



PAKISTAN WATER WEEK 2023

International Conference on
**TRANSFORMATIVE PATHWAYS FOR
WATER AND FOOD SYSTEMS**
in a Climate Resilient Pakistan

4-6 December 2023 | Serena Hotel, Islamabad - Pakistan

PROGRAM BOOK



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ABOUT PAKISTAN WATER WEEK

The Ministry of Water Resources (MoWR), through the Pakistan Council of Research in Water Resources (PCRWR), in collaboration with International Water Management Institute (IWMI) Pakistan, Consultative Group for International Agricultural Research (CGIAR), NEXUS Gains and Fragility, Conflict & Migration (FCM) Initiatives, UNICEF, and GIZ Pakistan are jointly organizing Pakistan Water Week 2023 in Islamabad from December 4-8. The theme of this year's international conference is "Transformative Pathways for Water and Food Systems in a Climate Resilient Pakistan."

Water scarcity and disaster events are the new norm around the world and specifically in Pakistan. In this context, water security – and mitigation of and adaptation to extreme risk – are now urgent priorities. Water security underpins food security, human health, energy needs, and economic development in the Indus Basin. Pakistan Water Week 2023 aims to carry forward the momentum from its successful inauguration in 2021 as IWMI Pakistan's flagship international conference and bring together academics, government officials, NGOs, policy experts, and various stakeholders from across the country and abroad to discuss the critical challenges of Pakistan in the current climate crisis. The 3-day conference will aim to address systemic cross-sectoral thinking across water and food systems for climate-resilient development in Pakistan. There are clear opportunities to reduce the adverse impacts of climate change on the livelihood of marginalized communities in the Indus Basin. Pakistan Water Week will help shape the focus and agenda of water and food system planning and management moving forward.

Discussions will be centered around three thematic areas: 1) Climate Resilient Pathways: Adaptation, Mitigation and Sustainable Development for a Secure Pakistan; 2) Inclusive Water Governance: Exploring New Pathways and Perspectives; and 3) Technologies and Innovations: Responding to the Challenges of Water and Food Security.

The goal of these discussions is to foster collaboration, knowledge exchange, and innovation to develop ambitious, achievable, and actionable solutions for Pakistan's water issues. The conference aims to unite and mobilize stakeholders from diverse backgrounds - policymakers, researchers, academics, private sector, and civil society organizations - in a collective effort to translate research findings into tangible actions and move toward a shared vision of sustainable water management.

In addition to high-level policy discussions, Pakistan Water Week 2023 includes a two-day national exhibition led by PCRWR. This exhibition is designed to center on youth activities, showcasing the collaboration between public-private and academic partnerships. It aims to actively engage the younger generation by fostering awareness through various mediums such as art/sculpture displays, poster presentations, and debate competitions exclusively tailored for university students.



INTERNATIONAL CONFERENCE

Water, a vital resource for food security, energy, and life itself, faces unprecedented challenges worldwide. The availability and quality of water systems have come under immense strain, posing significant threats to global sustainability. The urgency to address these issues is particularly critical in the context of Pakistan, one of the top 10 most climate vulnerable countries in the world and ranked as “critically water insecure” by the United Nations. Rapid population growth, urbanization, and growing energy and agricultural demands have placed immense strain on water resources, leading to scarcity, inefficient use, and deteriorating water quality. Moreover, climate-induced floods and droughts exacerbate water risks faced by communities across the country, driving conflict and migration in different regions. Marginalized groups, particularly women and children, already grappling with socio-economic vulnerabilities, bear a disproportionate burden. Limited access to resources exacerbates their susceptibility to the adverse effects of climate change, deepening existing inequalities.

Moreover, the nexus between water and food insecurity with public health adds more challenges to an already multi-dimensional crisis. Waterborne diseases escalate with compromised sanitation and hygiene, aggravating public health burdens. Malnutrition and inadequate access to nutritious food compound health issues, particularly among vulnerable populations. These intertwined challenges not only jeopardize the achievement of the Sustainable Development Goals (SDGs) related to water, food, and health but also pose broader threats to the overall security and development of the country. The consequences of inaction are dire and addressing these interconnected issues requires integrated strategies, innovative solutions, and collaborative efforts to build resilience and sustainable development pathways.

