BENAZIR BHUTTO SHAHEED UNIVERSITY OF TECHNOLOGY & SKILL DEVELOPMENT, KHAIRPUR MIRS

Rotary Club Khairpur Green City RID 3271

1st International Conference on Climate Change & Environmental Sustainability | ICCCES'24

ORGANIZED BY: CLIMATE CHANG AND ENVIRONMENTAL SUSTAINABILITY CENTER

November 16, 2024

SUSTAINABLE DEVELOPMENT GOALS | Prime Minister's Green Youth Movement | HEC Higher Education Commission | SCAN Sindh Climate Action Network | NCA | SPO Strengthening Participatory Organization ادارہ استحکام شرکتی ترقی | International Rescue Committee

Conference Report & Recommendations

Report on the

1st International Conference on Climate Change & Environmental Sustainability (ICCCES'24)

Empowering Innovation: Tech-Driven Sustainability and Climate Education

Date: November 16, 2024

Venue: BBSUTSD, Khairpur Mirs

Organized by:

Climate Change & Environmental Sustainability Center (CCESC)

Benazir Bhutto Shaheed University of Technology & Skill Development (BBSUTSD)

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1. Message from the Chief Guest

Syed Qaim Ali Shah
Former Chief Minister of Sindh
Member of the Provincial Assembly

It gives me immense pride and honor to be part of the **International Conference on Climate Change and Environmental Sustainability (ICCCES'24)**, organized by the **Climate Change & Environmental Sustainability Center (CCESC)** at the **Benazir Bhutto Shaheed University of Technology & Skill Development (BBSUTSD)**. This event stands as a testament to the university's commitment to addressing one of the most pressing challenges of our time—climate change.

Khairpur, my beloved homeland, has always held the potential to contribute meaningfully to national and global challenges, and today, this conference exemplifies how local initiatives can drive global impact. Climate change is no longer a distant threat but a reality that affects our communities, economy, and environment. The need for collaboration among academia, policymakers, and community leaders is greater than ever to safeguard the future of our planet.

The establishment of the **Climate Change & Environmental Sustainability Center (CCESC)** at BBSUTSD is a groundbreaking initiative, and I am confident it will lead impactful research and provide actionable solutions. I commend the organizers, speakers, and participants for their unwavering dedication to this cause.

As we work together to combat climate change and promote sustainability, I urge every stakeholder to take the lessons and recommendations from this conference forward, ensuring they are translated into meaningful actions. Let us unite to leave behind a legacy of resilience, hope, and prosperity for generations to come.

With my best wishes,

Syed Qaim Ali Shah

2. Foreword by Conference Chair

Prof. Dr. Rasool Bux Mahar,
Conference Chair / Vice Chancellor
Benazir Bhutto Shaheed University of Technology & Skill Development
Khairpur Mirs

It is with immense pride and honor that I present this comprehensive report on the **International Conference on Climate Change and Environmental Sustainability (ICCCES'24)**. This landmark event brought together a constellation of brilliant minds, united in their commitment to addressing one of the most critical challenges of our time—climate change. For me, this conference is not just an event; it is a reflection of our collective resolve to pave the way for a sustainable and resilient future.

The success of ICCCES'24 is a testament to the dedication of **Benazir Bhutto Shaheed University of Technology & Skill Development (BBSUTSD)** and the newly established **Climate Change & Environmental Sustainability Center (CCESC)**. From the inception of the idea to the culmination of this extraordinary event, it has been a journey of collaboration, innovation, and unwavering determination.

Personally, this conference has been a labor of love. It required tireless effort, coordination, and motivation to guide our teams and individuals at every stage. I have had the privilege of working closely with an exceptional organizing committee and volunteers, whose relentless dedication and passion have made this event a resounding success. Their commitment, energy, and creativity have been nothing short of inspiring.

Moreover, I am deeply grateful to the eminent speakers and panelists who accepted my invitation to share their invaluable insights, research findings, and experiences. Their willingness to contribute to this conference reflects their commitment to fostering dialogue and action on climate resilience and sustainability. Their presence has enriched our discussions and ensured that **ICCCES'24** was not only informative but transformative.

As we look back on the achievements of this conference, let us remember that the true success of **ICCCES'24** lies in how we translate the knowledge, ideas, and recommendations shared here into meaningful actions. It is my hope that the outcomes of this conference will inspire policymakers, institutions, and communities to come together, implement practical solutions, and make impactful changes for a better future.

In closing, I would like to extend my heartfelt thanks to everyone who played a part in making **ICCCES'24** an extraordinary success. Let us carry forward the spirit of this conference as a catalyst for change, and together, let us build a sustainable, equitable, and prosperous world for generations to come.

With deepest gratitude and warm regards,

Prof. Dr. Rasool Bux Mahar

3. Co-Chair' Note

Rtn. Engr. Mr. Abdul Jabbar Shaikh
Conference Co-Chair
Assistant Rotary Coordinator,
Zone 1-B for 3271

It is with great pride and a deep sense of accomplishment that I share this message as the **Co-Chair of ICCCES'24**, a conference that stands as a testament to the power of collaboration in addressing the urgent challenges of climate change and environmental sustainability.

