



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



Activities Report - 2023



Plan of Action



- ✚ Research and Development
- ✚ Knowledge Sharing
- ✚ Quality Teaching and Learning
- ✚ Organizing National and International Level Workshops and Conferences
- ✚ Trainings
- ✚ Potential Collaborations

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Meetings

Attended /Participated

1st Meeting of the Water, Environment & Agriculture Societies Consortium under Water Resource Accountability (WRAP)-Climate resilient Solutions for Improving water Governance (CRS-IWaG), IWMI - September, 2023

The 1st Meeting of the Water, Environment & Agriculture Societies Consortium under Water Resource Accountability (WRAP)-Climate resilient Solutions for Improving water Governance (CRS-IWaG) was organized on September 26, 2023 by the International Water Management Institute (IWMI), Lahore, Pakistan. On behalf of UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), CUI Wah Campus, Engr. Sarmad Manzoor from the Department of Civil Engineering attended the meeting and delivered a presentation on the operational implementation plan of UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), CUI Wah Campus activities with respect to Water Resource Accountability (WRAP) and Climate resilient Solutions for Improving Water Governance. The Director –IWMI & PROJECT Leader WRAP, Dr Mohsin Hafeez presented a welcome address along with a brief introduction about the IWMI and overview of WRAP Programme. All invited member (academic institutions) of the consortium presented their progress and future plan of action for improving the water governance. The UNESCO Chair was actively participated and addressed the impacts of climate change on water resources accountability and resilient Solutions for Improving water Governance. This meeting provided a great networking opportunity for partners.





Meeting of Pakistan National Committee on Intergovernmental Hydrological Programme (PNC-IHP) of UNESCO - September, 2023

To address the IHP IX Strategic, Sustainable Plan of UNESCO the Director Campus/ UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), Prof. Dr. Muhammad Abid, T.I., attended the meeting on September 5, 2023, organized by the Pakistan National Committee (PNC) at PCRWR, Headquarter, Islamabad and delivered a presentation on the operational implementation plan of UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), CUI Wah Campus activities with respect to IHP phase IX and future Strategic Plan of action required for Intergovernmental Hydrological Programme of UNESCO.

The Chairman, Pakistan Council of Research in Water Resources (PCRWR), Dr. Muhammad Ashraf, presented a welcome address along with the briefing on PCRWR's overall and joint activities with UNESCO and partner organizations. The Director UNESCO Pakistan Office Dr. Youssef Filali-Meknassi, deliberated on different projects and initiatives of UNESCO in the country to increase water management. In this regard, IHP-IX covering 2022-2029 with five interlinked priority areas with an implementation plan of action with the emphasis on the contribution of UN SDG6 (Clean Water and Sanitation) was discussed. All invited organizations presented their progress and future plan of action to achieve the ninth phase as members of the IHP committee.



Research Projects

Progress / Review Project Meeting on Satpar Lake Sedimentation and Climate Modeling Project, February, 2023

The Director Campus/ UNESCO Water Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), CUI Wah Campus , Prof. Dr. Muhammad Abid, T.I., chaired the meeting of the project team led by Assistant Professor, Dr. Munawar Ali Abbass from the Department of Mathematics, University of Baltistan (UoB), Sakardu on February 17, 2023.

In continuation, the progress, good ideas, suggestions and future plan of activities of Satpara Lake Sedimentation and Climate Modeling project was discussed. Dr. Munawar briefed that two research papers were submitted and in their review process of realization. Two MS Students are working on their research thesis under said project.



The Chair has shown his satisfaction on the project progress and appreciated the work done by all team members



International and National Level Conferences

Conferences

Water Informatics and Communication Technical Session offered in 20th International Conference on Frontiers of Information Technology, Islamabad Pakistan, December , 2023

The ocean covers 70 % of Earth's surface. The ocean plays a vital role in climate and weather. The sun's heat causes water to evaporate, adding moisture to the air. The oceans provide most of this evaporated water. The

water vapor condenses to form clouds, which release their moisture as rain or other kinds of precipitation. All life on Earth depends on this process, called the water cycle.



This track acknowledged the importance of the underwater world and provides a promising window of insight to integrate research, technology and expertise in the field of water informatics and communication

technologies. A vast and diverse group from academia, researchers, national and international level participated and contributed to this track.



Water Informatics and Communication Technical Session was held on December 11, 2023 during 20th International Conference on Frontiers of Information Technology at COMSTECH Secretariat, Islamabad, Pakistan.

