



UNESCO Chair on Knowledge Systems  
for Integrated Water Resources Management  
COMSATS University Islamabad (CUI),  
Wah Cantt, Pakistan



# Activities Report

Jan – Dec 2024



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# CUI WAH CAMPUS SUSTAINABILITY FEATURES

## Minimizing Carbon Footprint at CUI Wah Campus

The CUI Wah Campus is committed to reducing its carbon footprint through the adoption of renewable energy sources. As part of this initiative, the campus has integrated a 400 KW photovoltaic (PV) solar power system, aimed to minimize the carbon emissions and optimizing energy consumption.

CUI Wah Campus signed the Memorandum of Agreement with M/s Acumen Energy Ltd and JV Ghulam Rasool and Company Pvt Ltd for the installation of a 400 KW solar power facility on a BOT basis. The agreement was signed by Prof. Dr. Muhammad Abid, T.I., Director Campus and Mr. Muhammad Naeem Ul Hassan, CEO of Acumen Energy Ltd. The ceremony was attended by Dr. Tahir Naeem, Director of Planning, Development, and HRD, along with the P&D/HRD team and departmental heads.

This infrastructure development not only supports future energy needs but also contributes to cleaner, more sustainable energy.



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## Sustainability Design Features - Construction of New Academic Block - 1

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The design and construction of the new academic block-1 incorporated sustainability features by, integrating eco-friendly features to minimize environmental impact and to optimize resource usage.

The following key sustainability design elements are included to attain SDGs:

### **Energy Efficiency**

The building incorporates advanced insulation and energy-efficient windows to reduce heating and cooling energy consumption. Terrazzo with puddled earth is used on building's roof to reflect heat and installed building Energy-efficient LED lighting and motion sensors to minimize the electricity usage.

### **Rain Water Harvesting System**

Rainwater harvesting systems have been installed, featuring four tanks with a total storage capacity of 1,000 gallons. These tanks will capture and reuse rainwater to irrigate the greenbelt, utilizing submersible portable pumps.

### **Sustainable Materials**

The construction utilizes environmentally friendly materials such as regular bricks and pointing was provided as an exterior finish which requires low maintenance. 13.5 inch thick exterior walls are provided to increase R-value in terms of installation

### **Natural Ventilation and Daylighting**

The building is designed to maximize natural ventilation and daylighting. Double-glazed windows and vents are used. Voids are incorporated into Academic Block-1 to further enhance ventilation. All windows are strategically placed on the north and south facades of Academic Block-1 to optimize airflow and natural light.

### **Renewable Energy Integration**

Solar panels are integrated into the design to generate renewable energy, contributing to a reduction in the building's carbon footprint and ensuring a more sustainable energy source for the facility.



# MEETINGS

## Organized/Attended /Participated

### Consultative Discussion on Preliminary findings of "Scoping Study on Pakistan's Cement Sector: A Road towards Decarbonization , Jan 2024

The Director Campus/ UNESCO Chair on Knowledge Systems for Integrated Water Resource Management (IWRM), COMSATS University Islamabad, Wah Campus participated online in the panel discussion at the Consultative Discussion on the Preliminary findings of "Scoping Study on Pakistan's Cement Sector: A Road towards Decarbonization" on January 18, 2024 organized by the Sustainable Development Policy Institute (SDPI), Islamabad.

Participants presented their expert opinions. Dr. Abid discussed the role of academia and deliberated on the challenges and way forward for the (CO<sub>2</sub>) Carbon Capture and Net Zero and ensured participation of faculty of students in this very needed area to work on real world problems of cement sector jointly with the SDPI.



### 3rd Meeting of the Water, Environment & Agriculture Societies Consortium under Water Resource Accountability (WRAP)-Climate resilient Solutions for Improving water Governance (CRS-IWaG) at IWMI, Aug, 2024

Engr. Sarmad Manzoor from the Department of Civil Engineering, member UNESCO Chair on Knowledge Systems for IWRM , CUI Wah Campus on behalf of Prof. Dr. Muhammad Abid, T.I., UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), attended the 3<sup>rd</sup> Meeting of the Water, Resource Accountability in Pakistan (WRAP) at Water, Food and Ecosystems and Climate Resilient Solutions for Improving Water Governance (CRS-IWaG), took place on August 13, 2024, at the International Water Management Institute (IWMI) Lahore, Pakistan.

Dr. Mohsin Hafeez, Director of IWMI and Project Leader of WRAP, delivered the welcome address and provided an overview of IWMI's initiatives and a progress report on the WRAP Programme since the previous meeting. Representatives from various academic institutions shared their updates and future plans for enhancing water governance.

During the meeting, Engr. Sarmad presented the operational implementation plan of the UNESCO Chair on IWRM, detailed the activities related to water management and climate-resilient water governance solutions. He emphasized on the UNESCO Chair active contribution under Sustainable Development Goals (SDGs): gender equality, clean water and sanitation, climate action, life below water and partnerships for the goals. These goals are pursued through initiatives such as workshops, seminars, hands on trainings, awareness campaigns and conferences. Notably, this year's theme for UNESCO World Water Day is "Water for Peace." Two proposals aligned with this theme were presented during the meeting, showcasing the Chair's commitment to these objectives. Overall, the meeting offered valuable networking and research collaboration opportunities for all participants.



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## Dialogue on Decarbonizing Pakistan's Cement Sector: Opportunities, Challenges & the Way Forward, Apr 2024

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The Sustainable Development Policy Institute (SDPI) on April 18, 2024 organized the dynamic Dialogue on Decarbonizing Pakistan's Cement Sector: Opportunities, Challenges & the Way Forward. Aiming to shed light on to illuminate industrial decarbonization, exploring innovative solutions, contribution, overcoming challenges and its impact on climate change in Pakistan

The Director Campus/ UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), CUI Wah Campus as panelist expressed the key challenges faced to decarbonize the cement sector referring to eliminate the carbon dioxide (CO<sub>2</sub>), adaptation of energy-efficient technologies and practices to take account of performance-based standards. He urged promoting sustainability, among industry stakeholders; policymakers, researchers, and community to take small initiatives to achieve significant reduction in emissions. A large number of academia, and civil society organizations participated in crucial discussions to chart a sustainable path forward.





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## UNESCO Chair Holder's Coordination Meeting and International Literacy Day – Sep 2024

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UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), CUI Wah Campus on September 12, 2024 host the UNESCO Chair Holder's Coordination Meeting and International Literacy Day.