Representing **Rotary International**, an organization that has always championed humanitarian causes and sustainable development, I was truly honored to co-chair this landmark event. ICCCES'24 was more than a gathering of experts; it was a platform where diverse voices, ranging from policymakers to researchers and community leaders, united to explore actionable solutions for climate resilience. Throughout this journey, I witnessed the unwavering commitment and passion of the organizing team, volunteers, and stakeholders. Together, we worked tirelessly to ensure that **ICCCES'24** was not only meticulously planned but also impactful in its delivery. It has been inspiring to see how every detail, from inviting distinguished speakers to facilitating meaningful discussions, was executed with precision and dedication.

I must also express my profound gratitude to the speakers, panelists, and participants who accepted our invitation to share their expertise and engage in critical dialogues. Their contributions have enriched the conference and ensured that its impact goes beyond academic discussions, touching on real-world applications and policies.

The role of Rotary in **ICCCES'24** underscores the importance of community-driven action. As a global organization deeply rooted in service and advocacy, Rotary International's involvement brought a unique dimension to this conference – focusing on grassroots initiatives and fostering partnerships that create tangible, long-lasting change.

The establishment of the **Climate Change & Environmental Sustainability Center (CCESC)** at BBSUTSD is a milestone achievement, symbolizing our shared vision for a sustainable future. I am confident that this center will serve as a hub for innovation, research, and advocacy, driving impactful projects and inspiring future generations. As we reflect on the outcomes of this conference, let us remain steadfast in our commitment to addressing climate challenges. The recommendations generated here must guide our actions, ensuring that they influence policies, shape community efforts, and inspire global collaboration.

I extend my deepest appreciation to the organizing team, sponsors, and partners, as well as every individual who contributed to making **ICCCES'24** a success. Together, we have created a legacy of resilience, hope, and shared purpose.

With warm regards and gratitude,

Rtn. Engr. Mr. Abdul Jabbar Shaikh

4. Message by Convener, Conference Steering Committee

Prof. Dr. Manthar Ali Keerio
Dean Faculty of Engineering Technology
Convener, Conference Steering Committee
ICCCES'24

It is with immense pride and gratitude that I reflect on the success of the **1st International Conference on Climate Change & Environmental Sustainability (ICCCES'24)**. Organizing this landmark event as the Convener of the Steering Committee has been a rewarding experience, bringing together a dynamic mix of researchers, policymakers, and professionals dedicated to addressing the pressing challenges of climate change.

This conference has served as a catalyst for meaningful discussions, knowledge exchange, and strategic collaborations, reinforcing BBSUTSD's commitment to climate resilience. Through research, education, and innovation, we aim to transform ideas into actionable solutions that contribute to a sustainable and climate-secure future. The establishment of the **Climate Change & Environmental Sustainability Center (CCESC)** is a testament to our ongoing efforts to position BBSUTSD as a hub for climate research and practical solutions.

I extend my sincere appreciation to all the esteemed speakers, panelists, researchers, and organizing members who played a vital role in making this conference a success. Let us continue this momentum, working together to create a greener, more resilient future for generations to come.

With warm regards,

Prof. Dr. Manthar Ali Keerio

5. Acknowledgement by Secretary

Engr. Abdul Shakoor Shaikh
Assistant Professor / Conference Secretary,
Focal Person - Climate Change & Environmental Sustainability Center (CCESC)

It is with immense pride and gratitude that I share this message as the Conference Secretary of **ICCCES'24**. Organizing an event of this magnitude has been a transformative experience, filled with challenges, opportunities, and immense rewards. This conference has truly exemplified what can be achieved when individuals and organizations unite with a shared commitment to addressing the pressing challenges of climate change and environmental sustainability.

From the very inception of **ICCCES'24**, the unwavering support and guidance of our Conference Chair, Prof. Dr. Rasool Bux Mahar, and Co-Chair, Rtn. Engr. Mr. Abdul Jabbar Shaikh, have been instrumental. Their vision, encouragement, and leadership inspired the organizing committees to put forth their best efforts. This conference would not have been possible without their trust in the team and their belief in the mission of the newly established **Climate Change & Environmental Sustainability Center (CCESC)**.

I am deeply humbled by the contributions of our distinguished speakers, panelists, and participants. Their insights, research, and expertise created a dynamic platform for dialogue and knowledge-sharing. Each presentation and discussion added valuable dimensions to our collective understanding of climate challenges and sustainable solutions. I extend my heartfelt thanks to all of them for accepting our invitation and enriching this event with their presence. To the organizing committees, volunteers, and supporting staff—your dedication and hard work have been nothing short of extraordinary. Whether it was coordinating logistics, engaging stakeholders, or ensuring the smooth execution of every session, your efforts have made **ICCCES'24** a resounding success. The success of **ICCCES'24** is not just measured by the event itself but by the legacy it leaves behind. The establishment of the **CCESC** is a landmark achievement that will continue to drive research, advocacy, and collaboration in the years to come. I am confident that the recommendations and ideas generated during this conference will serve as a catalyst for meaningful action at both local and national levels.

As we move forward, let us remain steadfast in our commitment to sustainability and resilience. I invite all stakeholders to stay engaged with the **CCESC** and contribute to the journey toward a greener, more sustainable future.