This session was chaired by Assistant Professor, Dr. Shahzad Saleem from FAST NUCES, Islamabad. The invited talks were presented by

1. Key Technologies and Applications of Underwater Acoustic Communication and Networks delivered online by Liu Songzuo, College of Underwater Acoustic Engineering, Harbin Engineering University, China.
2. A Fully Connected Neural Network Driven UWA Channel Estimation for Reliable Communication by Muhammad Adil, Liu Songzuo, Suleman Mazhar, Mansoor Jan, Asfand Yar Khan and Muhammad Bilal .

3. Machine Learning – based Multi-Path Reliable and Energy-efficient Routine Protocol for Underwater Wireless Sensor Networks by Zahid Ullah Khan, Muhammad Aman, Wazir ur Rehman, Faran Khan, Tooba Jamil and Rahat Hashim.

The whole session talks were very informative and acknowledged by the participants.



International Conference with the theme “Transformative Pathways for Water and Food System in a Climate Resilient Pakistan”, December, 2023

UNESCO Chair on Knowledge Systems for Water Resources Management (IWRM) nominated Engr. Sarmad Manzoor and Engr Waleed Tariq, team members from UNESCO and from the Department of Civil Engineering to attend the Pakistan Water Week 2023 jointly organized by the



PCRWR and IWMI Pakistan, with a focused on two key events, a three-day International Conference from December 4- 6 2023 followed by a two-day National Workshop from December 7-8, 2023 based on the theme “**Transformative Pathways for Water and Food System in a Climate Resilient Pakistan**”.

The aim of Pakistan Water Week is to conduct high-level discussions on water, climate, and the sustainability transformation. The conference fostered discussions on

three thematic areas, including:

- a. Transformation for sustainable and climate resilient solutions
- b. Politics, policy, and institutions- good governance and strengthening capacities
- c. Technologies and innovations- responding to the climate change



Pakistan being highly vulnerable to climate change requires sustainable development, strategic decision making for best utilization of its natural resources. The deliberation on the following thematic areas was presented by the experts / invited speakers on December 6, 2023, attended by the nominees.

1. Climate Resilient Pathways: Adaptation, Mitigation and Sustainable Development for a Secure Pakistan, Maintaining Productivity of Salinity Affected Landscapes in the Indus Basin.
2. Inclusive Water Governance: Exploring New Pathways and Perspectives, Harnessing Gender – Transformative Agent of Change for Improved Water Governance
3. Technologies and Innovations: Responding to the Challenges of Water and Food Security, Management of Hill – Torrents Opportunities and Challenges
4. Climate Emergencies, Revitalizing the Indus –Exploring and Living Indus Initiative, Water and Food Security.
5. The Role of Climate Risk Analysis in Improving Resilience of Agriculture System

The conference was attended by the national and international experts, representatives from federal and provisional government partners.

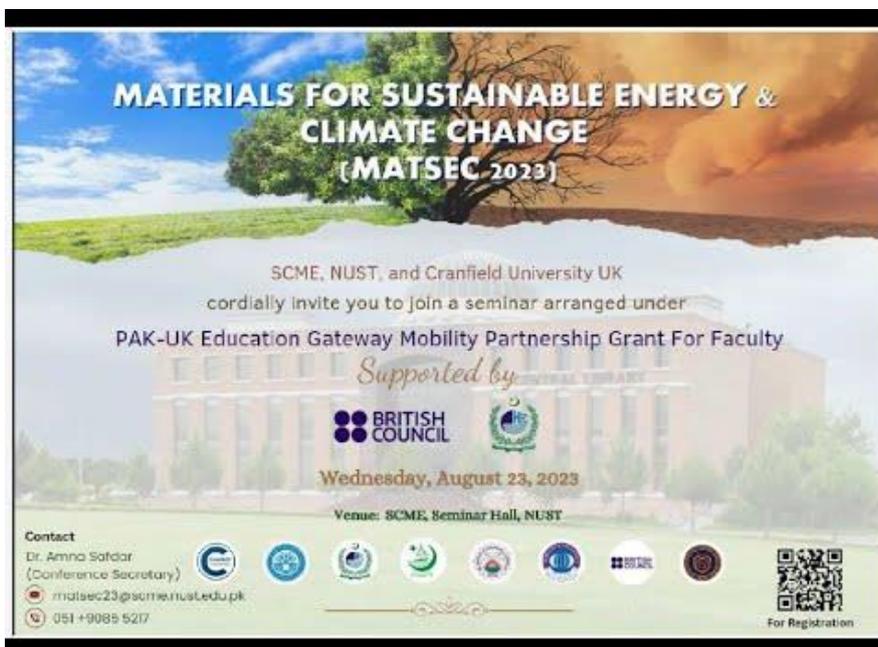
Invited Speaker: Materials for Sustainable Energy and Climate Change (MatSEC'23) - August, 2023