Prof. Dr. Muhammad Abid, T.I., Director Campus/UNESCO Chair on Knowledge Systems for IWRM, and his team extend a warm welcome to Mr. Antony Kar Hung Tam, Officer-in-Charge, Syed Muhammad Raza Shah, National Professional Officer (Science) from the UNESCO Islamabad Office accompanied by:

1. Ms. Alima Bibi, National Professional Officer (Education), UNESCO Islamabad Office
2. Dr. Cristina Menegazzi, Culture Expert
3. Mr. Hamza Swati, National Professional Officer (Communication and Information)
4. Mr. Jawad Aziz, National Professional Officer (Culture)

Prof. M. Abid also acknowledged the Secretary General of the Pakistan National Commission for UNESCO (PNCU), Ms. Razia Ramzan Dossa for nominating her representatives:

1. Mr. Imran ul Haq, Assistant Secretary General, PNCU
2. Mr. Shahbaz Ullah, Assistant Secretary General, PNCU

He further extended a warm welcome to his esteemed UNESCO Chair Holders of Pakistan:

1. **Prof. Adnan Noor Mian**, UNESCO Chair on Information and Communication Technology for Development, Information Technology University, Lahore
2. **Prof. Dr. Noman Ahmed**, UNESCO Chair on Sustainable Urban Regions, NED University of Engineering & Technology, Karachi
3. **Dr. Aysa Hakim**, representing Prof. Dr. Asif Ali, Chairman, National Seed Development and Regulatory Authority (NSDRA), UNESCO Chair on Low Carbon and Sustainable Agriculture in Biosphere Reserves, MNS University of Agriculture, Multan
4. **Prof. Dr. Nadeem Shaukat**, representing Dr. Muhammad Tariq Siddique, UNESCO Chair on Light for Health, Pakistan Institute of Engineering & Applied Sciences (PIEAS), Islamabad
5. **Ms. Rohma Khan**, representing Prof. Dr. Rashid Ali Rana, Dean, Mariam Dawood School of Visual Arts & Design, UNESCO Chair on Inclusion through Art, Beaconhouse National University (BNU), Lahore
6. **Ms. Humna Kazi**, representing Syeda Zehra Arfa, UNESCO Chair in the Conservation and Management of Historic Towns and Urban Centers, The National College of Arts, Lahore

Prof. Dr. Muhamamd Abid,T.I., UNESCO Chair on Knowledge Systems for IWRM, CUI Wah Campus in his opening remarks highlighted the importance of the UNESCO Chair Holder's Meeting as a valuable platform for Chair Holders across Pakistan to showcase their expertise and contributions. He expressed confidence that effective collaboration would strengthen relationships, achieve better results, and enhance the impact of their work both locally and globally

He also informed that Prof. Dr. Muhammad Raza Shah, UNESCO Chair on Medicinal and Bio-organic Natural Product Chemistry from the University of Karachi, was unable to attend the meeting. In his presentation, Mr. Antony Kar Hung Tam, Officer-in-Charge of UNESCO Islamabad, outlined the UNESCO's key focus areas in Pakistan and discussed thematic areas for enhancing quality education, providing technical and vocational training, promoting cultural and

creative industries, advancing science and improving media and information literacy. He further briefed the UNESCO dedication to Greening Education, making education systems climate-resilient, and managing water resources effectively for the community of Pakistan.

Prof. Dr. Adnan Noor Mian, Vice Chancellor and UNESCO Chair on Information and Communication Technology for Development at Information Technology University Lahore, introduced the key initiatives of Information Technology University as a center for research and development worked under the UNESCO Chair on ICTD. He highlighted the UNESCO Chair technological focus, impact, and achievements, under SDG 5, SDG 9 and 11 as well as its ongoing research activities and key areas of work. Prof. Dr. Mian also discussed ITU's partnerships and vision for future collaborations, particularly in the fields of Computer Science, AI, and Cyber Security.

Prof. Dr. Noman Ahmed, UNESCO Chair on Sustainable Urban Regions at NED University of Engineering & Technology, Karachi, provided an overview of UNESCO's Chair priority areas, with the focus on Sustainable Development Goal 11. He highlighted the Chair's strong contributions to national and regional development, aiming to make cities and human settlements inclusive, safe, resilient, and sustainable in Pakistan. Prof. Dr. Ahmed outlined sustainable practices and recent developments, coordinated activities to address issues related to achieve sustainability. He also emphasized the importance of raising community awareness through collaboration with professionals, NGOs, researchers, and other stakeholders. The Chair continues involved in organizing lectures, seminars, workshops, technical training, conferences, and fieldwork annually in coordination with all relevant stakeholders.

As a representative of Prof. Dr. Asif Ali, UNESCO Chair on Low Carbon and Sustainable Agriculture in Biosphere Reserves at MNS University of Agriculture, Multan, Dr. Aysha Hakim provided a comprehensive overview of the Chair's role and activities. She detailed the ongoing research projects and the Chair's significant contributions to global climate action and biodiversity conservation. Their efforts focused on enhancing resilience in biosphere reserves and building capacity for human resource development, with a specific emphasis on Sustainable Development Goals 1 and 17. Dr. Hakim highlighted key research areas, including the development of an AI and IoT device for insect pest surveillance, a blockchain and artificial intelligence-based system for crop production traceability and price forecasting, and initiatives aiming to empower smallholder farmers.

Ms. Rohma Khan, Associate Professor/ Head of Programs, attended the meeting on behalf of Prof. Rashid Ali Rana, Dean of the Mariam Dawood School of Visual Arts & Design and UNESCO Chair on Inclusion through Art at Beaconhouse National University (BNU), Lahore. She outlined the UNESCO Chair's alignment with the 2030 Agenda principles, including integration, inter-linkages, knowledge, science, technology, and innovation (STI), and multi-stakeholder partnerships. Ms. Khan highlighted the achievements of the Interdisciplinary Expanded Design & Art (IEDA) program, emphasizing on the Chair's commitment of advancing quality education in the arts and promoting socio-economic growth across South Asia. The program supports innovative, interdisciplinary learning, creates opportunities for decent work and artistic practice, and enhances regional mobility for scholars. She detailed how the Chair's activities contribute to Sustainable Development Goals 4, 5, 8, 9, 11, 12, and 13, and enhances the cultural landscape by actively including vulnerable communities.

Ms. Humna Kazi, represented Dr. Arfa Sayeda Zehra, UNESCO Chair in the Conservation and Management of Historic Towns and Urban Centers from the National College of Arts (NCA), Lahore, attended the UNESCO Chair Holder's Coordination meeting and Literacy Day celebrations. She outlined the Chair's activities in advancing cultural research on historic towns and fostering global academic engagement, including the significant achievement of establishing

the Gilgit-Baltistan Campus. Ms. Kazi also highlighted efforts in historic structure restoration, curricular expansion, and academic strengthening at NCA. The key upcoming activities are the archival exhibitions, research publications, and events for NCA's 150th Anniversary in 2025.

On behalf of Dr. Muhammad Tariq Siddique, UNESCO Chair on Light for Health, Prof. Dr. Nadeem Shaukat from The Pakistan Institute for Engineering and Applied Sciences (PIEAS) provided the aim of the Chair. He outlined the Chair's mission to advance photodynamic therapy for cancer treatment and its broader goal of serving humanity. Prof. Dr. Shaukat highlighted an update on the establishment of five photodynamic therapy (PDT) clinics across four provinces and the federal capital of Pakistan. He also presented the Chair's activities, including conferences, seminars, and meetings, attended and detailed collaborations with research partners in Laser, Photomedicine, and Biophotonics at PIEAS. Additionally, he discussed future plans to boost the Chair's progress and enhance community health and education through advancements in open science and technology.

Finally, Prof. Dr. Muhammad Abid, T.I., Director of the UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM) at COMSATS University Islamabad, Wah Campus, provided an overview of the university. He introduced the UNESCO Chair, detailing its activities, goals, and strategies aligned with Sustainable Development Goals (SDGs) 5 and 6, and discussed ongoing efforts toward SDGs 4, 8, 13, 14, and 17.