With warmest regards,

Engr. Abdul Shakoor Shaikh

6. Executive Summary

The **1st International Conference on Climate Change & Environmental Sustainability (ICCCES'24)**, held on **November 16, 2024**, at **Benazir Bhutto Shaheed University of Technology & Skill Development (BBSUTSD), Khairpur Mirs**, marked a pivotal moment in addressing the urgent challenges posed by climate change. Organized by the newly established **Climate Change & Environmental Sustainability Center (CCESC)**, in collaboration with **Rotary International**, **Khairpur Green City**, and other valued stakeholders, ICCCES'24 served as a dynamic platform for knowledge-sharing and collaborative action.

The conference brought together a diverse group of distinguished academics, policymakers, researchers, and professionals from across the globe to explore innovative solutions and share cutting-edge research on climate resilience and sustainability. With a robust program of keynote speeches, panel discussions, and interactive sessions, ICCCES'24 addressed critical topics such as:

- **Water Resource Management**,
- **Sustainable Agriculture**,
- **Climate Finance**, and
- **Community-Led Adaptation Strategies**.

One of the defining highlights of the conference was the **official inauguration of the Climate Change & Environmental Sustainability Center (CCESC)**. The center is poised to become a hub for impactful research, advocacy, and capacity building, with the aim of driving transformative solutions to environmental challenges in Pakistan and beyond.

Participants actively engaged in discussions and contributed to actionable recommendations, aimed at aligning efforts with the **United Nations Sustainable Development Goals (SDGs)** and influencing policymaking at both local and national levels.

The success of ICCCES'24 reflects the unwavering commitment of **BBSUTSD**, the **CCESC**, and their partners to fostering collaboration and driving impactful actions toward a sustainable future. By bringing together leading voices across multiple domains, the conference has established a strong foundation for lasting partnerships and transformative outcomes in the fight against climate change.

7. Conference Agenda: ICCCES'24

1st International Conference on Climate Change & Environmental Sustainability (ICCCES'24)
Date: November 16, 2024
Venue: Benazir Bhutto Shaheed University of Technology & Skill Development (BBSUTSD), Khairpur Mirs

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Main Theme:
Empowering Innovation: Tech-Driven Sustainability and Climate Education

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Sub-Themes:

1. Climate Adaptation and Resilience in Agriculture and Water Management
2. Gender-Sensitive Policies and Inclusive Climate Action
3. Innovative Renewable Energy Solutions and Climate Finance
4. Coastal Management and Sustainable Governance for Climate Adaptation
5. Stakeholder Engagement and Collaborative Policy Making

Conference Objectives:

1. To explore the impacts of climate change on agriculture, water resources, coastal areas, and socio-economic systems in Pakistan.
2. To identify innovative, technology-driven solutions for climate resilience, including renewable energy and climate-smart practices.
3. To emphasize the importance of inclusive and gender-sensitive climate policies, addressing the needs of marginalized communities.
4. To foster collaborations among academia, policymakers, and civil society for actionable strategies and reforms.
5. To propose recommendations aligning with global goals, particularly the United Nations Sustainable Development Goals (SDGs).

Keynote Speeches (Plenary 1):
Theme: *Climate Change & Sustainable Development: Challenges, Resilience and Policy Pathways in South Asia*

1. **Prof. Ismail Kumbhar** – *Impact of Climate Change on Agriculture in Sindh, Pakistan: Issues, Challenges, and Pathways for Resilience*
2. **Mr. Naseer Memon** – *Hydro-climatic Disasters: A Bumpy Road to SDGs*
3. **Ms. Shabina Faraz** – *Women in Pakistan Bear the Brunt of Climate Change: A Call for Gender-Sensitive Policies and Resource Allocation*
4. **Dr. Ghulam Hussain Dars** – *Climate Smart Water Management (CSWM) Practices: Key Challenges and Opportunities for Pakistan*
5. **Prof. Dr. Asif Khan (Online)** – *Climate Change and Pakistan's Role under Global Commitments*

Keynote Speeches (Plenary 2):

Theme: *Navigating Climate Change and Sustainable Development in Pakistan: Projections, Innovations, and Collaborative Pathways*

1. **Chaudhary Ghulam Rasool** – *Global Warming and Projections of Sea Level Rise Along Pakistan Coast*
2. **Ms. Afia Salam** – *Climate Change and Our Response*
3. **Dr. Mushtaq Ahmed Memon** – *Living the Indus Initiative*
4. **Dr. Rano Mal** – *Nutrition and Climate Change: Governance for Food Security*

Panel Discussion:

Theme: *Stakeholder Consultation on Climate Change and Its Adaptation*

Description:

This session will feature a dynamic exchange among experts, policymakers, and community leaders to discuss actionable strategies for climate adaptation. Topics include the role of community engagement, collaborative policymaking, and the integration of innovative solutions to enhance resilience in vulnerable regions.