One of Pakistan’s biggest challenges is a lack of evidence-based and accurate information. Comprehensive and accurate data are essential for informed decision-making and future investments. Despite reported figures suggesting that 90% of water is utilized in agriculture, the lack of scientific studies casts doubt on the reliability of this information. Similarly, other sectors lack reliable data on water usage. While the Government of Pakistan has developed policies for various sectors, including water, agriculture, energy, climate, and environment, the lack of coherence between them often hinders implementation.

The urgency to act and implement transformative measures has never been more apparent. The UN General Assembly’s 77th (2022) meeting underscored the vision of “solutions through solidarity, sustainability, and science,” highlighting the urgent need for transformative action. Likewise, the Intergovernmental Panel on Climate Change (IPCC) 2023 and UN Water Conference 2023 further emphasized the need for urgent climate action before the situation exacerbates. The time is now to leverage this global momentum to drive ambitious solutions and steer Pakistan towards a sustainable and resilient water future.



Initiatives like Pakistan Water Week 2023 play a pivotal role in fostering awareness and dialogue towards comprehensive solutions for the complex web of challenges posed by climate change, water scarcity, and food insecurity in Pakistan. The conference serves as a platform for stakeholders interested in water management, food security, and innovative climate solutions to share insights and collaborate in building resilience for the Indus Basin. By sharing international scientific practices and guidance, the conference aims to develop climate-resilient water and land solutions in the Indus Basin. The call for action is clear – development investments and policies must be informed by research rather than untested hypotheses. Despite ongoing efforts by governments, NGOs, and academics, challenges persist, emphasizing the critical need for collective action by all key players.





The key objectives of Pakistan Water Week 2023 are to:

- **Identify gaps** in existing approaches, policies, and practices related to water and food security, forming the foundation for targeted research and interventions.
- **Foster solution-oriented discussions**, shifting the focus from solely identifying problems to generating new data, concrete ideas, and evidence-based approaches that can be implemented to address water and food-related challenges and advance climate resilient solutions.
- **Highlight research findings with practical applications** that can be translated into tangible actions and interventions, emphasizing evidence-based decision-making and implementation strategies.
- **Showcase innovative and environmentally sustainable solutions, technologies, and practices** that have the potential to revolutionize water management and food security and contribute to sustainable development goals, including new out-of-the-box ideas from early career researchers.
- **Facilitate collaboration and partnerships** among stakeholders, including researchers, policymakers, practitioners, private sector entities, and civil society organizations, to jointly develop and implement actionable solutions that address priorities of all stakeholders across sectors.



Pakistan Water Week will bring together professionals specializing in water, climate change, food security, and the social sciences, as well as representatives from federal and provincial government organizations, national and international research institutions, development partners, and independent researchers and academics from Pakistan and abroad.

The International Conference is organized around three thematic areas with eight thematic sessions, for a total of 24 unique sessions which tackle the water and food challenges of Pakistan.

To ensure inclusivity and global engagement, the conference adopts a hybrid model, accommodating both in-person and online participation to promote a diverse audience.



THEMATIC AREAS

Thematic Area 1

Climate Resilient Pathways: Adaptation, Mitigation and Sustainable Development for a Secure Pakistan

Inclusive Water Governance: Exploring New Pathways and Perspectives

Thematic Area 3

Technologies and Innovations: Responding to the Challenges of Water and Food Security

Thematic Area 2



CONFERENCE MAIN THEMES AND SESSIONS

THEMATIC AREA 1

Climate Resilient Pathways:
Adaptation, Mitigation and Sustainable Development
for a Secure Pakistan





Thematic Session 1:

The Need for an Integrated Water Resources Management Approach to Resolve Urban Water Issues in a Changing Climate