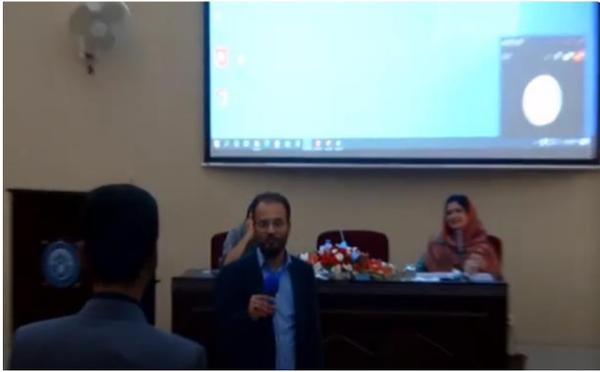
The Director Campus/UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), Prof. Dr. Muhammad Abid, attended the conference “Materials for Sustainable Energy and Climate Change (MatSEC'23)”, organized by the NUST School of Chemical and Materials Engineering (SCME) in collaboration with Cranfield University, on August 23, 2023 and participated as a moderator/ panelist.

This conference aims to provide a platform to the participants from academia, industry, research organizations to interact for exchanging the insights of

research on thematic areas Sustainable Energy and Climate Change to explore more innovative practices, research prospects and to figure out the policy frameworks. The sessions emphasized on the future advancements and for putting contribution towards the attainment of the Sustainable Development Goals (SDGs) for the capacity development on climate change and for the sustainable energy targets.

As part of the technical sessions, invited talks were presented. Invited Speaker, Prof. Dr. Longhurst from the Center for Low Carbon Energy, Cranfield University, UK presented online talk on “Opportunities and Challenges for Resource Management for a Net Zero Future”, The UNESCO Chair along with Industry representatives and Faculty participated in panel discussion on “Collaborative Activities relate to Conference theme with Focus on Women and Child Education Role”, and as a moderator Dr. Abid conducted/chaired the panel discussion on “Collaborative activities relate to conference theme with Focus on Partner Universities and Industry-Academia Linkages” .





So, what is sustainable: infrastructure, legacy, transition?

- Not as simple as 'maximising yield per hectare'
- Rights of local people – and local incomes
- Pollution
- Biodiversity on used land?
- Other roles – e.g. water capture etc.
- Soil carbon

SUSTAINABLE DEVELOPMENT GOALS

1 NO POVERTY	2 ZERO HUNGER	3 GOOD HEALTH AND WELL-BEING	4 QUALITY EDUCATION	5 GENDER EQUALITY	6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	10 REDUCED INEQUALITIES	11 SUSTAINABLE CITIES AND COMMUNITIES	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION	14 LIFE BELOW WATER	15 LIFE ON LAND	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	17 PARTNERSHIPS FOR DEVELOPMENT	SUSTAINABLE DEVELOPMENT GOALS



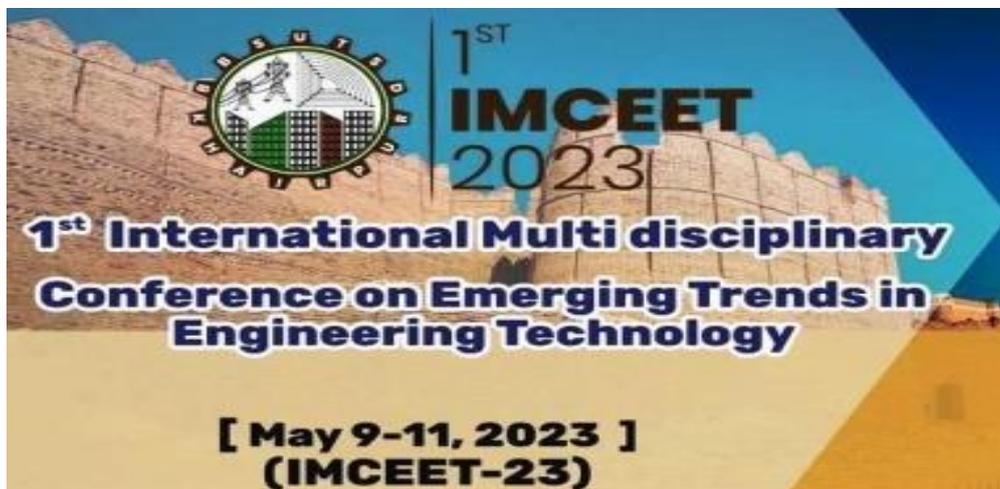
1st International Multidisciplinary Conference on Emerging Trends in Engineering Technology 2023, May, 2023

The Director Campus/UNESCO Chair on Knowledge Systems for Integrated Water Resources Management participated and delivered a keynote address on “**Need of Computer Aided Engineering for Real World Engineering Problems**” in 1st International Multidisciplinary Conference on Emerging Trends in Engineering Technology 2023 held from May 9 – 11, 2023. Jointly organized by the Benazir Bhutto Shaheed University of Technology and Skill Development (BBSUTSD) Khairpur Mirs, Sindh, Pakistan in collaboration with Mehran UET, Shaheed Z.A. Bhutto Campus, Khairpur Mirs.