Dr. Abid outlined various research initiatives, including snowmelt analysis and the prediction of rainfall, floods, and droughts, conducted in partnership with Baltistan University, Pakistan. His key research efforts also include surface and groundwater modeling, water quality assessment, climate modeling, and sedimentation studies, all aimed at advancing integrated water resource management. These initiatives are executed in collaboration with both governmental and non-governmental organizations. Capacity building is being enhanced through workshops, seminars, and specialized training in cooperation with local and international academic institutions and industries. Dr. Abid also provided an update on the development of MS/PhD programs in Integrated Water Resources Management (IWRM), Marine Engineering, and Sciences, in partnership with Harbin Engineering University, China. He concluded by discussing future collaborative opportunities with all Chair Holders to strengthen UNESCO's impact and promote community development in Pakistan.

These presentations demonstrated the depth of collaborative projects, knowledge sharing, strategic partnerships, and set the stage for future discussions.

#### Discussion Session:

In the discussion session, Syed Muhammad Raza Shah, National Professional Officer (Science) from the UNESCO Islamabad Office posed a follow-up question: "How can UNESCO collaborate with the Chairs to help them perform their activities, and how can Chairs contribute to each other's work?"

- Dr. Noman Ahmed proposed regular meetings to facilitate communication and collaboration among the Chairs. He also stressed the importance of establishing a robust information-sharing mechanism supported by UNESCO.
- Dr. Adnan Noor Mian emphasized the need for timely dissemination of calls for proposals and suggested that UNESCO organize workshops on science diplomacy to enhance global cooperation.

- Dr. Muhammad Abid advocated for engaging youth in positive activities, encouraging UNESCO and the Chairs to focus on educational initiatives and skill development programs for young people.
- Dr. Ayesha called for better access to policymakers, stressing that despite the valuable research being conducted, there was limited engagement with decision-makers, which hindered the impact of their work.
- Syed. Raza Shah suggested that water infrastructure projects be linked with UNESCO sites and proposed reviving the Youth Inspire Program, which had been previously active at NED University. He also recommended involving stakeholders from water centers, archaeology departments, and the National Information for All Committee in future collaborations.

### **Future Plan of Action:**

A follow-up action plan will be developed based on the discussions during the round table session.

#### **1. Collaboration:**

The plan will outline joint initiatives and establish timelines for future collaborations.

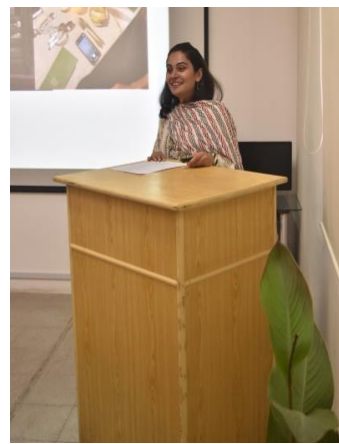
#### **2. Future Meetings:**

Regular meetings will be scheduled to track progress on collaborative efforts and explore new opportunities for cooperation among the UNESCO Chairs.

The event was deemed a success, with participants looking forward to continuing their collaboration and enhancing the impact of their initiatives both in Pakistan and globally.

The meeting concluded on a positive note, with participants expressing a strong commitment to continue collaboration. At the end, the UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM) presented souvenirs to the participants. He acknowledged their valuable participation and contribution with a vote of thanks.





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## 4th Meeting of the Water, Resource Accountability in Pakistan (WRAP) at Water, Food and Ecosystems and Climate Resilient Solutions for Improving Water Governance (CRS-IWaG), Dec 2024

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On behalf of UNESCO Chair on Knowledge Systems for IWRM , CUI Wah Campus, member Engr. Sarmad Manzoor attended the 4<sup>th</sup> Meeting of the Water, Resource Accountability in Pakistan (WRAP) at Water, Food and Ecosystems and Climate Resilient Solutions for Improving Water Governance (CRS-IWaG), took place on December 18, 2024, at the International Water Management Institute (IWMI) Lahore, Pakistan.

Dr. Mohsin Hafeez, Director of IWMI and Project Leader of WRAP, delivered the welcome address and provided an overview of IWMI's initiatives and a progress report on the WRAP Programme since the previous meetings. Representatives from various academic institutions shared their updates and future plans for enhancing water governance.

During the meeting, Engr. Sarmad presented the operational implementation plan and objectives of the UNESCO Chair on IWRM, detailed the activities related to water management and climate-resilient water governance solutions. He emphasized on the UNESCO Chair active contribution under Sustainable Development Goals (SDGs): gender equality, clean water and sanitation, climate action, life below water and partnerships for the goals. These goals are pursued through initiatives such as workshops, seminars, hands on training, awareness campaigns and conferences. Overall, the meeting offered valuable networking and research collaboration opportunities for all participants.



# RESEARCH PROJECTS/COLLABORATION

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## Research Collaboration with NUST University, for Water Recharge and Rainwater Harvesting, Apr 2024

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The Director Campus/UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM) along with team comprising Dr. Summera Fahmi Khan and Engr. Waleed Tariq from the Department of Civil Engineering had meeting on April 30, 2024 with Prof. Dr. Hamza Farooq Gabriel from the Department of Water Resources Engineering & Management (WRE&M), NUST Institute of Civil Engineering (NICE), Islamabad.

The meeting aimed to explore the potential research collaboration opportunities on sustainable solutions within framework to implement the management strategies to cope with climate variability, particularly focusing on rainwater harvesting techniques and wastewater treatment methods. In his opening remarks Prof. Dr. Hamza Farooq Gabriel shared insights into completed research projects at the NUST Institute of Civil Engineering (NICE), specifically highlighting roof rainwater harvesting techniques and natural wastewater treatment methods (Australian Model).

Subsequently, the participants visited the sites of these implemented projects, engaging in insightful discussions regarding their benefits and drawbacks. Prof. Dr. Muhammad Abid, T.I., expressed keen interest in implementing similar research models in both the old and new campuses of CUI Wah, Campus signaling a potential avenue for collaboration.

The meeting concluded on a positive note, with plans to continue discussions and explore opportunities for further collaboration. Both parties agreed to maintain communication channels open and potentially arrange a visit by NUST (NICE) officials to CUI Wah Campus in the future.

The meeting concluded on a positive note, with some memorable photography capturing the collaborative spirit and shared aspirations for future research endeavors.



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## Partnering with PCRWR for Rainwater Harvesting Initiative, Oct 2024

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On October 2, 2024, Prof. Dr. Muhammad Abid, T.I., Director Campus/ UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), met with officials from the Pakistan Council of Research in Water Resources (PCRWR), including Mr. Muhammad Dilshad Arshad and Mr. Syed Ibtisam Asmat. The purpose of this visit was to discuss and explore the design of a rainwater harvesting system for the campus, aiming to enhance water management practices and promote sustainability.

The event commenced with a formal meeting between the PCRWR officials and Prof. Dr. Muhammad Abid, Director Campus/UNESCO Chair and his team. During the meeting, a comprehensive presentation was delivered by [insert name of presenter], highlighting the establishment of new buildings, the revised layout, and the master planning of both the existing and new campus. Key aspects of the presentation included strategic planning for future expansions, the integration of sustainable practices into the campus design, and the potential benefits of implementing rainwater harvesting systems. Following the presentation, a detailed discussion took place regarding the design and implementation of a rainwater harvesting system. Mr. Dilshad Arshad provided insights into the technical aspects, emphasizing the importance of such systems in enhancing water availability.