Population growth and climate change have produced an unprecedented demand for freshwater in many parts of the world. Urban, agriculture, industrial and environmental water demands have increased many folds to fulfill human needs and to maintain vital ecosystem services. Among these competing uses, the scale of urban water challenges, that is access to safely managed water, is a major concern for water utilities and policymakers. Resolving urban water challenges not only requires new legislation but also a new institutional regime to enforce legislation. Integrated Water Resources Management (IWRM) strives for the coordinated development and management of water, land, and ecosystems to maximize economic and social welfare in an equitable and sustainable manner. The approach is internationally accepted and has led to major policy initiatives in few countries. Pakistan's National Water Policy and provincial water Acts guide for better water allocations among competing users under the principles of IWRM. There have been numerous ongoing discussions in Pakistan on the application of IWRM principles. However, there is little understanding of the IWRM concept and implementation on the ground. This session will provide a range of perspectives on the implementation of IWRM approaches in different settings, key challenges and lessons learned, and how IWRM can support improved water governance and climate change resilience.

Thematic Session 2:

Water-Energy-Food Nexus Modeling: A Fad or the Future?

Understanding the intricate interplay between water, energy, and food systems is essential for promoting synergy, trade-offs, and ensuring the sustainability of investments in water, energy, and food security, particularly within the context of a changing climate. This session seeks to underscore the merits of employing integrated modeling frameworks by presenting a series of enlightening case studies from different countries under the NEXUS Gains initiative. Following these case studies, we will engage in a substantive discussion aimed to align scientific insights with policymaking and enhancing collaboration to tackle climate extremes and secure the future of these critical systems. Our goal is to enhance water, food, energy, and environmental outcomes, especially as we face the escalating challenges posed by climate extremes.



Thematic Session 3:

The Climate-Migration Nexus: Leveraging Anticipatory Action for Disaster Management and Strengthening Food, Land, and Water Systems in Pakistan

This session will delve into the intricate dynamics of Pakistan's climate-migration nexus, particularly its effects on critical food, land, and water systems (FLWS). Sudden or unplanned migration, often triggered by conflicts and complex disasters, can place significant strain on FLWS and lead to potential tensions in host communities. Pakistan serves as a unique case study for the CGIAR's Fragility, Conflict, and Migration (FCM) initiative, aimed at addressing these multifaceted challenges with a strong emphasis on climate resilience, gender equity, and social inclusion. The session will highlight the importance of recognizing and understanding the complex interplay between climate stress, human-made crises, and gender perspectives. Experts will share insights on using anticipatory action (AA) approaches to enhance disaster response within this complex context. We will hear insights on Pakistan's evolving response strategy to address challenges stemming from climate-induced migration and disaster management and opportunities for strengthening evidence-based decision-making.

Thematic Session 4:

Pathways for Climate Smart On-Farm Water Management in Pakistan – Challenges and Opportunities

On-farm water management (OFWM) plays a strategically significant role in the agricultural and rural development landscape of Pakistan. The OFWM directorates, operating within provincial agriculture departments, serve as crucial intermediaries between public sector entities and the farming community. Farmers encounter diverse challenges in optimizing water and agricultural practices, including defining crop water demand and supply, uneven surface water distribution, low water application efficiencies, depleting groundwater, water and land salinity, poor drainage, and impacts of climate extremes. These challenges necessitate science-based solutions, improved coordination among public sector institutions, and increased participation of the farming community. In this session, a panel discussion will bring together representatives from provincial OFWM directorates, farmers, academia, and development agencies/NGOs/private sector to explore the status of their efforts in identifying obstacles and pathways for efficient on-farm water management in Pakistan.