This conference aims to bring together a wide spectrum of national and international researchers from academia, industries, R&D institutions to facilitate a creative environment for the promotion of collaboration and knowledge transfer on the cutting edge of technology industry 4.0 to depict 4th Industrial Revolution value added to actively perform the technical progress and innovation of the industry.

In his address Prof. Dr. Muhammad Abid, T.I., emphasized on energy efficient building designs to target the SDG 11 “Sustainable Cities and Communities” for safe human settlements. He focused on the integrated water and sediment flow simulations through tunnels and reservoirs for life predictions, optimum renewable energy systems, industrial trusses and lightweight hybrid structure, flood and drought modeling using RS and GIS tools and others with respect to Big Data, AI and Machine Learning and others to enable the role of water management resources in interlinked SDG 6 and 13 for Clean Water and Sanitation and Climate Action

During, the Director Campus discussed the future avenues of collaborations with the Benazir Bhutto Shaheed University of Technology and Skill Development (BBSUTSD) Khairpur Mirs, Sindh, Pakistan to strengthen the academia.



1st International Conference About COP27 Climate Change & Food Security - February, 2023

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.

1st International Conference about COP27, CLIMATE CHANGE & FOOD SECURITY
14-15 February 2023

Patron in Chief
Prof. Dr. Qamar-uz-Zaman
Vice Chancellor
PMAS-AAUR

Patron
Prof. Dr. M. Naeem
Dean, FOA
PMAS-AAUR

Speakers:
 - Prof. Dr. M. Anwar-ul-Haq, Director, COMSATS/UNESCO Chair
 - Dr. Naveed Akhtar, Lead Publisher
 - Dr. Naveed Akhtar, PAF
 - Dr. Naveed Akhtar, PAF
 - Dr. Naveed Akhtar, PAF

For any query please contact:
almadmukhtar@uaar.edu.pk
Link for Registration & Abstract Submission:
<https://forms.gle/5thGnqk6d1H1kx5>

Physical & Virtual Mode
Venue: PMAS-AAUR
Certificates will be given to registered participants.

SCAN ME



Workshops and Seminars



Workshops and Seminars

Seminar on Introduction to Floodplain Modelling

In order to share the most recent basic statistics about floodplain modelling, the data requirements, and its potential use in the context of urban flood management in Pakistan, the UNESCO Water Chair on Knowledge Systems for Integrated Water Resources Management (IWRM) in cooperation with the Department of Civil Engineering organized a seminar on December 20, 2023, titled "Introduction to Floodplain Modelling". The seminar started with recitation of Holy Quran verses and a welcome note presented by member UNESCO Chair CUI Wah Campus/Lecturer, Engr. Summera Fahmi Khan. She presented the UNESCO Water Chair role and highlighted the importance of the Chair being an effective platform for knowledge sharing. The seminar's objective was to provide introduction to computer models, hydrology and hydraulic floodplain modelling differences and using of TUFLOW modelling software but also provided the opportunity to identify and test flood mitigation scenarios which are cost effective and are beneficial for the wider community.

The seminar presentation was represented by two speakers. The main speaker, Principal water consultant, Mr. Habib Rahman has over 30 years of experience in areas of catchment and floodplain modelling and flood management using various hydrologic and hydraulic software systems, also has the honor of inventing a special flood modelling technique, the Direct Rainfall method, which is used worldwide. He is the pioneers of 1D/2D modeling in Australia. He significantly delivered his knowledge and research on differences of hydrologic and hydraulic modelling, contributed to the update of Australia Rainfall and Runoff, which is the cardinal guideline for flood management in Australia. He also discusses the challenges with audience in urban flood modelling and management in regions of Pakistan.



The other on-line speaker, Chris Huxley the author of TUFLOW software, which is the state of the art two dimensional floodplain modelling software used worldwide. Chris is a leading expert in floodplain modelling and has extensive experience in undertaking flood studies of complex nature. He displayed his floodplain 2D modelling using TUFLOW software for specific case study region of Australia. At the end of seminar, Chris also answered the questions mentioned by online participates and student’s audience related to difficulties faced in TUFLOW software modelling. The faculty members from the CUI Wah Campus, University of Wah, HITEC University Taxila, UET Taxila, professional from NESPAK and graduate/ undergraduate students from these universities attended the seminar.



