

SDG-13 CLIMATE ACTION



Goal 13 emphasizes the need for immediate action to combat climate change, particularly because it disproportionately affects the most vulnerable populations, including children.

The statistics underscore the severity of the crisis: with children under five bearing a significant portion of climate-related health impacts, it's clear that their futures are at stake. The lasting effects on their development—both physical and cognitive—are deeply concerning, indicating a need for systemic changes in environmental policy and public health initiatives.

To ensure a safer and healthier world for future generations, we must advocate for policies that not only address climate change but also prioritize the rights and well-being of children. Engaging communities, raising awareness, and pushing for sustainable practices can help mitigate these impacts.

The Director Campus/UNESCO Water Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), Prof Dr. Muhammad Abid, T.I., delivered the keynote address titled "Sedimentation - Threat to Dams and Food Security" in the 1st International Conference about COP27 Climate Change & Food Security on February 15, 2023 organized by the Arid Agriculture University Rawalpindi, Department of Agronomy, Rawalpindi. He highlighted that dam sedimentation becoming a serious threat for the sustainability of irrigation and addressed the problems framed in water management, flood control, and production of energy. He emphasized in Investigating the methods of removing sedimentation and the need to mapped storage fed irrigation for the well-being.

The seminar titled "Climate-Induced Drought Patterns in Pakistan: Variability, Trends, and Global Teleconnections" was presented by Dr. Muhammad Latif, Assistant Professor, Department of Meteorology, CUI, Islamabad, on October 25, 2023. The event was jointly organized by Quaid-i-Azam University (QAU), the Chinese Academy of Sciences (CAS), the Higher Education Commission of Pakistan (HEC), the China-Pakistan Joint Research Center on Earth Sciences (CPJRC), and the Pakistan Academy of Sciences at QAU.

It provided participants with valuable insights into the complex dynamics of droughts and an understanding of how climate change drives drought variability in Pakistan, focusing on the influence of global climate patterns such as El Niño and La Niña. By examining long-term trends and large-scale atmospheric teleconnection patterns, the seminar highlighted the importance of monitoring and predicting drought conditions to enhance climate resilience. This aligns with SDG 13: Climate Action, as it equips participants with the knowledge and tools to assess climate risks, mitigate drought impacts, and support disaster risk reduction efforts. It also emphasized collaborative planning and informed decision-making to strengthen adaptation strategies for climate-induced challenges.



Dr. Muhammad Latif receiving a certificate from Prof. Dr. TANG Qiuhong, CAS, China.

The seminar titled "South Asian Summer Monsoon and Climate Change Impacts in Pakistan: Insights from 2022" was presented by Dr. Muhammad Latif, Assistant Professor, Department of Meteorology, CUI, Islamabad, on June 9, 2023. The seminar was organized by the Department of Meteorology, CUI, Islamabad Campus.

It significantly contributes to this goal through its emphasis on environmental education. By raising awareness of the South Asian summer monsoon's behaviour and its changing patterns due to climate change, the seminar serves as an important educational effort. It informs local communities and policymakers about the associated risks and impacts, thereby facilitating the development of effective adaptation strategies. Furthermore, if the university collaborates with NGOs and local government agencies (e.g., PMD) focused on climate adaptation and disaster management, the seminar can act as a platform for sharing valuable findings. This integration of scientific insights into community-level climate action programs enhances collaborative efforts, ultimately promoting resilience and sustainability in the face of climate challenges in Pakistan. While the seminar does not directly link to SDG 13.2.1: Lowcarbon energy tracking, it emphasizes the need for climate-resilient energy systems in Pakistan.



Workshop on Emerging Trends & Technologies: Carbon Capture and Storage, Climate Change and Net Zero

A workshop on Emerging Trends & Technologies: Carbon Capture and Storage, Climate Change and Net Zero was jointly organized by COMSATS University Islamabad (CUI)- Pakistan, on August 21, 2023, at CUI. Cranfield University, UK, and several institutions from Pakistan including NUST, GIKI, NEO, University of Karachi, and Okara University have joined hands as partner institutions with the CUI- Wah Campus for this event. The Workshop was funded by the British Council, Islamabad under Pak-UK Education Gateway Mobility Partnership for Faculty. Dr Adnan Syed, Lecturer, Surface Engineering Precision Centre Cranfield University, UK presented the opening remarks. Mr. Mubbashir Sheikh Higher Education Programme Manager, British Council Pakistan presented the mobility program objectives and aims of establishing higher education linkages between Pakistan and UK to explore cutting-edge research and contributing towards the attainment of the Sustainable Development Goals 13 and 14. Dr. Nasir

Ahmad team lead from NUST, Pakistan also highlighted the importance of this mobility grant. The Executive Director, COMSATS, and Ambassador, Dr. Mohammad Nafees Zakaria was the chief guest at the inaugural session of the workshop. He expressed that carbon emission is becoming more dangerous for Pakistan as this is a powerful source of climate change and disasters in the region. In his remarks, the Rector CUI, Prof. Dr. Sajid Qamar, extended his gratitude for organizing this workshop at CUI and organizing it successfully to strengthen the scientific collaboration between the British Council, Higher Education Institutions of Pakistan and UK.