Thematic Session 5:

Youth-Led Innovations for Climate-Resilient Water Management and Food Security (PM's Youth Program)

The session, featuring a keynote speech by the Special Assistant to the Prime Minister on Youth Affairs, will facilitate discussions aimed at fostering knowledge sharing and collaboration to drive youth-led solutions for a climate-resilient Pakistan, crucial in a country where the youth bulge accounts for 70% of the total population. Focused on 'Youth-Led Innovations for Climate-Resilient Water Management and Food Security,' this session underscores the pivotal role of young innovators in tackling water-related issues. Keynote presentations will showcase innovative projects from students and members of the Green Youth Movement (GYM) clubs, highlighting their contributions to water conservation. The session will also delve into the potential for international development partners to support and enhance these clubs, contributing to climate-resilient solutions, sustainable water management, and food security.

Thematic Session 6:

Maintaining Productivity of Salinity Affected Landscapes in the Indus Basin

Pakistan's agriculture-dependent economy is facing a water crisis. With over 90% of water withdrawals dedicated to irrigated agriculture, unsustainable extraction and widespread degradation prevail. Tube wells, pumping 70% brackish water, exacerbate salinization, notably in Southern Punjab and Sindh, impacting over 449,201 hectares annually, with 40,000 abandoned. Salinity affects 56% of Sindh's irrigated land, contributing to soil degradation and rural poverty. Despite past initiatives like the Salinity Control and Reclamation Project (SCARP), challenges persist, impacting around 6.3 million hectares with salts and an additional 1 million hectares with waterlogging. The session will explore best salinity management practices in agriculture and the potential of aquaculture as an alternative livelihood for saline land, underscoring the need for shared understanding and modern farming techniques. Ground truthing insights for aquaculture potential in Punjab and Sindh will be discussed, alongside a panel conversation to foster collaborative efforts in combating salinity, promoting sustainable agriculture practices, and shaping effective government policies.



Thematic Session 7:

Need of Response, Disruption of WASH Services in Climate Emergencies

In the face of escalating climate emergencies, such as the devastating floods in 2022 that impacted over 33 million people, Pakistan confronts severe challenges in maintaining essential Water, Sanitation, and Hygiene (WASH) services. Despite contributing less than 1% to global greenhouse gas emissions, Pakistan bears the brunt of climate impacts. Following the floods, over 8 million people still lack access to safe drinking water, emphasizing the pressing need for responsive WASH services in the aftermath of climate-related events. As a lower middle-income country, Pakistan's vulnerability underscores the importance of innovative strategies, enhanced governance, and community-focused initiatives to ensure the resilience and sustainability of WASH services amidst the increasing unpredictability of climate events. This session will delve into these challenges, exploring practical solutions to fortify WASH infrastructure and address the heightened demands posed by climate emergencies in Pakistan. Through expert insights and collaborative discussions, participants will gain valuable perspectives on navigating the complex intersection of climate change and WASH services in the country.

Thematic Session 8:

The Role of Climate Risk Analysis in Improving Resilience of Agricultural Systems

As climate change impacts are becoming more frequent and severe, many governments are rethinking approaches on how to assess and prioritize climate change risks. New ideas and novel approaches to climate change risk assessments are increasingly being explored, including co-development, enhancing engagement, centering equity, increasing the scope and comprehensiveness of what's assessed, using the latest science and methodologies, and exploring new ways to overcome limitations. These attempts are most often met with a mix of expected and unanticipated successes, challenges, and lessons learned. With much effort put into developing climate change risk assessments, their benefit in terms of adaptation planning rests on overcoming challenges in communicating, translating, and mobilizing findings in ways that are relevant, practical, compelling, and accessible for diverse audiences. This session will begin by offering insights and lessons learned in challenging the status quo in both implementing and sharing climate change risk assessments and will create space for conference participants to connect and share their respective successes, challenges, and lessons learned with one another.



THEMATIC AREA 2

Inclusive Water Governance:
Exploring New Pathways and Perspectives





Thematic Session 1:

Water Governance Challenges Across Sectors in Pakistan

Water governance in Pakistan remains weak, top-down, siloed, and male-dominant. There is an absence of an integrated water resource management approach across different institutions and across different sectors. Strengthening the institutional capacity to improve water governance is crucial. This includes improving the regulatory framework, enhancing monitoring and enforcement mechanisms, promoting research and sex-disaggregated data collection on water resources, and providing training and technical support to water management institutions and promoting participation of gender and youth in water resources management and practice. This session will explore these challenges and solutions, featuring a keynote presentation and a panel discussion. The dialogue will focus on strategies to improve water governance, increase women's involvement, and foster public-private sector partnerships.