In his final remarks, Prof. Dr. Muhammad Abid, T.I., the UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), stressed the importance of creating capacity in the adaption of evolving technologies in floodplain management and mitigation strategies. He showed his concerns about social impacts at the national level due to losses of flooding. He expressed gratitude to the Australian resource persons and the organizing team, particularly the CUI Wah Campus ICE chapter, for their hard work in putting this session together. The Chair also congratulated everyone for coming and helping to make the occasion a success.



One Day Hands on Workshop on “Introduction to R”

The UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM) organized a one-day Workshop on the Introduction to R on November 23, 2023 in collaboration with the Department of Civil Engineering. This hands-on workshop was designed to empower the participants with practical skills by creating their familiarity with the RStudio, operations, functions, data types, tables, importing, exporting and manipulation of plots data, combining verbs using pipes and data visualization.

The event started with a welcome note by Lecturer, Sarmad Manzoor from the Department of Civil Engineering. He presented the UNESCO Water Chair role and highlighted the importance of the UNESCO Chair being an effective platform for knowledge sharing. The resource person, member UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), CUI Wah Campus/Lecturer, Engr. Summera Fahmi Khan from the Department of Civil Engineering shared knowledge and expertise with the participants. She conducted an interactive learning session with the demonstration of exercises by using R and RStudio programming language.

She deliberates examples by analyzing and predicting weather patterns affecting climate change, unraveling intricate patterns and trends within complex environmental datasets considering Pakistan’s environment. The researchers from Pakistan Council of Research in Water Resources (PCRWR), faculty members, graduate, undergraduate students from CUI Wah Campus attended the workshop.

The UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), Prof. Dr. Muhammad Abid, T.I., in his closing remarks emphasized on capacity building and sustainable improvements in research by analyzing a large batch of raw data by using tools in order to identify patterns and extract useful information for climate data management. He appreciated the efforts of the resource person and the team of organizers especially the ICE chapter of CUI Wah Campus on effectively conducting this workshop. The Chair also thanked all participants for their participation and for making this event a success.



Seminar on Impact of Climate Change on Glacier Melting & Glacial Lake Outburst Floods (GLOFs) – Implications for Mountain Agriculture and Water Security, September 28, 2023

The UNESCO Water Chair on Knowledge Systems for Integrated Water Resources Management (IWRM) in collaboration with the Department of Civil Engineering organized a Seminar titled “Impact of Climate Change on Glacier Melting & Glacial Lake Outburst Floods (GLOFs) – Implications for Mountain Agriculture and Water Security” on September 28, 2023 to share latest dynamics of climate change on glacier melt flow, mountain agriculture and water security in the region of Pakistan. The aim of the seminar was to explore the challenges and actively involve the students, academicians, researchers, organizations, and community to examine the rapid changes in climate, causing glacier melting, growing lakes, and outbursts of floods in the region of Pakistan.



The speaker, Tenured Professor, Dr. Adnan Ahmad Tahir from the Department of Environmental Sciences, COMSATS University Islamabad, Abbottabad Campus, specialized in the hydrological and hydrodynamic modeling with a special focus on climate change, land use land cover, snow and glacier dynamics, and hydrological regime using in-situ and remote sensing data. The speaker significantly delivered his research on the climate change impacts on glacier melting, discussing the outburst lakes pattern at Hunza and Karakorum, greenhouse gases causing rapid increase in Hispar, Shispar, and Siachen glacier melting and its implication on mountain agriculture. Rising temperatures disrupt snow melting patterns and the entire water flow cycle damages human lives and



briefed measures taken for water security.

On behalf of Prof. Dr. Muhammad Abid, T.I., UNESCO Water Chair on IWRM, the HoD Civil Engineering, Dr. Tahir Mehmood in his remarks raised the importance of climate change factors and their effects on building designs and processes to evaluate the potential risks of flooding, drought, and heat stress. He acknowledged the speaker for sharing his research studies with the students on glaciers melting and their effects. At the end, the certificates were distributed among the participants. The HoD presented the souvenir to the guest speaker with a vote of thanks.



Invited talk on “CO2 Emissions from Pakistan Marine Industry: How Can Marine Industry be Greener ?”

The UNESCO Chair on Knowledge Systems for Integrated Water Resource Management (IWRM), COMSATS University Islamabad, Wah Campus in collaboration with Cranfield University, UK, and several institutions from Pakistan including NUST, GIKI, NEO, University of Karachi, and Okara University jointly organized a workshop on **Emerging Trends & Technologies: Carbon Capture and Storage, Climate Change and Net Zero** on August 21, 2023 at CUI, Wah Campus under the Pak UK Education Gateway Mobility Partnership for Faculty funded Program by British Council. The workshop was comprised of a series of invited talks, panel discussion as part of its technical program by renewed academicians and industrial representatives.