After the meeting, the team conducted a guided tour of the existing campus facilities, which included an inspection of current water management practices. The PCRWR officials observed existing water resources and management systems on campus, evaluating areas where improvements could be made. Specific locations were identified during the tour where rainwater harvesting systems could be effectively implemented, taking into consideration factors such as rainfall patterns and building infrastructure.

The visit of Mr. Dilshad Arshad and Mr. Ibtisam from PCRWR was highly productive, fostering a collaborative spirit between CUI and PCRWR. The discussions and insights shared will play a crucial role in the development of an efficient rainwater harvesting system that aligns with the university's sustainability goals. Both parties expressed a strong commitment to continuing this collaboration, recognizing the mutual benefits of integrating advanced water management practices into campus operations. Next steps include finalizing the design specifications for the rainwater harvesting system, scheduling follow-up meetings to discuss implementation strategies and timelines, and exploring funding opportunities for the project.





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## Research Projects on Assessment of under Ground Water Quality

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The research project titled " A case study of physicochemical and microbiological assessment of underground water quality based on water quality index through GIS mapping tools: ArcGIS Pro"

This case study aims to assess the physicochemical and microbiological quality of underground water using the Water Quality Index (WQI) to identify potential contaminants and areas of concern.

The study will employ GIS mapping tools, specifically ArcGIS Pro, to create spatial maps and visualize water quality variations and trends. This will inform sustainable management practices to ensure safe and potable water, ultimately contributing to the protection of public health and the environment

The project is expected to be completed within one year, with a total budget of 0.272 million PKR, funded by the Office of Research & Innovation & Commercialization, COMSATS University Islamabad under the CUI Research Grant Program 2024. The research team comprises Principal Investigator, Engr. Waleed Tariq and Co-Principal Investigator Prof. Dr. Muhammad Abid.T.I. The collaboration agency is PCRWR's Water Quality Testing Laboratory will ensure rigorous laboratory analysis and provide valuable insights into the contamination issues



# CONFERENCES

## Organized/Attended /Participated

### National Water Conference, Water, People and Equity Building a Better Future for All, Jan 2024

The Director Campus/ UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), Prof. Dr. Muhammad Abid, T.I., along with the team comprising Engr. Summera Fehmi, Engr. Sarmad Manzoor and three students from the Department of Civil Engineering attended the National Water Conference with the theme "Water, People, and Equity: Building a Better Future for All", on January 15, 2024 organized by the Indus Consortium dedicated for Humanitarian, Environment, and development. The conference aimed building a "Better Future for All," to foster inclusive water management practices for the benefit of all segments of society.

The conference gathered policymakers, researchers, farmers, and various stakeholders at a national water conference. The speakers deliberated on the safe and free drinking water and sustainable agricultural practices for farmers across the country. The central strategic objective of the Indus Consortium is to enhance the irrigation water governance and the key water channels like Akram Wah Badin, Rangpur Canal Muzaffargarh, and Daajal Canal Rajanpur.

Zarif Iqbal Khoro, Chief Engineer, and Ex-Secretary Irrigation Sindh presented the session on Sindh Water Policy, Mohammad Ehsan Leghari, Member Sindh, Indus River System Authority (IRSA), highlighted the environmental and economic impact of discharging wastewater into fresh water. Dr Rasool Bux Mahar, Vice Chancellor of Benazir Bhutto Shaheed University of Technology and Skill Development (BBSUTSD), discussed the contamination of ground and surface waters other discussed the complexities of managing groundwater resources within geological boundaries. Nazeer Ahmed Memon, Project Coordinator Directorate of Sindh Water Sector and Barrages Improvement, Government of Sindh, acknowledged the Indus Consortium's contributions to water governance reflected in the Sindh Water Policy draft.

All detailed deliberations by the speakers on the theme of conference were very thought – provoking and stressed the need of strategic flood management and policy implementation for Building a Better Future for All in Pakistan.



## 8<sup>th</sup> International Water Conference on “Valuing Water for Sustainability”, Mar 2024

The Director Campus / UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM) Prof. Dr. Muhammad Abid.T.I., attended the inaugural session of 8th International Water Conference (8IWC) on “Valuing Water for Sustainability” as Guest of Honor on March 6, 2024. The conference was jointly organized by Pakistan Council of Research in Water Resources (PCRWR), Riphah International University, Islamabad and United Nations Children's Fund (UNICEF) Pakistan at PCRWR Headquarter Islamabad.

Welcome address was delivered by Dr. Hifza Rasheed, Director General PCRWR. She gave an overview on the vulnerability of Pakistan to climate change, expected consequences being faced by the country and required actions.

The UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), Wah Campus stressed on the importance of integrated approaches for collection of climate change data to measure adverse impact of climate change.

Director Public Policy, Riphah University Dr. Rashid Aftab presented a conference brief. The Guest of Honor, Dr. Anis Ahmed, Vice Chancellor, Riphah University emphasized on the importance of water and behavioral changes for water conservation. The Guest of Honor Dr. Muhammad Ashraf, Advisor to IWMI and Former Chairman of PCRWR explained the importance of water in the light of the Quran. He narrated that water is the whole ecology regulating ecosystem; therefore water wastage can be controlled by behavior change. Ms. Kiran Kazi UNICEF Representative talked on innovation and collaboration as main issues to be addressed in the water sector. She said that Youth is the catalyst for change and UNICEF is always there to address these issues in future.

The conference sessions was followed by two Panel Discussion on “Leveraging innovation to secure Pakistan’s Water Future.” and “Rain water Harvesting to manage Urban Flooding” along with three Thematic Sessions on “Climate Change Adaptability, Water Governance and GLOF”, “Water Sanitation and Hygiene (WASH)” and “Water Productivity: Water, Energy, Food Nexus & Hydro Diplomacy”. In total 52 researchers from academia and industry presented their publications on the designated thematic sessions. Director Public Policy, Riphah University concluded the conference on March 7, 2024 with his valuable closing remarks. Ms. Saiqa Imran, Director Water Quality PCRWR delivered the vote of thanks and distributed certificates and shields among participants and organizers.





### Keynote Address - IEEE/OES China Ocean Acoustics Conference (COA 2024)

Prof. Dr. Muhammad Abid, Director Campus and UNESCO Chair on Knowledge Systems for Integrated Water Resource Management (IWRM) at CUI Wah Campus, visited Harbin Engineering University, Harbin, China from May 28 to June 2, 2024, as the invited keynote speaker at the third IEEE/OES China Ocean Acoustics Conference (COA 2024), held from May 29 to 31, 2024.

Prof. Abid delivered a keynote address titled “A Framework Approach to Strengthen Higher Education in the Field of Marine Information and Engineering.” As an academician, he emphasized the growth prospects, needs, and development of the Marine Information and Engineering field in Pakistan, considering its geographical position, ocean resources, blue economy, and implications for trade and defense. He actively participated in discussions and highlighted collaborative efforts between CUI and HEU. The conference brought together distinguished experts in marine acoustics research to present their latest findings in marine and underwater acoustics. Through the exchange of knowledge via invited talks and research papers, researchers and scholars from around the world discussed cutting-edge topics, enriching their understanding and paving the way for new opportunities in marine and underwater acoustics advancements. Additionally, a technology exhibition during the conference showcased advanced marine and underwater acoustic instruments, equipment, and systems from Chinese and international manufacturers.