8. Program Schedule

1st International Conference on Climate Change & Environmental Sustainability (ICCCES'24)

Organized by Climate Change & Environmental Sustainability Centre (CCESC)
Benazir Bhutto Shaheed University of Technology & Skill Development (BBSUTSD) Khairpur Mirs

Conference Schedule (Tentative) **(8:30 AM to 6:00 PM)**

Time	Activity		Details	Speaker
8:30 AM – 9:30 AM	Registration and Welcome Reception		Attendees' registration	
9:30 AM – 11:00 AM	Opening Ceremony & Inaugural Session, (Souvenirs Distribution)		Launching ceremony of CCESC by Chief Guest	
		1	Speech by Conference Chair	Prof. Dr. Rasool Bux Mahar - VC BBSUTSD
		2	Remarks by Conference Co-Chair	Engr. Abdul Jabbar Shaikh (Co-Chair)
		3	Remarks by Guests of Honor	Prof. Dr. Muhammad Yousuf Khushk (SALU)
		4		Prof. Dr. Zahid Hussain Khand (Aror University)
		5		Prof. Dr. Tehmina Mangan (BNBWU)
		6		Ms. Arifa Mazhar, Chief Executive, Strengthening Participatory Organization (SPO)
		7		Dr. Rano Mal, International Rescue Committee (IRC)
		8		Mr. Shakeel Qaimkhani, District Governor 2025-26
				Prof. Dr. Mahfooz-ul-Hassan, V.C Shaikh Ayaz University
		9	Speech by Chief Guest (Inaugural Session)	Syed Qaim Ali Shah - Chief Guest
			(Souvenirs Distribution)	
11:00 AM – 11:15 AM	Tea Break			

<table>
<tr><td rowspan="8">11:15 AM – 12:45 PM</td><td><u>Plenary Session 1</u>

Theme: Climate Change & Sustainable Development: Challenges, Resilience and Policy Pathways in South Asia

Session Chair: Prof. Dr. Manthar Keerio
Session Co-Chair: Dr. Aftab Soomro</td><td></td><td colspan="2"><u>Objectives</u>
• To explore the impacts of climate change on agriculture, water resources, and socio-economic systems in South Asia, with a specific focus on Pakistan.
• To identify the challenges and opportunities for resilience, adaptation, and sustainable development in the face of climate change.
• To discuss gender-sensitive policies and the need for inclusive, equitable climate action that addresses the needs of marginalized communities, particularly women.
• To outline actionable recommendations for policymakers, international organizations, and civil society in promoting climate resilience, sustainable water management, and international cooperation.</td></tr>
<tr><td rowspan="5">Speakers - Topics</td><td>1</td><td>Prof. Ismail Kumbhar</td><td>Impact of Climate Change on Agriculture in Sindh, Pakistan: Issues, Challenges, and Pathways for Resilience</td></tr>
<tr><td>2</td><td>Mr. Naseer Memon</td><td>Hydro-climatic disasters: A bumpy road to SDGs</td></tr>
<tr><td>3</td><td>Ms. Shabina Faraz</td><td>Women in Pakistan Bear the Brunt of Climate Change, A Call for Gender-Sensitive Policies and Resource Allocation</td></tr>
<tr><td>4</td><td>Dr. Ghulam Hussain Dars</td><td>Climate Smart Water Management (CSWM) Practices – Key Challenges and Opportunities for Pakistan</td></tr>
<tr><td>5</td><td>Prof. Dr. Asif Khan (Online)</td><td>Climate Change and Pakistan’s Role under Global Commitments</td></tr>
<tr><td></td><td colspan="3">Question & Answer session</td></tr>
<tr><td rowspan="4">12:45 PM – 01:45 PM</td><td rowspan="4">Panel Discussion 1
Moderator: Mr. Akram Shaikh
(Souvenirs Distribution)
Theme: Stakeholder Consultation on Climate Change and its Adaptation</td><td>1</td><td>Mr. Ghulam Qasim Jiskani</td><td>Veteran Progressive Date Palm Farmer</td></tr>
<tr><td>2</td><td>Mr. Muhammad Dittal Kalhoro</td><td>CEO, Sindh Rural Support Organisation</td></tr>
<tr><td>3</td><td>Mr. Naseer Memon</td><td>Consultant, Climate Change, Disaster Management</td></tr>
<tr><td>4</td><td>Dr. Ayoub Shaikh</td><td>Editor - Daily Awami Awaz Karachi</td></tr>
<tr><td>01:45 PM – 02:45 PM</td><td colspan="4">Lunch Break</td></tr>
</table>

<table>
<tr><td rowspan="8">2:45 PM – 4:15 PM</td><td><u>Plenary Session 2</u>

Theme: Navigating Climate Change and Sustainable Development in Pakistan: Projections, Innovations, and Collaborative Pathways