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.

The Director Campus / UNESCO Chair on Knowledge Systems for Integrated Water Resource Management (IWRM) delivered his invited talk on “**CO2 Emissions from Pakistan Marine Industry: How Can Marine Industry be Greener ?**” along with the Defence & Maritime Analyst, Cmdr (R) Syed Muhammad Obaidullah. He deliberated on the challenges and way forward for the emission of CO2 for Pakistan Maritime Industry on costal area’s of Karachi Port, Port Qasim and Gawadar. He expressed that since 2016 Pakistan Navy has annually planted one million mangroves to mitigate the footprints of carbon. Pakistan’s 1050km of coastline industry which needs shaping with international cooperation in the maritime sector for a brighter future.

The workshop was attended by the academia other than the partner institutions including LUMS, International Islamic University, Islamabad, Capital University of Science & Technology, Punjab University, Riphah University, NUTECH, Pak Austria, University of Wah, UET Lahore, Bahria University, CCRD, CUI Campuses. The representatives of scientific and industrial organizations i.e. GCISC, IWMI, HUBCO, QATPL, POL, SIEMENS, CREECO, ASHRAE Pak Chapter, WAPDA, Energy Sector, SDPI, OPML, Pakistan Navy.





One-Day Workshop on Hydrological Modelling Application of SWAT on February 28, 2023

The UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM) organized a one-day Workshop on the Hydrological Modelling Application of SWAT on February 28, 2023 in collaboration with the Department of Civil Engineering. The event started with a welcome note presented by the Head of the Civil Engineering Department, Dr. Tahir Mahmood. He presented the UNESCO Water Chair role and highlighted the importance of the Chair being an effective platform for knowledge sharing. The aim of this workshop was to create familiarity with Hydrological Modelling Techniques, Soil and Water Assessment Model (SWAT) for hydrological studies, water quality, sediment, effects of climate change through lectures and simulations, establishing an understanding of databases, soils, topography and climate-related data handling, simulation of the model and its comparison with the observed data was also explained to validate the whole procedure.

The resource person, member UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), CUI Wah Campus/Lecturer, Engr. Summera Fahmi from the Department of Civil Engineering shared her knowledge and expertise with the participants. She conducted an interactive learning session with the demonstration of exercises by using ArcSWAT. The Workshop covered the Hydrological modelling techniques to identify the watersheds, Soil, and Water Assessment Model (SWAT) of the Gilgat, Pakistan area to study, water quality, sediment, and effects of climate change. The researchers from the CUI Abbottabad Campus, Pakistan Council of Research in Water Resources (PCRWR), and graduate/ undergraduate students from CU Wah Campus attended the workshop.

The UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), Prof. Dr. Muhammad Abid, T.I., in his closing remarks emphasized capacity building in the adaptation of improving technologies in research and development. He appreciated the efforts of the resource person and the team of organizers especially the ICE chapter of CUI Wah Campus on effectively conducting this workshop. The Chair also thanked all participants for their participation and for making this event a success.





Celebrations of World Water Day- 2023 with the theme “Accelerating Change” on March 16, 2023

The UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), COMSATS University Islamabad, Wah Campus in recognition of World Water Day an annual United Nations (UN) observation day held on every March 22 arranged a seminar on “Accelerating Change for Water Security in a Changing Climate: Innovative Solutions for Improved Resilience” on March 16, 2023. The aim of the seminar is to build the attention of society on the importance of water security and sustainable management of freshwater resources, and the effects of climate change on our livelihood. This year, the theme of the World Water Day is “Accelerating Change”.

The welcome note was presented by the member UNESCO Chair on Knowledge Systems for IWRM/Lecturer Engr. Summera Fahmi from the Department of Civil Engineering. The resource person of the seminar was Dr Amjad Masood, Senior Scientist, an expert in Hydrology and Climate Change at Basin Scale in Water Resources and Glaciology Section of Global Change Impact Studies Centre (GCISC), Islamabad, Pakistan. He addressed the issues faced by Pakistan due to climate change mostly the crisis arises due to the recent Flood in Pakistan. He highlighted that according to the Intergovernmental Panel on Climate Change (IPCC), the global mean temperature has increased so far by about 1.1 degrees Celsius ($\pm 0.1^{\circ}\text{C}$) above pre-industrial levels (1850–1900) and is projected to increase by 1.5 – 4.6 $^{\circ}\text{C}$ at the end of 21st Century, which will lead to major environmental challenges globally. He discussed the Government of Pakistan agenda on climate change and framework of implementing different programs like Clean and Green Pakistan, KPK billion tree tsunami program, National Flood Protection Plan, National Water Policy, National Climate Change Policy towards climate resilience and low carbon development. In his talk he highlighted the Global Climate Changes implications, Hydrology, groundwater modeling, rainwater harvesting, water availability, water storage, importance of improved water, sanitation and hygiene in public places.