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## International Conference on Challenging Boundaries: Integrating Social and Natural Sciences for Effective GLOF Mitigation, Nov 2024

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The Director Campus and UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), Prof. Dr. Muhammad Abid, T.I., participated as Guest Speakers at the International Conference on "Challenging Boundaries: Integrating Social and Natural Sciences for Effective GLOF Mitigation," held from November 7-8, 2024, at the University of Baltistan, Skardu.

The conference addressed the pressing global issue of Glacier Lake Outburst Floods (GLOFs), with a particular focus on the region's most vulnerable impacts of climate change. It served as a dynamic platform for experts from various disciplines to discuss and propose innovative, interdisciplinary solutions for mitigating the risks posed by GLOFs.

Featuring a comprehensive program, the conference included 11 thematic sessions that integrated natural and social sciences, policy discussions and community-driven strategies. These sessions provided in-depth analyses of effective GLOF management and mitigation approaches.



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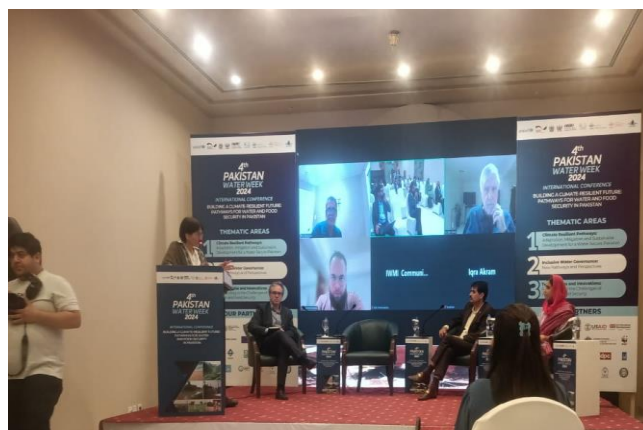
## Conference on “Building a Climate-Resilient Future: Pathways for Food, Water, and Food Security in Pakistan”, Nov 2024

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In addition to the Poster Competition, the UNESCO Chair on Knowledge Systems for IWRM team members comprising Dr. Summera Fahmi Khan and Engr. Sarmad Manzoor attended the international conference on “ Building a Climate-Resilient Future: Pathways for Food, Water, and Food Security in Pakistan” , organized by the International Water Management Institute (IWMI) Pakistan celebrating its 40<sup>th</sup> anniversary in collaboration of the Pakistan Council of Research in Water Resources (PCRWR), CGIAR Research Program on Water, Land, and Ecosystems (WLE), with additional support from USAID, the FCDO, and UNICEF.

The conference themed " Climate-Resilient Pathways: Adaptation, Mitigation and Sustainable Development for a Water Secure Pakistan, Inclusive Water Governance, Technologies and Innovations: Responding to the Challenges of Water and food Security", brought together experts, policymakers, and stakeholders to explore innovative solutions to Pakistan. The conference

addressed both the challenges and opportunities in building a climate-resilient future for Pakistan with a focus on sustainable water management.



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## The Water Informatics and Communication Technical Session 21st International Conf on Frontiers of Information Technology, Dec 2024

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The Water Informatics and Communication Technical Session was presented on December 10, 2024 during 21<sup>st</sup> International Conference on Frontiers of Information Technology (FIT'24) at COMSTECH Secretariat, Islamabad, Pakistan.

The Track Co-Chair(s) were:

1. Liu Songzuo, Harbin Engineering University, China
2. Niaz Ahmed, National University of Computer & Emerging Sciences
3. Prof. Dr. M. Abid (T.I), COMSATS University Islamabad (CUI), Pakistan
4. Summera Fahmi Khan, COMSATS University Islamabad (CUI), Pakistan

This session was chaired by Prof. Dr. M. Abid (T.I), and Dr Summera Fehmi, UNESCO Chair on Knowledge Systems for Integrated Water Resources Management, COMSATS University Islamabad (CUI), Wah Campus Pakistan. The track acknowledges the critical role of water in various aspects of human life, including climate, agriculture, industry, and daily living. It aims to provide a comprehensive platform for advancing research, technology and expertise to explore in the underwater world. This track offers a promising opportunity to integrate cutting-edge research and innovative technologies in the fields of water informatics and Communication Technologies, fostering deeper insights and solutions for sustainable water management.



# WORKSHOPS AND SEMINARS

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## Organized/Attended /Participated

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### Celebrations of World Water Day 2024, Mar 2024

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World Water Day (WWD) is an annual United Nations Observance Day celebrated at CUI Wah Campus under the flagship of UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM) on March 14, 2024. The objective of WWD was to raise awareness on the global, regional, and local levels to highlight Pakistan's water conflicts, prevention, effects on communities, and building resilience to shared challenges, with a focus on achieving Sustainable Development Goal (SDG) 6: Water and Sanitation for all. The World Water Day revolves around this year's theme, "Water for Peace".

Dr. Engr. Summera Fahmi, a member of the UNESCO Chair on Knowledge Systems for IWRM at CUI Wah Campus, presented a welcome address and discussed the role of the UNESCO Chair. The guest speaker, Mr. M. Dilshad Arshad, Director of Hydrology at the Pakistan Council of Research in Water Resources (PCRWR), graced the event with his presence and delivered a very comprehensive talk on Zero Liquid Discharge (ZLD). He discussed the importance of zero water discharge strategies in reducing wastewater, supporting livelihoods, and ensuring community resilience. Mr. Arshad also elaborated on Pakistan's National Water Conservation Strategy, covering all aspects of water resources development, management, and governance. Additionally, he briefed the audience on PCRWR's activities in implementing research in the agriculture, domestic, and industrial sectors for zero liquid discharge.

Lecturer and Member of UNESCO Chair, Engr. Waleed Tariq, presented the survey results on Exploring Perspectives on 'Water for Peace.' The aim of the survey was to assess awareness levels, attitudes, and behaviors related to the "Water for Peace" theme, contributing valuable insights to the discourse on water conservation and peace-building efforts. The speaker highlighted the benefits and study results. The respondents of the survey were students aged 18-25 years. It resulted in the consensus that more awareness campaigns from all stakeholders are required to highlight wastewater and water management.

The group discussion ideas on "Water Conservation and Peace" were presented by undergraduate group leaders from the University of Wah, Wah Medical College, and CUI Wah Campus from the Civil Engineering, Mechanical Engineering, Computer Science, and Management Sciences Departments. All the groups discussed water scarcity, usage, and availability for the future, and presented topics to spread awareness on strategic matters of wastewater management systems and conflicts to achieve peace in water distribution.

Themes included:

1. Water-Related Conflicts in Pakistan
2. Impact of Water Scarcity on Communities
3. Role of Youth in Water Diplomacy
4. Water-Energy-Food Nexus
5. Gender Perspectives on Water Management
6. Innovative Technologies for Water Conservation
7. Climate Change Adaptation Strategies
8. Public Health Implications of Water Quality
9. Community-based water Management Initiatives
10. Educational Campaigns for Water Conservation

These themes highlight various aspects of freshwater and the challenges related to water management, providing opportunities to raise awareness, promote action, and encourage national and regional-level community-based cooperation to boost awareness of water management.