Seminar on Green Composite Materials: A Sustainable Alternative to Plastic for a Greener Future

The Department of Mechanical Engineering (DME) and the student chapter of the American Society of Mechanical Engineers (ASME) on December 14, 2023, jointly organized a seminar on "Green Composite Materials: A Sustainable Alternative to Plastic for a Greener Future" The event was a part of CPD licensed under the Pakistan Engineering Council. The resource persons were Dr. Atta ur Rehman Shah, Associate Professor/ HoD DME at CUI Wah Campus and Prof. Dr. Abdul Shakoor from the University of Engineering and Technology Peshawar.

Dr. Atta ur Rehman provided a comprehensive insight on green composite materials as environment friendly alternatives to synthetic plastics. He discussed the significance of their applications and the growing demand, highlighting the sustainable role of biodegradable substances in industrial production. Prof. Dr. Abdul Shakoor shared his innovative research on the development of biopolymer composites for structural applications, presenting experimental findings on the thermal, mechanical, and viscoelastic analyses of PLA-wood and PLA-talc composites.



The Tree Plantation Drive 2023 was inaugurated at COMSATS University Islamabad (CUI), by the Director Campus, Prof. Dr. Muhammad Abid, T.I., on June 27, 2023. The Director Campus, Head of Departments/Sections, Faculty members, Officers, and Staff members participated and planted Silver Oaks trees beside the Football Ground walls. The aim of the plantation drive was to keep the Campus Green & Clean, reduce air pollution, mitigate climate change, and fight against global warming.



The seminar titled "Research and Career Opportunities in Meteorology and Climate Science in Pakistan" was presented by Dr. Muhammad Latif, Assistant Professor, Department of Meteorology, CUI, Islamabad, on January 6, 2023. The seminar was organized by the Department of Meteorology, CUI, Islamabad Campus.

It provides learners with essential insights into meteorology and climate science in Pakistan. By focusing on research and career opportunities, the seminar directly supports promoting higher education in climate-related disciplines and enhancing student's skills in this critical area. Furthermore, it contributes to SDG 13 by promoting an understanding of climate change impacts and adaptation strategies among participants. The seminar also encourages collaboration between educational institutions and local NGOs, facilitating the integration of scientific knowledge into community-level initiatives. Overall, this event serves as a

vital platform for empowering future professionals to tackle climate challenges and pursue sustainable solutions in Pakistan.

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A training workshop titled "Geospatial Techniques to Understand the Urban Architecture and Planning" was conducted by Dr. Muhammad Rizwan Mughal, Assistant Professor, Department of Meteorology, CUI, Islamabad, on December 27, 2023. The workshop was organized by the Department of Meteorology, CUI, Islamabad Campus. It encompassed both theoretical instruction and hands-on training exercises, focusing on building capacity to foster understanding of the latest tools and methods for analyzing and visualizing urban data using geospatial technologies. Moreover, the workshop highlighted how geospatial technology can support sustainable and resilient urban development by addressing complex challenges such as land use, transportation, and land control.



The International Water Management Institude (IWMI) established a "Water, Environment & Agriculture Societies' Consortium" and held its second meeting on March 14, 2023. The meeting brought together 21 representatives from 11 universities across Punjab province and the federal capital. Dr. Umair Bin Nisar, Assistant Professor in the Department of Meteorology at COMSATS University Islamabad, represented CUI, starting the session with a brief introduction to the university. He delivered a presentation outlining ongoing initiatives and provided a comprehensive overview of key focus areas.

Rel This meeting addresses SDG 13: Climate Action .The projects discussed at the IWMI meeting illustrate the critical role universities can play in advancing multiple SDGs. The biogas project aligns with SDG 13 (Climate Action) by reducing greenhouse gas emissions and promoting renewable energy. Additionally, the groundwater exploration projects in the twin cities and mountainous regions contribute to SDG 6 (Clean Water and Sanitation) by ensuring sustainable water management and protecting freshwater resources. These initiatives also support SDG 15 (Life on Land) by addressing land degradation and desertification, which are closely linked to water scarcity. Through collaboration and knowledge sharing, universities can significantly impact the achievement of these interconnected SDGs and promote sustainable development efforts.



Dr. Muhammad Imran Shahzad, Head/Chairman of the Department of Meteorology, CUI, presented his research on coastal remote sensing at the "2023 International Conference on Climate Change and Disaster Risk" held in Islamabad from October 25-27, 2023. The conference aimed to explore the impact of climate change on natural disasters, reduce disaster risk, and raise public awareness about disaster prevention and mitigation. It was organized by the China-Pakistan Joint Research Center on Earth Sciences (CPJRC) in collaboration with the International Association for Hydro-Environment Engineering and Research (IAHR), the Pakistan Academy of Sciences (PAS), and Quaid-i-Azam University (QAU).