Chair: Prof. Dr. Hussain Bux Mari
Co-Chair: Dr. Imdaduallah Thaheem</td><td></td><td colspan="2"><u>Objectives</u>
• To explore the impacts of global warming and sea-level rise on Pakistan’s coastal areas and propose strategies for adaptation and mitigation.
• To discuss the potential of floating solar photovoltaic systems as an innovative solution for expanding renewable energy capacity in Pakistan.
• To examine Pakistan's current responses to climate change and how these can be strengthened through policy reforms and collaborative efforts.
• To highlight the partnership between the Government of Pakistan and the United Nations in addressing climate change, with a focus on sustainability and resilience.
• To analyze the relationship between climate change, nutrition security, and governance, and to identify policy interventions that promote food security and public health</td></tr>
<tr><td rowspan="6">Speakers - Topics</td><td>1</td><td>Mr. Shahid Iqbal</td><td>Afghanistan-Pakistan Shared Water: Amidst Challenges of Water Availability under Climate Change Scenario</td></tr>
<tr><td>2</td><td>Chaudhary Ghulam Rasool</td><td>Global Warming and Projections of Sea Level Rise along Pakistan Coast</td></tr>
<tr><td>3</td><td>Ms. Afia Salam</td><td>Climate Change and Our Response</td></tr>
<tr><td>4</td><td>Dr. Mushtaq Ahmed Memon</td><td>Living the Indus Initiative</td></tr>
<tr><td>5</td><td>Dr. Rano Mal</td><td>Nutrition and Climate Change / Governance</td></tr>
<tr><td></td><td colspan="2">Question & Answer session</td></tr>
<tr><td>4:15 PM – 4:30 PM</td><td colspan="4">Tea Break</td></tr>
<tr><td>4:30 PM – 4:40 PM</td><td rowspan="6">Closing Ceremony</td><td>1</td><td>Recommendations of the conference</td><td>Dr. Sadam Hussain Jakhrani, Engr. Ali Shan Shah</td></tr>
<tr><td>4:40 PM – 4:45 PM</td><td>2</td><td>Closing Remarks by the chief guest (Concluding Session)</td><td>Prof. Dr. Saleem Raza Samo - VC QUEST</td></tr>
<tr><td>4:45 PM – 4:50 PM</td><td>3</td><td rowspan="2">Speech Guest of Honor</td><td>Prof. Dr. Nusrat Shah, VC SMBBMU, Larkano</td></tr>
<tr><td>4:50 PM – 4:55 PM</td><td>4</td><td>Mr. Sabir Hussain Mahar, Chairman - Sindh Climate Action Network (SCAN)</td></tr>
<tr><td>4:55 PM – 5:00 PM</td><td>5</td><td>Vote of Thanks</td><td>Prof. Dr. Rasool Bux Mahar, Vice Chancellor</td></tr>
<tr><td>5:00 PM</td><td></td><td>Group Photo and Farewell</td><td>Group photo with all keynote speakers, panelists, and attendees.</td></tr>
</table>

9. Opening Ceremony & Inaugural Session

The opening ceremony of the 1st International Conference on Climate Change and Environmental Sustainability laid the groundwork for a transformative dialogue on tackling climate challenges through education, research, and innovation. The event began with the Launching Ceremony of the Climate Change and Environmental Sustainability Center (CCESC) at BBSUTSD, officiated by the Chief Guest, Syed Qaim Ali Shah. His address highlighted the region's urgent need for sustainable development solutions and the pivotal role CCESC would play in advancing climate research and outreach initiatives.

The Conference Chair, Prof. Dr. Rasool Bux Mahar, Vice Chancellor of BBSUTSD, delivered an inspiring opening speech. He emphasized the conference's theme, "Empowering Innovation: Tech-Driven Sustainability and Climate Education," and underlined the necessity of fostering partnerships between academia, policymakers, and practitioners to address environmental crises. The Conference Co-Chair, Engr. Abdul Jabbar Shaikh, in his remarks, stressed the importance of integrating sustainable practices into technical and industrial sectors. He pointed to CCESC as a model of innovation and collaboration in tackling climate challenges.

The remarks by esteemed Guests of Honor added significant insights:

Prof. Dr. Muhammad Yousuf Khushk, Vice Chancellor of Shah Abdul Latif University (SALU), Khairpur, emphasized the critical need for academic institutions to lead the way in raising awareness about environmental conservation. He shared examples of SALU's contributions to community-based sustainability projects and called for collective efforts in safeguarding natural resources.

Prof. Dr. Zahid Hussain Khand, Vice Chancellor of The Aror University of Art, Architecture, Design & Heritage, Sukkur, highlighted the role of interdisciplinary approaches in designing sustainable urban spaces and preserving heritage amid climate challenges. His remarks focused on the nexus between design, technology, and environmental stewardship.

Prof. Dr. Tehmina Mangan, Vice Chancellor of Benazir Bhutto Shaheed Women University (BNBWU), Sukkur, spoke passionately about the importance of empowering women in climate action. She discussed the transformative impact of education and training in building climate resilience, particularly among vulnerable communities.

The Chief Guest, Syed Qaim Ali Shah, in his inaugural address, lauded the collaborative spirit of the conference and the establishment of the CCESC as a milestone for Sindh's academic and environmental sectors. He urged all stakeholders to champion sustainable practices and contribute to national and global climate agendas.

Asad Ali Shah highlighted the urgency of addressing climate change through public-private partnerships and international collaboration. He emphasized the importance of empowering local communities, aligning with global sustainability goals, and adopting actionable strategies to build climate resilience and drive sustainable development.

The ceremony concluded with the distribution of souvenirs, honoring the distinguished participants for their invaluable contributions and setting a collaborative tone for the conference proceedings. This inaugural session set the stage for meaningful engagement and reinforced the commitment to advancing sustainability through innovative solutions and education.


ICCCES'24

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& Skills Development Khairpur Mirs.
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ICCCES'24


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10. Launching ceremony of CCESC

A landmark moment during the conference was the formal establishment and inauguration of the **Climate Change and Environmental Sustainability Center (CCESC)**. The ceremony was graced by the Chief Guest, **Syed Qaim Ali Shah**, whose leadership underscored the significance of this initiative. The CCESC was launched as a pioneering platform to address critical environmental challenges, foster sustainable practices, and promote climate resilience across sectors in Pakistan.

In his remarks, the Chief Guest highlighted the center's potential to serve as a beacon of innovation and collaboration, bringing together experts, policymakers, and community stakeholders. The CCESC aims to lead efforts in research, advocacy, and implementation of climate adaptation strategies while aligning with global sustainability goals.