Meesum Abbas and Abdullah Zafar from the Mechanical Engineering Department got first position for presentation on innovative water technologies whereas the second position was grabbed by Junaid Malik and Emaan Irfan from the Computer Science Department for gender perspectives on water management.

In the closing ceremony, Dr. Muhammad Abid, T.I., UNESCO Water Chair on IWRM, in his closing remarks, thanked PCRWR for their cooperation and acknowledged the efforts of event organizers and participants from CUI and other institutions. He especially commended Engr. Waleed Tariq for conducting the survey and presenting its analysis report. He thanked Mr. Dilshad for sharing valuable insights on government policies and PCRWR's work progress to eliminate wastewater. He presented a souvenir to the guest and distributed appreciation certificates among participants, appreciating the valuable ideas of the students in presenting solutions to the water management problems. The event concluded with a vote of thanks.

Event Pictures are Available on :

<https://drive.google.com/drive/folders/1U5R8EKW0WfA4nng4Qxmz8RON7wN8Z-Ay?usp=sharing>





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## One Day Seminar on Energy Efficiency and Conservation in Buildings, Mar 2024

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The Department of Civil Engineering and UNESCO Chair on Knowledge systems for IWRM, CUI Wah Campus in collaboration with the National Energy Efficiency and Conservation Authority (NEECA), the Ministry of Energy (Power Division) arranged a one-day consultative session on Energy efficiency and conservation in Buildings in compliance with energy conservation building code 2023 on March 07, 2024. The theme of the event was to foster an interest in energy efficiency.

Chief Guest of the event Engr Zeeshan Ullah, Director Buildings of NEECA was welcomed by the Director Campus, Prof. Dr. Muhammad Abid, T.I., HoD Civil Engineering, Dr. Tahir Mehmood, and Engr Sarmad Manzoor ICE Wah Chapter faculty advisor. The event started with a welcome note presented by Chairman/ HoD Mechanical Engineering, Dr. Atta Ur Rehman Shah, followed by a detailed session by the resource person Engr. Zeeshan Ullah.

The session explains the aims and objectives of the Energy Conservation Building Code of 2023 by introducing the ECBC 2023. The problems faced and became the need for Energy Efficiency and Conservation in Buildings 2023, solutions for the construction sector, and star rating of the electric appliance were discussed in detail.

The Director, CUI Wah Campus, and UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), Prof. Dr. Muhammad Abid, T.I, in his closing remarks encouraged the students by highlighting the significance of energy efficiency and conservation in Pakistan. He further elaborated on the need for skills to cope with the current challenges across the globe. He thanked all the participants and invited NEECA for future collaboration on the ECBC Code 2023 implementation across the country. Faculty Members and Undergraduate Students actively participated in the session and the ICE Chapter and ASHRAE of CUI Wah Campus actively organized all the arrangements.



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## Seminar on AquaCrop Model for Climate Smart Agriculture, May 2024

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The UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM) at CUI Wah Campus held an event focusing on food security, assessing its environmental impact, managing crop production using the AquaCrop Model to increase yield, and measuring the effects of climate change. The event also addressed the significance of solar-powered drip irrigation systems for promoting sustainable agriculture in the region on May 23, 2024.

The opening remarks were delivered by Dr. Summera Fahmi Khan, a member of UNESCO Chair. She acknowledged the guest speakers for their valuable time and briefed the audience on the role of the UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM) at CUI Wah Campus.

The invited talk on "AquaCrop Model for Climate-Smart Agriculture" was delivered by Dr. Mukhtar Ahmed, an Assistant Professor from the Department of Agronomy, PMAS-Arid Agriculture University. Dr. Ahmed highlighted the features of the AquaCrop Model for improving irrigation and evaluating crop water requirements to address food security challenges. He discussed its relevance, significance, and challenges, emphasizing the model's contribution to advancing climate-smart agricultural practices. His talk was highly informative, covering the AquaCrop Model's role in promoting sustainable agricultural practices and ensuring food security amid evolving environmental conditions.

In the second phase, Engr. Sarmad Manzoor, a member of the UNESCO Chair and Lecturer from the Department of Civil Engineering, presented a seminar on "Design and Management of Solar-Powered Drip Irrigation Systems." He discussed the critical challenges posed by rapid climate change to drip irrigation operations and highlighted the importance of solar-powered drip irrigation systems in various regions of Pakistan.

The audience appreciated the presentations and gained valuable insights into enhancing crop yields through the adoption of the AquaCrop Model and solar-powered drip irrigation systems. The speakers left the attendees inspired and excited to explore further applications in drip irrigation practices.

On behalf of the UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), Prof. Dr. Muhammad Abid, T.I., the Chairman/HoD of the Civil Engineering Department Dr. Tahir Mahmood, appreciated the speakers for sharing their insights on the topic. He presented CUI souvenirs to the guest speakers and concluded with a vote of thanks.



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## World Water Day 2024: Promoting Water for Prosperity and Peace – Organized by PCRWR, July 2024

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On July 9, 2024, on behalf of the UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM) at CUI Wah Campus, the members Engr. Sarmad Manzoor and Engr. Waleed Tariq from the Department of Civil Engineering attended the event jointly organized by the Pakistan Council of Research in Water Resources (PCRWR) and partners to raise the importance of World Water Day -2024 under this year's theme "Water for Prosperity and Peace." The event featured the Launch of the United Nations World Water Development Report 2024, a Panel Discussion, and an interactive Q&A Session.

Dr. Hifza Rasheed, Director General PCRWR, delivered the welcoming address, emphasizing the crucial role of shared water resources in fostering cooperation between nations and regions. She highlighted PCRWR's initiatives to combat water wastage. Subsequent remarks were given by Mr. Jawed Ali Khan from HPM, UN-Habitat, Prof. Seyed Komail Tayebi, President of the ECO Science Foundation, and Officer-In-charge from the UNESCO Islamabad, Mr. Kar Hung Antony Tam, stressing the significance of World Water Day in raising awareness about water challenges. He also highlighted UNESCO's collaborative efforts with PCRWR, including the inscription of the Karez System Cultural Landscape (KSCL) in the World Heritage List to promote trust and resolve water-related conflicts. The keynote speech was delivered by the Former Chief Engineer, Engr. Nssir Gafoor from Khyber Pakhtunkhwa Irrigation Department. In a roundtable panel discussion experts including Mr. Nasir Ghafoor, Dr. Muhammad Riaz, Ms. Saiqa Imran, Dr. Muhammad Waseem, Mr. Zamir Ahmad Soomro, Mr. Khalil Raza, and Mr. Raza Narejo underscored the urgency of addressing water scarcity, promoting conservation practices, and enhancing Water, Sanitation, and Hygiene (WASH) facilities. They advocated trust-building through data sharing and adoption of Integrated Water Resources Management (IWRM) strategies to ensure sustainable and equitable water use across Pakistan.