The Chief Guest of the seminar was the Vice Chancellor of the University of Wah, Prof. Dr. Jameel Un Nabi. In his remarks he appreciated the Water Chair for arranging this awareness-raising seminar on water resources management. He appreciated the efforts of Guest Speaker for delivering his talk in a very impressive way. He highlighted the importance of water as a natural resource and its uses in our daily lives. He encouraged the youth to take an initiative to save water and avoid its wastage in daily usage for the betterment of the community.

The Water Chair on the Knowledge Systems for Integrated Water Resources Management/ Director Campus Prof. Dr. Muhammad Abid, T.I., in his closing remarks acknowledged the Chief Guest for gracing this event. He thanked the speaker for providing and sharing very informative knowledge on accelerating change in Water Security in a Changing Climate. He emphasized the future need of waste water recycling and water desalination as the planet earth is consisting of only 3 % of freshwater resources out of the total water available on the earth. He hoped that this seminar would be beneficial for the youth in raising the awareness of water resources in a sustainable way. He encouraged youth to take more part to grab technical innovative knowledge. He appreciated the efforts of ICE team of organizers and Engr. Sarmad Manzoor for the arrangements. At the end the Director Campus presented the souvenir to the Chief Guest and thanked him again for taking his time out to address the youth. The souvenir with vote of thanks was presented to the Guest Speaker by the Chief Guest and Dr. Tahir Mahmood, HoD Civil Engineering presented the souvenir to the UNESCO Chair for organizing this seminar in a befitting manner.





Competitions

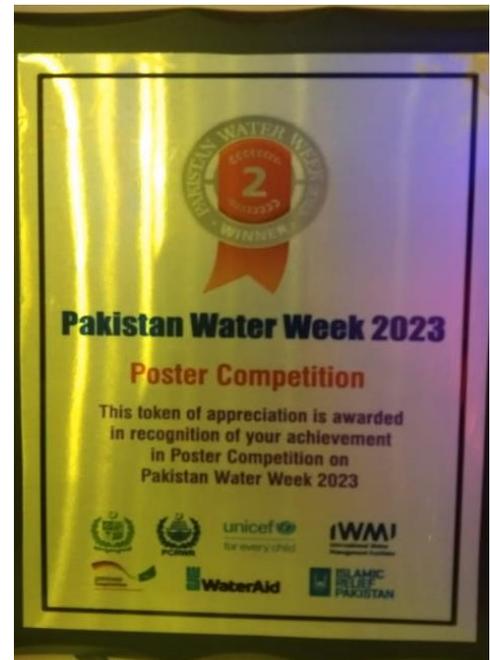
Pakistan Water Week - National Exhibition

The students of CUI Wah Campus under the platform of UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM), CUI Wah Campus participated in the National Workshop organized by the Pakistan Council of Research in Water Resources (PCRWR) in the activities during Pakistan Water Week - 2023 with the focus on the future of “Transformative Approaches”. The objectives of the Pakistan Water Week 2023 is to enhance the awareness, sharing knowledge among young water professionals by giving them an opportunity to share their vision for a water secure future. The event was held on December 7 – 8, 2023 at Pak- China Friendship Center, Islamabad.

A total of Fifteen students participated in the Poster Competition and Seven Short Documentaries were presented by CUI Wah Campus students.



Ms. Nasira Zahid from Department of Computer Science, CUI Wah Campus got **Second Position** in the Poster Competition among the 50 posters made by other universities and college students. The students highlight the importance of water and related emerging issues in a graphical form to create awareness among the audience.



COMSATS Mathematical Olympiad (CMO)

The COMSATS Mathematical Olympiad (CMO) was organized annually by the Department of Mathematics, COMSATS University Islamabad, Wah Campus under the flagship of UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM). This event was conducted from February 06 – March 14, 2023 with the purpose to foster an interest of Mathematics in high level students to improve their problems solving skills through giving them a platform to participate and compete in this national level competition.

This year over 900 high level students from 28 colleges of Wah, Taxila, Hassanabdal, Islamabad, Rawalpindi, Kamra, Fathe Jhang and Sawabi etc. attended the preparatory/training session from February 6 – 9, 2023. Besides course sessions, proper career counseling sessions were also conducted by each department at CUI, Wah Campus to groom them with their career potential skills. On Feb. 11, 2023, 890 participants appeared in the written test. The top five participants were selected for the final quiz.