This inauguration marks the beginning of a dedicated, multi-disciplinary approach to combating climate change and ensuring environmental sustainability for future generations. The establishment of CCESC reflects the collective commitment of the conference participants to turn ideas into actionable solutions.

11. Plenary Session 01

Climate Change & Sustainable Development in South Asia

Theme:
"Climate Change & Sustainable Development: Challenges, Resilience, and Policy Pathways in South Asia."

Description:
Plenary Session 01 delved into the intricate challenges posed by climate change in South Asia, with a specific focus on Pakistan. The session highlighted the interconnected impacts of climate change on agriculture, water resources, and socio-economic systems. Discussions emphasized the need for resilience and adaptation through gender-sensitive and inclusive policies, alongside equitable climate action for marginalized communities. The session provided actionable recommendations for policymakers, academics, and civil society to strengthen climate resilience and foster sustainable development.

The session was chaired by **Prof. Dr. Manthar Keerio** and co-chaired by **Dr. Aftab Soomro**, featuring five prominent speakers. Their presentations offered diverse perspectives on climate-related challenges and policy solutions, ranging from agricultural resilience and water management to gender equity and global commitments.

Objectives:

1. To explore the impacts of climate change on agriculture, water resources, and socio-economic systems in South Asia, with a specific focus on Pakistan.
2. To identify the challenges and opportunities for resilience, adaptation, and sustainable development in the face of climate change.
3. To discuss gender-sensitive policies and the need for inclusive, equitable climate action that addresses the needs of marginalized communities, particularly women.
4. To outline actionable recommendations for policymakers, international organizations, and civil society in promoting climate resilience, sustainable water management, and international cooperation.


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Plenary 01 Speaker Profiles and Abstracts

Prof. Dr. Ismail Kumbhar
Directorate of University Advancement & Financial Assistance,
Sindh Agriculture University, Tandojam

Dr. Muhammad Ismail Kumbhar is a seasoned academic and administrator with over 26 years of experience in higher education, research, and rural development. He currently serves as the Director of University Advancement and Financial Assistance at Sindh Agriculture University, Tandojam, and as the Chairman and Professor in the Department of Agricultural Education, Extension, and Short Courses.

Throughout his career, he has made significant contributions to agricultural education, sustainable development, climate change adaptation, and food security. His leadership roles include founding key initiatives such as the Business Incubation Centre, Gender Resource Centre, UNFAO Resource Center, and Khairpur College of Agricultural Engineering and Technology.

A prolific researcher and writer, Dr. Kumbhar has authored 40 research papers and co-supervised multiple PhD dissertations. He has presented his work at national and international conferences in countries including Australia, Turkey, China, Iran, and Thailand. Dr. Kumbhar has also signed multiple MOUs with international organizations to foster academic and research collaborations.

As an organizer, he has conducted over 270 workshops and seminars on topics ranging from faculty development to future trends in agricultural extension and rural development. His expertise in planning and executing development projects is evident through his work on initiatives like the PC-I for the Agricultural Engineering College at Khairpur Mirs.

Dr. Kumbhar is actively engaged in several development organizations, serving on governing bodies and as chairman of SAFWCO Support Foundation. His contributions to the field have been recognized through numerous national and international awards for research and organizational excellence.

Impact of Climate Change on Agriculture in Sindh, Pakistan: Issues, Challenges, and Pathways for Resilience

Dr. Muhammad Ismail Kumbhar,

Professor, Department of Agricultural Extension & Short Courses.
Faculty of Agricultural Social Sciences, Director, University Advancement & Financial Assistance
Sindh Agriculture University, Tandojam, Sindh Pakistan

Sindh, Pakistan, is particularly vulnerable to the impacts of climate change, with agriculture being one of the most affected sectors. This province, which relies heavily on agriculture for livelihoods and food security, faces increasing challenges due to rising temperatures, erratic rainfall, droughts, and the salinization of soil and water resources. These climate-induced changes are not only impacting crop yields but are also leading to shifts in planting seasons, crop viability, and increased incidence of pests and diseases. Small-scale farmers, who comprise a significant part of Sindh's agricultural workforce, are disproportionately affected, often lacking the resources and infrastructure to adapt effectively.

This presentation explores the multifaceted impact of climate change on Sindh's agricultural landscape, highlighting the primary issues faced by farmers in the province. We will delve into specific challenges, such as water scarcity due to changing river flows, droughts, heat waves, soil degradation, and the increasing unpredictability of weather patterns. Furthermore, the presentation will propose sustainable adaptation strategies, including climate-resilient crop varieties, improved irrigation practices, and community-based approaches to build resilience. By identifying actionable steps, this discussion aims to contribute to a more sustainable, adaptive, and resilient agricultural framework for Sindh in the face of climate change. Ultimately, the presentation emphasizes the need for urgent action to mitigate climate risks and ensure the long-term sustainability of agriculture in Sindh.

Naseer Memon
Consultant Climate Change, Disaster Management, Livelihoods and Resettlement

Naseer Memon is an expert on climate induced disasters. He has worked at senior positions in leading organizations in development, humanitarian and private sectors and academia for over 20 years. He has held leadership positions in reputable organizations, including The World Bank, Asian Disaster Preparedness Centre (ADPC), Engro Corporation, Strengthening Participatory Organization (SPO), Leadership for Environment and Development (LEAD) Pakistan, and WWF Pakistan. He has closely worked with national and sub-national governments, the private sector, academia and civil society in Pakistan. He regularly writes on issues pertaining to climate change, natural disasters and public policy issues.