In concluding remarks, distinguished speakers highlighted current challenges and opportunities in the water sector, calling for innovative solutions, improved wastewater management, and actions to mitigate climate impacts and water mismanagement. The event's key takeaways will guide future initiatives and research, sustainable practices in Pakistan contributing to progress towards a water-secure future for all.



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## 47<sup>th</sup> Biannual Research and Training Workshop at Sri Lanka, July 2024

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Dr. Summera Fahmi Khan, a member of the UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM) and Lecturer in the Department of Civil Engineering, attended the 47<sup>th</sup> Biannual Research and Training Workshop organized by the South Asian Network for Development and Environmental Economics (SANDEE). The workshop took place from July 8 - 11<sup>th</sup>, 2024, at Club Hotel Dolphin in Negombo, Sri Lanka.

Dr. Summera presented her research proposal titled “Understanding the Socioeconomic Implications of a Changing Cryosphere in the HKH Region: A Case Study of the Astore Watershed”. The study aims to investigate the socioeconomic impacts of the changing cryosphere in the Astore watershed, located in the rugged terrain of the HKH region. Using a mixed-method approach integrating economic modeling with remote sensing, climate change and hydrological analysis, and field surveys, the research seeks to quantify changes in the cryosphere that affect water availability, water access, and agricultural productivity. Additionally, by assessing the adaptive capacities of local communities, the study aims to provide actionable insights to stakeholders and policymakers to promote sustainable development in the region and similar alpine areas.

The workshop brought together researchers, advisors, and policymakers to explore ongoing research, new proposals, and current trends in development and environmental economics, with a specific focus on the South Asian region. It served as an invaluable platform for networking and knowledge exchange, emphasizing the importance of interdisciplinary collaboration in addressing environmental and economic challenges in South Asia.



## Seminar on Climate Change Increasing Vulnerabilities Adaptation and Mitigation Strategies, Nov 2024

A noteworthy seminar on Climate Change: Increasing Vulnerabilities, Adaptation, and Mitigation Strategies was organized by the UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM) at CUI Wah Campus on November 13, 2024. The event brought together the academicians, experts, and young generation to address the urgent challenges posed by climate change. The seminar was focused on practical adaptation and to study the safeguarding strategies for Pakistan and its surrounding region from escalating threats of climate change and environmental disasters. The discussions centered on approaches for disaster risk reduction (DRR) to mitigate the region's environmental vulnerabilities under the implementation of Sustainable Development Goals (SDGs).

Prof. Dr. M. Abid, T.I., Director Campus / UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), along with Dr. Hassan Ashraf, Head of the Department of Civil Engineering, and UNESCO team, warmly welcomed the guest.

The opening remarks were presented by Dr. Summera Fahmi Khan, a member of the UNESCO Chair. She expressed gratitude to the guest speakers for their valuable time and provided the audience with an overview of the UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM) at CUI Wah Campus, highlighting the seminar's key objectives.

The guest speaker Mr. Tahir Shamshad, Chief of Party at CDM Smith (USAID Projects) and former Managing Director of NESPAK, deliberated the impact of climate change in Pakistan, focusing on the environmental, social, and economic consequences of the devastating floods in 2010 and 2022. Despite contributing less than 1% of global greenhouse gas emissions, Pakistan suffers with the vulnerability factors like floods, high temperature, glacier melting, and industrialization and became fifth most affected in the world. The speaker identifies the key gaps in environmental disasters effects in alignment to achieve the Sustainable Development Goals (SDGs). He emphasized the need for integrating climate policies and reducing flood risks. He also stressed the importance of the coordinated initiatives discussed at the Conference of the Parties on Climate Change (COP28) and COP29 held in Baku, Azerbaijan. World leaders, including Pakistan, participated in discussions on sustainable development, innovative adaptation measures, and international collaboration to build a resilient future for Pakistan. At the end Q&A session was held to engage and allow participants to delve deeper into the topic and explore potential solutions.



On behalf of UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), Dr Hassan Ashraf extended his appreciation to the speaker for sharing valuable insights. He highlighted the critical need for climate-resilient infrastructure and summarized the key

discussions from the seminar on the impacts of climate change and its importance for the sustainable future. As a gesture of thanks, Dr. Ashraf presented souvenirs to the guest speakers.

In closing, Dr. Abid, UNESCO Chair, Dr. Adnan Nawaz, Chairperson, Dr. Hassan Ashraf, Head of the Department of Civil Engineering, and Dr. Summera Fahmi Khan extended their heartfelt acknowledgements to the guest speaker and offered a vote of thanks for his contribution.



## World Science Day for Peace and Development, Nov 2024

Prof. Dr. Muhammad Abid, Director Campus/ UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), attended the World Science Day for Peace and Development celebrations organized by UNESCO in collaboration with the Pakistan Science Foundation (PSF), ECO Science Foundation (ECOSF). This year's theme, "Why Science Matters - Engaging Minds and Empowering Futures," highlights the power of science to shape a sustainable and inclusive future. The event, held on November 12, 2024, aimed to raise awareness about the critical role of science in fostering peace and sustainable development. It brought together distinguished scientists, innovators, and students to engage in discussions on how science can address global challenges.

The keynote addresses were delivered by several eminent speakers, including Mr. Kar Hung Antony Tam, Officer-in-Charge of UNESCO Pakistan, Prof. Dr. Muhammad Akram Sheikh, Chairman, Pakistan Science Foundation, Prof. Dr. Seyed Komail Tayebi, President, ECO Science Foundation and Dr. Aslam Baig, General Secretary of Pakistan Academy of Sciences. The speakers emphasized the pivotal role of science and technology in achieving a sustainable future for Pakistan.



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## Invited Talk - 6th China-Pakistan Marine Information Workshop at HEU China

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Prof. Dr. Muhammad Abid, Director Campus /UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), participated in the 6<sup>th</sup> China-Pakistan Marine Information Workshop held at Harbin Engineering University (HEU), China from December 1 - 4, 2024. The event was jointly organized by HEU and the Chinese Society of Naval Architects and Marine Engineers (CSNAME), bringing together Chinese and Pakistani experts to share research, explore emerging trends and address the challenges in the interdisciplinary field of marine information.

As part of the Belt and Road Initiative and to strengthen collaboration between China and Pakistan in underwater acoustic technology and marine information systems, Dr. Abid delivered an invited speech titled **“Threats to Dams and Reservoirs by Sediment Issues.”** In his address, Dr. Abid highlighted the critical issue of sedimentation in dams and reservoirs, particularly the Tarbela Dam in Pakistan. It was explained by him that the dam, constructed in 1976, had an estimated lifespan of about 50 years. With sediment inflow, it is expected that the Tarbela reservoir will be fully sedimented by 2030 unless proper maintenance is undertaken. Dr. Abid also presented a study on the life prediction of the Tarbela reservoir, focusing on factors such as storage capacity, erosion rates, and tunnel strength during varying seasonal conditions, including floods (summer) and droughts (winter).

The workshop highlighted advancements in marine technology and addressed future challenges. The Harbin Engineering University, with its groundbreaking work in underwater acoustic engineering, provides valuable insights and learning opportunities to the Pakistani delegation.