Thematic Session 2:

Opportunities & Challenges Posed by the WEF E Approach - . Implications for the Indus Basin

Critical challenges facing water, energy, food, and the environment (WEFE) are intricately intertwined. Yet, national policies, institutional architecture and supporting technical capacity treat these issues in fragmented, sectoral ways. This results in inefficient investments that fail to account for potential trade-offs and for prospective synergies stemming from an integrated management of these resources. Also, significant capacity enhancement of younger and female participants in NEXUS sectors in technical, social and gender analysis must be encouraged in parallel to any institutional reforms. This session will explore the opportunities and challenges associated with institutionalizing an integrated WEFE nexus approach within the Government of Pakistan and related training and educational institutions. Government and academic actors across the water, energy, agriculture, and environment sectors will discuss capacities and institutional change required to bring a nexus approach to life. The session will support a shared vision of capacity and institutional strengthening strategies to improve the integrated management of WEFE resources for more sustainable growth and inclusive development.



Thematic Session 3:

SDG 6: Clean Water and Sanitation - Where Do We Stand?

This session will provide an overview of the current status of Water, Sanitation, and Hygiene (WASH) in Pakistan, focusing on the benchmarks set by SDG 6, particularly targets 6.1 (safe drinking water) and 6.2 (sanitation and hygiene). Despite progress, gaps persist, hindering the achievement of SDG 6. Based on the Joint Monitoring Programme (JMP) criteria for safely managed drinking water services, 79.3% of the population has access to drinking water whenever needed while 71.5% of the population has water available on premises. However, only 35.8% of the national water supply is free from contamination. The discussion will feature insights from a distinguished panel of experts representing both government and international organizations actively engaged in advancing WASH initiatives, providing a comprehensive perspective on policies, institutional arrangements, planning, monitoring, capacity building, and financing within the sector.

Thematic Session 4:

Pathways towards Implementing the National Water Policy: Federal and Provincial Perspectives

The Government of Pakistan (GoP) considers water as a strategic resource, recognizing its direct connection to food security and, consequently, the nation's overall security. The Pakistani government formulated the National Water Policy (NWP) in 2018, outlining seven key principles and strategic priorities. This policy serves as a comprehensive framework, guiding the development of sustainable solutions for effective water management. Substantial progress has already been achieved in aligning with NWP priorities, such as the construction of two new dams (Mohmand and Basha). Additionally, all four provinces are actively working towards the development of provincial water acts to align with the NWP, with Punjab and KP provinces having already approved the Punjab Water Act 2019 and KP Water Act 2020, respectively. This session will critically assess progress made by different provinces in implementing the NWP. The dialogue will provide a better understanding of the different initiatives carried out by the federal government and the irrigational departments from the four provinces while shedding light on the challenges encountered during the NWP implementation.



Thematic Session 5:

Shaping Water Solutions: Stakeholder Feedback on IWMI's Strategic Roadmap

IWMI's mission is to advance the transformation of water systems through collective action by generating and applying evidence for impact on sustainable, climate-resilient development. To succeed in this mission, IWMI is in the process of rolling out its 2024-2030 organizational strategy. The strategy has three strategic areas: alleviating water risks, reducing global inequalities, and managing water sustainability. Each area is supported by four transformational levers, including water data science, gender youth and social inclusion, water governance, and scaling finance and investment. Recognizing partners as the linchpin of this strategy, this session is dedicated to sharing the roadmap with our esteemed partners and gathering their invaluable feedback to enhance water and food security in Pakistan. Your insights and perspectives are crucial in shaping our collective journey toward a water-secure and resilient future. Join us in this collaborative dialogue as we work together to address the challenges and opportunities on the path to achieving impactful, sustainable outcomes in the realm of water and food security.