This conference addresses SDG 13: Climate Action .The discussions on climate change and its impact on natural disasters directly support efforts to inform and collaborate with local governments for disaster risk reduction and climate adaptation strategies. By raising public awareness, the conference encourages community engagement in sustainable practices that enhance urban resilience, thereby contributing to SDG 13. Moreover, the emphasis on coastal remote sensing promotes the sustainable management of marine ecosystems and raises awareness about preserving aquatic resources, aligning with SDG 13's goal of maintaining healthy oceans and marine environments. Ultimately, by sharing research findings and strategies, the conference contributes to global efforts to combat climate change and its associated impacts, which is central to achieving SDG 13. This collective engagement is essential for developing effective policies to mitigate the adverse effects of climate change, thereby contributing to the achievement of these SDGs.

Prof. Dr. Athar Hussain, Principal Investigator of the project titled "Impact of Solar Radiation Management and Climate Change on Malaria Dynamics in South Asia", funded by the UK-based The DEGREES Initiative, aims to better understand how Solar Radiation Management (SRM) could affect the redistribution of malaria in South Asia, including Iran, Afghanistan, India, Nepal, Bangladesh, and Bhutan, from February 2023 to February 2024. This study marks the first attempt to assess the impacts of SRM on a vector-borne disease in the region. By extending Prof. Athar's research group's efforts, the project seeks to establish a network of professionally trained local experts in the field of regional climate change and health in Pakistan. The results will be disseminated at the district level-the

fundamental administrative tier for the healthcare system in Pakistan. The project aims to promote engagement with a diverse set of national stakeholders, ensuring that relevant climate-health nexus information is made available to policymakers, thereby helping to bridge the communications gap regarding SRM.

The seminar directly addresses SDG 13 by exploring innovative strategies for mitigating climate change impacts. By discussing SRM techniques, Prof. Dr. Athar Hussain provided participants with insights into potential climate intervention methods that could help manage global warming. The seminar emphasized the importance of understanding the risks and benefits associated with SRM, promoting informed discussions on climate adaptation strategies. This aligns with global efforts to enhance resilience against climate change and improve public understanding of climate-related issues, thereby contributing to sustainable climate action.

What is Solar Radiation Management?



The Geospatial Science Society, Department of Meteorology has conducted a Climate Change Awareness Walk, on 20th May 2023 under Green Youth Movement (GYM) club for Climate Change awareness. The aim of the event was to draw awareness to the adverse impact of climate change to Pakistan. Many students and Faculty & staff of COMSATS participate in this event.

Relevance to SDG: This seminar addresses SDG 13: Climate Action (Indicators 13.3.1). This event emphasizes the urgent need to combat climate change and its impacts. By organizing a Climate Change Awareness Walk, the society aimed to educate participants about the adverse effects of climate change on Pakistan, particularly in a region vulnerable to climatic shifts. Engaging students, faculty, and staff cultivates a sense of community responsibility and empowers individuals to act. Raising awareness is a crucial step in mobilizing collective efforts to address climate change, encouraging sustainable practices, and contributing to national and global initiatives aimed at achieving climate resilience.

PUBLICATIONS

| Publications Title | Author | Publisher | Impact Factor | Weblink |
|--|--|--------------------|------------------|---|
| Disaster management and environmental policy integration in Pakistan — an evaluation with particular reference to the China– Pakistan Economic Corridor Plan | Abdul Waheed Thomas Bernward Fischer Sajida Kousar; Muhammad Irrfan Kahn | Springer Nature | 5.8 | NULL |
| Dysregulation of butyrylcholinesterase, BCHE gene SNP rs1803274, and pro- inflammatory cytokines in occupational workers | Sosan Andleeb Khan Mbah Ntepe Leonel Javeres Syed Tahir Abbas Shah | Elsevier | 8.431 | NULL |
| Effect of Climate Change on Vegetation and Snow Cover Area in Gilgit Baltistan Using MODIS Data | Z. Satti , M. Naveed, M. Shafeeque | PubMed | 5.19 | https://pubmed.ncbi.nlm.nih.gov/36223023/ |
| Investigating catalytic oxidative desulfurization of model fuel using hollow PW12/TiO2@ MgCO3 and performance optimization via box- behnken design | Sadaf Ul Hassan Hamna Khalid Sidra Shafique | Elsevier | 8.8 | https://www.sciencedirect.com/science/ article/pii/S004565352301929X |
| Lichens as spatially transferable bioindicators for monitoring nitrogen pollution | Jay Delves Jason E.J. Lewis Niaz Ali | Elsevier | 8.9 | https://www.sciencedirect.com/science/ article/pii/S0269749123005778 |
| Recent trends in environmental sustainability. | Muhammad Shahid Hafiz Faiq Bakhat | Springer Nature | 5.8 | https://link.springer.com/article/10.1007/ s11356-023-29348-1 |

Total Publications :37 , only High Impact Factor Publications are highlighted here

SDG 13 considered the most important SDG during 2023 several projects related to this SDG were conducted worth of **22.77 million PKR** worth some of them are mentioned here like **" Design and development of voltage controlled tunable filter and low noise amplifier", "Intelligent Reflecting Surfaces Assisted YAV Communication to Improve Air to Ground Connectivity",** and **"Study of Impact of SRM and Climate change on Malaria Dynamics in South Asia"** were conducted by CUI faculty.