He remained Chairperson of the first national network of humanitarian organisations National Humanitarian Network-NHN that undertook advocacy on localisation in humanitarian sector. He also served on the International Technical Group for the development of Core Humanitarian Standard (CHS) and coherent standards architecture.

He has vast experience of working with government departments and civil society organisations. He has authored books and he writes regularly for leading national dailies/magazines on the issues pertaining to climate change, natural disasters, human development and sustainable development. He has been speaking on national and international forums.

Hydro-climatic disasters: A bumpy road to SDGs

Naseer Memon

Pakistan is set to miss most of SDG targets. Sustainable Development Report 2024 ranked Pakistan on 137th number out of 167 countries. Impact of climate change is a major factor behind this situation. Pakistan is ranked as the 5th most vulnerable country to climate change on Global Climate Risk Index.

Pakistan released a national report on the status of SDGs in 2021. The report depicted an overall positive trend on key targets under different SDGs. However, the 2022 flood has reversed several gains on various goals. According to the report, poverty in Pakistan declined between from 2014-15 to 2018-19 with 9.3 million people lifted out of poverty. However, these gains have been reversed by the 2022 flood.

The flood affected 33 million people and the Post Disaster Need Assessment Report estimated that approximately nine million people have been pushed into poverty. Some 4.3 million people have suffered job losses or disruption, adding several million new poor.

Devastating floods and poor macro-economic performance have further decelerated Pakistan's slow march towards the SDG targets and overall human development. Pakistan stood 161 out of 192 countries on Human Development Index (HDI) last year. SDGs and HDI have several common indicators.

Ms. Shabina Faraz *Environmental Journalist, CEO of Green Media Initiative*	

Shabina Faraz is an award-winning environmental journalist with over 20 years of experience as a columnist, feature writer, and travelog author. She has contributed extensively to national and international media on a wide range of environmental topics. Currently, she writes for BBC Urdu, The Third Pole, and Dawn. Shabina has authored two books on environmental education and nature conservation and has served as the editor of Jareeda, a pioneering environmental magazine published by IUCN Pakistan. In addition to her journalism, she is also a dedicated trainer, mentoring young journalists and students.

Shabina is the CEO of the Green Media Initiative (GMI), an organization committed to promoting environmental awareness and responsible journalism. She also leads the Female Media Cohort for Climate Change, a unique program that trains around 70 female journalists under her remarkable leadership.

Women in Pakistan Bear the Brunt of Climate Change

A Call for Gender-Sensitive Policies and Resource Allocation

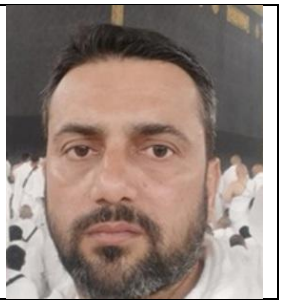
Shabina Faraz

In Pakistan's rural and agrarian regions, women face the harshest impacts of the climate crisis, enduring the consequences of extreme weather conditions such as floods, droughts, and heat waves. Unlike men, rural women bear added responsibilities during these critical times, balancing household chores while managing crops, fetching water, and caring for livestock. The frequent crop failures and water shortages triggered by climate change not only result in food insecurity but also reduce household income, directly impacting women's capacity to sustain their families.

These climate-related challenges have severe health implications, particularly for women already lacking access to healthcare during conflicts. Women face heightened risks of malnutrition, waterborne diseases, and reproductive health issues, exacerbated by limited mobility due to cultural and social restrictions. These barriers prevent them from seeking emergency assistance or shelter in times of crisis.

Furthermore, without a voice in community and policy decision-making, women are unable to advocate for their needs in climate adaptation strategies, leaving their interests largely unaddressed.

Dr. Ghulam Hussain Dars
Assistant Professor, USPCAS-W
MUET Jamshoro



Dr. Ghulam Hussain Dars is an Assistant Professor at the U.S.-Pakistan Center for Advanced Studies in Water (USPCAS-W), Mehran University of Engineering and Technology (MUET), with a PhD in Integrated Water Resources Management (IWRM) from USPCAS-W, Mehran UET, Jamshoro. His expertise lies in climate resilience, hydrology, and sustainable water management, focusing on the challenges of water scarcity and climate adaptation in arid regions. Dr. Dars leads research on climate-induced water variability, flood resilience, and crop water productivity with a mission to support adaptation planning and enhance water security in Pakistan. In the classroom, he integrates cutting-edge research into Climate Change and Water Resources courses, providing students with the knowledge to tackle critical water issues in a changing climate.

Dr. Dars actively contributes to high-impact research, with projects focusing on climate vulnerability assessment, flood forecasting, drought monitoring, and sustainable water management and collaborations with institutions like the University of Cambridge, University of Utah, City School of New York GCISC, WAPDA, Sindh Irrigation Department. His technical skills span hydrological modeling, Flood Mapping, GIS, and climate downscaling, which are applied to research that informs policy and adaptation strategies in Pakistan's water sector. With numerous publications, Dr. Dars is dedicated to advancing climate-smart water practices and seeks to bridge the gap between research and actionable policy, helping to secure a sustainable future for Pakistan's vulnerable water resources.