In the opening session the event report was presented by the HoD Mathematics, Dr. Shabieh Farwa. She encouraged all participants to wholeheartedly do their best to compete and win.

The Chairman Pakistan Science Foundation (PSF), Prof. Dr. Shahid Mahmood Baig, S.I., graced the prize distribution ceremony as a **Chief Guest** at the final competition. He appreciated the efforts of COMSATS University Islamabad, Wah Campus for arranging this event, engaging the industry and giving an opportunity to young to demonstrate their talent and emphasized that the competitions are of great importance for the upbringing of student's skills. He further appreciated the industry for participating and supporting academia.

The Chief Guest distributed certificates, shields and cash prizes among the winners of the top three positions.

1st Position – Mohid Arshad , from KIPS College, Wah Cantt.

2nd Position – Dhuha Noor from Sir Syed College, Wah Cantt.

3rd Position – Muhammad Taha Irfan, The Scholars Science College, Wah Cantt.

The Chairman Mathematics, Prof. Dr. Sarfraz Ahmad from CUI Lahore Campus, Deputy General Manager, Mr. Qamar Nisar and Head of HR and Administration Mr. Fayyaz Hussain Hashmi from Cherat Packaging, Ghulam Faruque Group of Companies and respected College Principals, Mathematics Teachers and FSc. students from different colleges attended the closing ceremony. The Guests Prof. Dr. Sarfraz Ahmad and Mr. Qamar Nisar were distributed appreciation certificates among the participants for their active participation.

The Director Campus, Prof. Dr. Muhammad Abid, T.I., in his closing remarks shared his deepest appreciation on the efforts of all participants for competing and toppers for gaining winning experience. He thanked the Chief Guest, Guests, respective college principals for their presence. He acknowledged the efforts of organizers and faculty members from the Department of Mathematics especially Head of the Department, Dr. Shabieh Farwah for all of her team efforts in inviting the colleges and conducting this event in a befitting manner. He congratulated all. He encouraged the event sponsored the Cherat Packaging Limited and Ghulam Faruque Group of Companies for their participation, support and their future collaboration will go with the COMSATS University Islamabad, Wah Campus for the growth of educational standards.

At the end the Director Campus presented the shield to the Chief Guest and Guests with the vote of thanks.





Potential International Collaborations

70th Anniversary of Harbin Engineering University, China

The Director Campus Prof. Dr. Muhammad Abid, T.I./UNESCO Chair on Knowledge Systems for Integrated Water Resources Management (IWRM) on the invitation of Harbin Engineering University (HEU) China visited China from August 30 - September 4, 2023 and attended the celebrations of Harbin Engineering University's 70th Anniversary and President Forum. On September 1, 2023 to discuss the future development of global higher education the Director Campus actively participated in the University President Forum, theme of “**The Mission and Responsibility of Future Universities**”. He presented COMSATS University Islamabad (CUI) as Partner University He deliberated CUI's role in academics, scientific and educational scope in the field of Marine Engineering and Sciences in Pakistan. The forum was attended by the presidents and academicians from nearly 40 universities in 9 countries including China, UK, Sweden, Portugal, Brazil, Peru, Thailand and Pakistan.

The forum aimed to provide a platform to higher education administrators and scholars from universities and institutions worldwide to deliberate on global education governance and sustainable development of higher education through enabling them to share their theoretical insights and practical experiences in higher education and contribution in the future development of higher education.



On the occasion the farewell ceremony was held to embark the HEU journey carrying the hopes and glory of 70 years of HEU through presenting "Seventy Years of Development, Chasing Light, and Sailing Away" to enlighten the memories of growth and dreams of the HEU community.

Following research publications have been published by Chair in Year 2022

1. Research article titled “Sediment load forecasting of Gobindsagar reservoir using machine learning techniques” of Dr. Mahammad Abid, Professor, Mechanical Engineering Department et al., is published in Frontiers in Earth Science (IF: 3.661) in December 2022.
2. Research paper title “Effects of water qualities of Kabul River on health, agriculture and aquatic life under changing climate” of Dr. Mahammad Abid, Director Campus/Professor, Mechanical Engineering Department et al., is accepted in Desalination and Water Treatment (IF: 1.254) in November 2022.
3. Research paper title “Prediction of the Amount of Sediment Deposition in Tarbela Reservoir Using Machine Learning Approaches” of Dr. Mahammad Abid, Professor, Mechanical Engineering Department et al., is published in Water (IF: 3.530) in October 2022