Thematic Session 6:

Harnessing Gender-Transformative Agents of Change for Improved Water Governance

Gender equality in water governance is fundamental for ensuring equitable and efficient management of water resources. It entails promoting the participation of all gender and social groups in decision-making processes and fostering fair access to water resources, aligning with broader sustainability goals. While women are recognized as significant agents of change, bringing unique insights, skills, and experiences that result in more sustainable and effective water management practices, they are not the sole contributors. Gender transformative approaches in water governance challenge inequitable systems and include diverse voices and experiences. This session explores the opportunities and challenges of gender transformative approaches and their pivotal role in reshaping water governance. In this engaging session, expert panelists will showcase real-world examples of success and share practical strategies for implementation. Together, we will embark on a journey to champion gender equality as a driving force behind improved water management and governance.



Thematic Session 7:

Revitalizing the Indus - Exploring the Living Indus Initiative

The Living Indus Initiative is a comprehensive strategy focused on revitalizing the Indus River Basin, a critical ecosystem in Pakistan. Its primary objective is to safeguard the basin's natural resources and biodiversity, which are under threat from climate change, pollution, and overexploitation. Led by the United Nations in Pakistan, this effort involves collaboration with the government, private sector, civil society, and local communities. The initiative has identified 25 initial measures centered on nature-based and ecosystem-focused adaptations. These include initiatives such as rehabilitating wetlands, mangroves, forests, and grasslands, advocating for sustainable agriculture and fisheries, improving water quality and quantity, advancing disaster risk management, and supporting environmentally friendly livelihoods and education. This session aims to raise awareness about the Living Indus Initiative by providing background information and a summary of ongoing activities. The goal of the panel discussion is to explore ways in which partners and stakeholders can contribute to the Living Indus through collaborative efforts and how we can align our activities with the 25 identified interventions.

Thematic Session 8:

Environmental Flows are Necessary to Restore the Ecosystem of the Indus Basin

Environmental flows (e-flows) are internationally defined as the quantity, timing, and quality of freshwater flows and levels necessary to sustain aquatic ecosystems which, in turn, support human cultures, economies, sustainable livelihoods, and well-being. One of the great rivers of the world, the Indus River supports a multitude of people, many of whom are dependent on its ecosystem resources. As water is progressively withdrawn from the river, it is increasingly necessary to set e-flow targets for the river, so that flows do not decline, and people can still benefit. Setting these e-flow targets and integrating these targets into the management of the basin are necessary if the river is to be protected. This session will review the practice of e-flow determination and how the management of the Indus would benefit from e-flow implementation under the WEF Nexus Gains Initiative.



THEMATIC AREA 3

Technologies and Innovations:

Responding to the Challenges of
Water and Food Security





Thematic Session 1:

Policy Dialogue on Transformative Pathways for Water, Food, and Land Systems in a Socially Inclusive and Climate Resilient Pakistan

Pakistan stands at the forefront of multiple crises, grappling with the challenges of water scarcity, food insecurity, economic instability, and the looming risk of conflicts. In the face of these pressing issues, the need for political action is now. This session will convene senators and ministry representatives in an open and constructive dialogue on improving Pakistan's policies related to water and food systems in the context of climate change. Discussions with a dynamic group of experts will focus on aligning existing policies, engaging diverse stakeholders, and enhancing policy considerations for socio-economic impacts. We will also explore strategies for policymakers to work together more collaboratively toward climate resilient solutions. Join the dialogue to contribute to the crucial dialogue on shaping policy interventions that address the urgent and interconnected challenges facing water, food, and land systems in Pakistan.