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## International Training Workshop on DSSAT Accessing Climate Change Impact, Adaptation & Mitigation Using Crop Simulation Models at PMAS – AAUR, Dec 2024

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Prof. Dr. Muhammad Abid, T.I., Director Campus/ UNESCO Chair on Knowledge Systems for IWRM, served as the Guest of Honor and delivered a keynote address titled "Study of Climate Change Impacts on Sedimentation and Action Plans for Mitigation" on December 16, 2024, during the 3-Day International Training Workshop on DSSAT: Assessing Climate Change Impact, Adaptation, and Mitigation Using Crop Simulation Models, held from December 16–18, 2024, at PMAS-Arid Agriculture University, Rawalpindi, the workshop aimed to provide participants with a deep understanding of the latest version of the Decision Support System for Agrotechnology Transfer (DSSAT).

The Vice Chancellor of PMAS-AAUR, Prof. Dr. Muhammad Naeem, delivered the welcome address, while the Honorable Sardar Saleem Haider Khan, Chancellor/Governor of Punjab, was the Chief Guest of the inaugural session. He emphasized on the importance of utilizing effective adaptation models and mitigation strategies as per the changing climate conditions.

The primary objective of this training was to equip participants with a comprehensive understanding of DSSAT operations, focusing on the use of phenotypic data to estimate Genetic Simulation Parameters (GSPs) and the integration of modeling with genetics. Additionally, the training explored how DSSAT and Crop Simulation Models (CSM) can enhance the management of cropping systems under shifting climate conditions. It involved the use of computer models to simulate crop growth, yield, soil and plant water, as well as nutrient and carbon dynamics, with real-world applications.





# COMPETITIONS

## Participated/Organized

### Pakistan Water Week 2024 - All Pakistan Poster Competition, Dec 2024

In celebrations of Pakistan Water Week 2024, students from CUI Wah Campus, supported by the UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), participated in the All-Pakistan Poster Competition hosted by the Pakistan Council of Research in Water Resources (PCRWR). The competition provided a platform for students to creatively address pressing issues such as water conservation, waste water management and climate-resilient groundwater strategies.

The 62 posters from 15 universities across Pakistan participated in the competition. Zoha Iqbal, a student from CUI Wah Campus, won first position with her poster that effectively communicated the importance of behavior change for sustainable water management. Her work was recognized for its clarity, creativity, and impactful messaging.

On behalf of the UNESCO Chair on Knowledge Systems for IWRM Prof. Dr. Muhammad Abid, T.I., Dr. Summera Fahmi and Engr. Sarmad Manzoor attended the prize distribution ceremony on December 7, 2024. Ms. Zoha's achievement was celebrated, and her efforts were praised by the judges and audience. The event concluded with a closing ceremony, where all participants were awarded with acknowledgement certificates.



# POTENTIAL INTERNATIONAL COLLABORATIONS

## Meeting with Professor of National Taiwan University for future Collaborations in Educational and Research Activities, June 2024

The meeting was held between the Director Campus/UNESCO Chair on Knowledge Systems for Integrated Water Resource Management (IWRM) Prof. Dr. Muhammad Abid, T.I., and the Professor Hongzhi Wang from the National Taiwan University to explore possibilities of partnerships through faculty and students' exchange and joint research initiatives. Common interests included application of underwater acoustic sensors to study whales and aquatic culture and related areas in deep and shallow waters.



## MoU Signed for Enhancing Education and International Academic Collaboration, Dec 2024

In the course of 6th China-Pakistan Marine Information Workshop, Prof. Dr. Muhammad Abid, T.I., Director Campus attended a meeting with President, Vice president and other high officials of HEU along with a Pakistani delegate lead by Vice Admiral Abid Hameed during MoU Signing ceremony. The Memorandums of Understanding (MoU) was inked between Harbin Engineering University and the Pakistani delegation, focusing on student education and holding high-level international academic conferences and workshops.

On the occasion, Song Yingdong, President of Harbin Engineering University, highlighted the growing collaboration between China and Pakistan in marine information research and talent development, facilitated by the China-Pakistan Marine Information Joint Research Laboratory. He emphasized that HEU aims to deepen cooperation with Pakistan in scientific innovation, talent training and the application of research outcomes, leveraging its expertise in the ocean sector to advance the global marine industry.

Vice Admiral Abid Hameed, DCNS-Pak Navy praised China's marine advancements and HEU's achievements in underwater acoustics and shipbuilding, urging students to collaborate on marine science and technology.

At the end MoU were signed and the souvenirs from both sides were exchanged.



## MoU Signed with College of Intelligent Systems at HEU, Dec 2024

During the 6<sup>th</sup> China-Pakistan Marine Information Workshop at Harbin Engineering University, China, Prof. Dr. Muhammad Abid, T.I., Director Campus had a meeting with Vice Dean of Intelligent System College of HEU China. Possibilities of exchange of faculty, students and joint research supervisions were discussed. HEU agreed to facilitate Undergraduate students of BS Artificial Intelligence and Control systems for one semester, MS students for one semester for their research thesis and PhD students for 6 months to one year under joint research supervisions. A formal MoU will be signed after the necessary documentation to facilitate mutual benefits.



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## Investiture Ceremony BNU, Lahore by Chair holder on Inclusion through Art - Dec 2024

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Prof. Dr. Muhammad Abid, T.I., Director Campus/ UNESCO Chair on Knowledge Systems for IWRM, participated in the prestigious Investiture Ceremony held on December 13, 2024 of the UNESCO Chair on Inclusion through Art at Beaconhouse National University (BNU), Lahore.

Dr. Abid was warmly welcomed by Prof. Dr. Rashid Ali Rana, UNESCO Chair on Inclusion through Art and Dean, Mariam Dawood School of Visual Arts & Design, along with the team.

In the course of the ceremony, the Vice Chancellor of BNU, Dr. Moeed W. Yusuf, reaffirmed the university's ongoing commitment to promoting a transformative, inclusive approach to education, creativity and social change. The newly established Chair on Inclusion through Art emphasized the role of art in challenging traditional norms and its power to drive change for the betterment of the community.

The event concluded with a vibrant showcase of students' artwork, emphasizing the role of creative expression to promote culture and to strengthen the community.

The ceremony concluded with a vote of thanks. Dr. Abid appreciated the UNESCO Chair on Inclusion through Art commitment and its ongoing leadership in transforming education and society through the powerful impact of the arts.



# NEW GRADUATE PROGRAM

In Semester Spring 2025, New Graduate Programs (MS and PhD) are launched in Civil Engineering with specialization in Water Resource Engineering.

**COMSATS University Islamabad, Wah Campus**

## ADMISSIONS OPEN SPRING 2025

### Department of Civil Engineering

► **MS & PhD in Civil Engineering**  
*Specialization: Water Resource Engineering*

#### Program Highlights

**Core Research Areas**

- Water Resources Modeling & Management
- Climate Change Adaptation in Water Systems
- Flood and Drought Risk Assessment
- Sustainable Water Resource Planning
- AI Applications in Hydrological Modeling & Decision-Making

**Opportunities**

- Participate in high-impact research on water resources and sustainability.
- Engage with advanced tools and techniques for decision-making and hydrological simulations.

Scholarships & funding Opportunities are available for Meritorious & Needy Students

**LAST DATE TO APPLY**  
10 January, 2025

Join CUI, Wah Campus, and contribute to Sustainable Water Solutions Worldwide.

**APPLY NOW**  
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