National and International experts on climate change impacts on ecosystem and agriculture for food security along with local stakeholders, young graduates, academia, policy makers, public and private sector, business community, civil society and farmers.

assess the scientific knowledge and capacity to adopt climate smart agriculture for ecosystem restoration and look for opportunities and options for the success under current

- 1- scenarios within the context of UN decade (2021-2030) for ecosystem restoration
- 2- create awareness among the masses about climate change impacts on gender, sustainability of agriculture farming and ecosystem to meet the Sustainable Development Goals
- 3- improve academic and real stakeholders' networks and linkages with national and international scientists for future collaborations.

Conference Thematic Areas

The conference will focus on the following major thematic areas.

Ecosystem restoration and provision of ecosystem services and biodiversity

- Impact of climate change on ecosystem and biodiversity
- Recent advancement and effective technologies for ecosystem restoration
- Effective strategies and policies for ecosystem services provision

Climate smart agricultural (CSA) innovations and technologies

- Recent advancements in agriculture to climate change
- Proposed effective technologies for CSA
- Effective strategies and policies for CSA
- Digital agriculture
- Farmer perceptions to CSA

Climate Smart management of surface and ground water

- Adaptation for flood and drought
- Floods/drought: early warning and early action
- Ground and surface water quality
- Precision water management for sustainable crop production

Climate smart soil and fertilizer management

- Climate smart technologies to enhance fertilizer use efficiency
- Soil and water pollution and its remediation
- Successful technologies for utilizing marginal soils

Global warming impacts and mitigation

- Impact of increasing temperature on crop production
- Greenhouse gasses and carbon sequestration actions to mitigate climate change
- Climate risk management
- Carbon sequestration, carbon markets/trade
- Agroforestry and alley cropping

Climate smart farming systems and breeding programs

- Climate smart cropping, systems
- Climate smart livestock systems
- Inter and strip cropping

3rd International Conference on Climate Change



Description:

MNS-University of Agriculture Multan currently expand the solar energy source because the climate of this area particularly Multan is supporting to produce the more solar energy as compare to other source. MNSUAM is working on three renewable energy sources are available in campus i.e., Solar thermal (for the drying of agricultural products), Solar PV (to operate irrigation system and a lab), and biogas. Moreover, the energy team is also preparing the feasibility of tapping wind and mini hydro energy at campus. Our need is 1300000 Kwh and we might be produce more than our need. So, we have a plan to provide additional produce in the national grid.

- Solar PV: 18 kW installed or 52,560 kWh
- 500 KW or 1,460,000 kWh on grid PV system.