Thematic Session 2:

Sustainable Aquifer Management - Challenges and Opportunities

Widespread over-extraction of groundwater has led to the rapid depletion of aquifers, outpacing their natural recharge rates in many regions globally. This overexploitation places immense strain on groundwater resources, risking water security for agriculture, industry, communities, and the environment at large. Simultaneously, contamination from several sources, including industrial discharges and agricultural runoff, poses a significant risk to water quality and aquatic ecosystems. Balancing the often-competing demands of different stakeholders, ranging from large-scale agricultural enterprises to local communities, proves to be a multifaceted and contentious challenge. Moreover, the impact of climate change further exacerbates these challenges, altering precipitation patterns and increasing the unpredictability of aquifer recharge rates. This session sheds light on the paramount challenges facing sustainable aquifer management across regions and provides insights into the diverse tools and strategies employed for preserving aquifer health. It will include an insightful panel discussion that explores how emerging technologies, policy interventions, and legislation can contribute to more effective aquifer management.



Thematic Session 3:

The Impact of Climate Change on Drought, Flooding and Food Security in Pakistan

Climate change, coupled with inefficient water use in agriculture, is amplifying global water resource challenges, leading to increased droughts and floods. The Indus Basin, diverting 90% of freshwater for food production with low irrigation efficiency, faces heightened vulnerabilities. Anthropogenic climate change and intensifying extreme weather events, particularly in Pakistan, necessitate proactive measures. This session will highlight Pakistan's increasing susceptibility to floods and droughts, prompting considerations for an Early Drought Warning System (EDWS) to mitigate the impact. The proposed EDWS aims to anticipate and prepare for prolonged droughts, crucial for a population heavily reliant on agriculture. The discussion will cover the system's reliance on meteorological and hydrological data, its communication strategy for disseminating alerts, and the pivotal role of community engagement. A pilot implementation in select regions will be detailed, paving the way for a gradual scale-up based on its success. Through keynote speeches and a panel discussion, we will gain insights into the interplay of climate change, water security, and early warning systems in vulnerable regions like Pakistan.

Thematic Session 4:

Youth for Climate Action Using Modern Technologies

The session will explore the significant role of Pakistan's youth, constituting 68% of the population, in addressing climate change challenges. Drawing insights from the 2021 Youth and Climate Change Perception Report, the discussion will explore the youth's high-level understanding of climate change, driven by firsthand experiences of its impacts. Despite possessing innovative ideas to tackle climate change, youth often encounter obstacles in translating these concepts into action due to resource constraints. Emphasizing the untapped potential for youth engagement, particularly integrating a gender dimension, the session will touch upon initiatives like the Climate Change Gender Action Plan and COP In My City. It will spotlight the Ministry of Climate Change and Environmental Coordination's efforts, supported by UNICEF, in providing a platform for over 1,500 delegates to showcase their climate awareness and contribute to discussions on pressing climate issues and potential policy interventions. The overarching theme will center on harnessing modern technologies to empower and mobilize youth for effective climate action.



Thematic Session 5:

Utilizing Water Accounting Insights and Big Data for Enhancing Agriculture Productivity in Pakistan

This session will delve into the multifaceted challenges of water scarcity in Pakistan, stemming from both natural and anthropogenic factors. The discussion will underscore the critical role of water accounting insights and big data applications in addressing these challenges, particularly within the agricultural sector. Pakistan's vulnerability to climate-related events, such as floods, droughts, and heatwaves, will be highlighted, emphasizing the urgent need for robust data-driven approaches for resilient water resource management. The session aims to explore international best practices and potential solutions tailored to Pakistan's unique circumstances, fostering collaborative discussions with the global community to enhance agriculture productivity through innovative technologies and water accounting strategies.

Thematic Session 6:

Management of Hill Torrents - Opportunities and Challenges

This session will explore the critical dynamics of managing hill torrents in the context of Pakistan's heightened water resource challenges. The growing disparity between water supply and demand is evident, with a substantial, yet untapped, water volume from hill torrents and floods. The devastating super floods in 2022, primarily caused by hill torrents, resulted in significant human and economic losses, emphasizing the urgent need for effective flood and hill torrent management. While presenting challenges, these torrents also offer opportunities to offset water demand in agriculture and provide storage for future use. The session will stress the importance of prioritizing water resources development, management, and enhanced governance in flood-prone areas, calling for a paradigm shift away from infrastructure-centric approaches. Additionally, the need for hydrologists and engineers to reassess peak flows in designing hydraulic structures and related infrastructure will be highlighted in response to recent unprecedented rainfall events.



Thematic Session 7:

Leveraging Technological Innovations for Ensuring Water and Food Security

This session will delve into the pivotal role of innovative technologies in nurturing incubation and startups within the agriculture sector, particularly in the face of climate change. Emphasizing the significance of research-driven entrepreneurship, the discussion aims to address challenges and capitalize on opportunities for climate-resilient agriculture. By fostering collaboration among researchers, entrepreneurs, and investors, the session aims to facilitate the integration of research into startups, promoting sustainable and resilient agricultural practices. The key objectives include understanding the critical role of research in driving innovation, identifying associated opportunities and challenges, building connections for collaborative initiatives, and encouraging the adoption of research-driven solutions for sustainable agriculture and enhanced food security.

Thematic Session 8:

Irrigation through SUN - Can We Control the Heat to Sustain Our Aquifers?

This session aims to debate the modes and mechanisms for the sustainable use of solar irrigation in Pakistan. In the recent past, solar pumping technology has emerged as an alternative to diesel and electric pumps. However, water professionals in Pakistan express concerns that converting pumps to PV solar may result in indiscriminate pumping, potentially leading to further groundwater depletion. While Pakistan lacks a specific policy on solar technology for groundwater pumping in agriculture, several policies have implications for its use. Following the 18th Amendment in the Constitution, the governance and management of water resources have devolved to provinces, each pursuing different trajectories to implement the National Water Policy. All provincial governments have planned and/or launched subsidized solar irrigation pump schemes, often coupled with High Efficiency Irrigation Systems (HEIS), particularly in Punjab and Sindh. Although extensive groundwater use has provided protection against drought, addressed waterlogging issues, and increased cropping intensity, over abstraction of groundwater has led to aquifer depletion in some areas and salinity in others.



ABOUT PAKISTAN

Pakistan, situated in South Asia, unfolds as a captivating tapestry of culture, history, and geographical splendor. At the core of its identity lies the formidable Indus Basin, a cradle of ancient civilizations and a crucial source of water for the nation's agriculture. The Indus River, emblematic of Pakistan's strategic significance in water resource management, intricately shapes the landscape, sustaining a centuries-old agrarian tradition. Against the backdrop of the majestic Himalayas and the sun-kissed shores of the Arabian Sea, this nation harmonizes tradition and innovation in art, music, and architecture, reflecting influences from Mughal, Persian, and Central Asian civilizations. Pakistan's rich heritage and dynamic interplay between geography, culture, and resource management define its unique character, offering a nuanced understanding of a nation where history and nature converge.

ABOUT ISLAMABAD

Islamabad, the capital city of Pakistan, stands as a testament to modern urban planning and natural beauty. Nestled against the backdrop of the picturesque Margalla Hills, Islamabad is a city that seamlessly marries tradition with contemporary aspirations. Designed by the renowned Greek architect and town planner Constantinos Apostolou Doxiadis, Islamabad embodies a harmonious blend of geometric precision and lush greenery. Its well-organized sectors and tree-lined avenues provide a serene contrast to the bustling energy of other metropolises. Notable landmarks such as Faisal Mosque, one of the largest mosques in the world, add to the city's architectural grandeur. As the political and administrative hub of the country, Islamabad exudes a cosmopolitan atmosphere while preserving Pakistan's cultural roots. The city houses over 20 universities and technology parks, contributing to its status as a major commercial and educational hub with one of the country's highest literacy rates. The city's diverse population and vibrant cultural scene contribute to its dynamic character, making Islamabad a symbol of progress, culture, and natural splendor in the heart of Pakistan.

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WATER WEEK** **2023**