Climate Smart Water Management (CSWM) Practices – Key Challenges and Opportunities for Pakistan

Dr. Ghulam Hussain Dars

This talk will explore Pakistan's pressing water challenges, such as erratic rainfall, rising temperatures, glacier depletion, and limited water storage, compounded by governance issues like policy gaps, unequal distribution, and transboundary conflicts. The presentation outlines key CSWM principles and climate-smart options to combat these issues, including precision agriculture for efficient resource use, high-efficiency irrigation systems (HEIS) to improve water use efficiency and crop yields, and sustainable land management to maintain environmental health. Early warning systems and real-time weather data help reduce climate-related risks, while mitigation in agriculture focuses on reducing greenhouse gas emissions and enhancing carbon sequestration. The presentation also addresses the importance of research in developing climate-resilient crops and financial incentives like subsidies and green financing to encourage adoption of climate-smart practices. By integrating these practices, CSWM aims to build climate resilience in Pakistan's water management, supporting adaptation and mitigation efforts for a sustainable future.

Prof. Dr. Asif Khan
Associate Professor, UET, Peshawar
(Online)

Dr. Asif Khan has more than seventeen years of professional field and research experience. Dr. Khan is currently working as water and climate change expert with ADB, World Bank and other well reputed organizations. He worked as Lead Author for IPCC AR-6 water and extreme events chapter, Member for the Upper Indus Network, Member of Indus Basin Knowledge Forum, Member of Cambridge Philosophical Society, Member of British Hydrological Society, Member of European Geophysical Union, Member of American Geophysical Union, and Member of several other international Forums. He also worked as Director Research at the Centre for Water Informatics, LUMS and worked as water, climate change, and policy expert for various well-reputed organizations, such as ADB, World Bank, IFAD, FAO, NESPAK, Irrigation Department, and BIPP.

Dr. Khan has carried out research on Water-Energy-Food Nexus under climate change for the Indus Basin during his Post-Doc at IIASA, Austria, and secured his PhD degree in the field of hydro-climatology from Cambridge University UK, where his research topic was "The hydro-climatology of the Upper Indus Basin: a critical analysis of data and modelling needs in a complex mountain environment".

Dr. Khan also worked on different civil engineering projects, geotechnical investigations, water resources and its nexus research and climate change impact/adaptation assessment studies. He has produced twenty-one international journal publications and two book chapters related to hydro-climatology of the Indus Basin. He has also been working as reviewer in the field of hydro-climatology for more than twenty well-reputed international journals and HEC since 2012. Dr. Khan expertise are snow-glacier hydro-climate modelling, MHVRA, CRVA, Water Resources Assessment, Planning and Policy together with Project Management, and wants to bridge research and industry to practice his professional and research skills in a better way.

Climate Change and Pakistan's Role under Global Commitments

Dr. Asif Khan

Anthropogenic activities increased Green House Gases (GHGs) in the atmosphere and caused Global Warming. Contributions to GHG emissions and climate change impacts vary among countries. Pakistan contributes less than 1% in GHG emissions but receives significant adverse impacts, such as floods, heat-waves, Glacier Lake Outburst Floods (GLOFs), cloud-outbursts, and high-winds. These adverse impacts of climate change may affect agriculture, human health, ecosystem, soil erosion, energy consumption, water use, infrastructure, and agriculture. Keeping in view the above hazards and risks, the climate change assessment component in this chapter provides guidelines to adapt and mitigate adverse effects of climate change. To reduce GHG emissions and carryout adaptation measures, there is an intense need of strong linkage between mitigation and adaptation measures. Pakistan developed updated Nationally Determined Contributions (NDCs) in 2021 and National Adaptation Plan (NAP) in 2023 using guidelines of United Nations Framework Convention on Climate Change (UNFCCC). This study compares the proposed NDCs 2021 and NAP 2023 with the national policies and international commitments. This study also evaluates strengths and weaknesses of the proposed national mitigation and adaptation measures. The recommendations of the current study may improve the national and provincial plans, and their implementation.

12. Panel Discussion

Panel Discussion: Stakeholder Consultation on Climate Change and its Adaptation

Theme: *Stakeholder Consultation on Climate Change and its Adaptation*
Moderator: *Mr. Akram Shaikh*

The panel discussion provided an engaging platform for dialogue among key stakeholders, representing diverse sectors, to address the multifaceted challenges of climate change and explore adaptive strategies. The session emphasized the importance of collaboration across agriculture, rural development, disaster management, and journalism sectors for sustainable climate resilience. Discussions revolved around community-led initiatives, policy reform, and private sector engagement to mitigate the adverse impacts of climate change in vulnerable regions of Pakistan. Stakeholders shared insights into their respective domains and presented potential pathways for inclusive and sustainable climate adaptation strategies.

Panelists and Contributions:

1. **Mr. Ghulam Qasim Jiskani** – *Veteran Progressive Date Palm Farmer*

   Mr. Jiskani underscored the significance of climate-resilient farming practices, particularly in date farming, and emphasized the need for research and investment in innovative agricultural techniques.

2. **Mr. Muhammad Dittal Kalhoro** – *CEO, Sindh Rural Support Organization (SRSO)*

   Mr. Kalhoro highlighted the importance of empowering rural communities through participatory development models, integrating disaster risk management into rural development plans, and enhancing grassroots-level resilience.

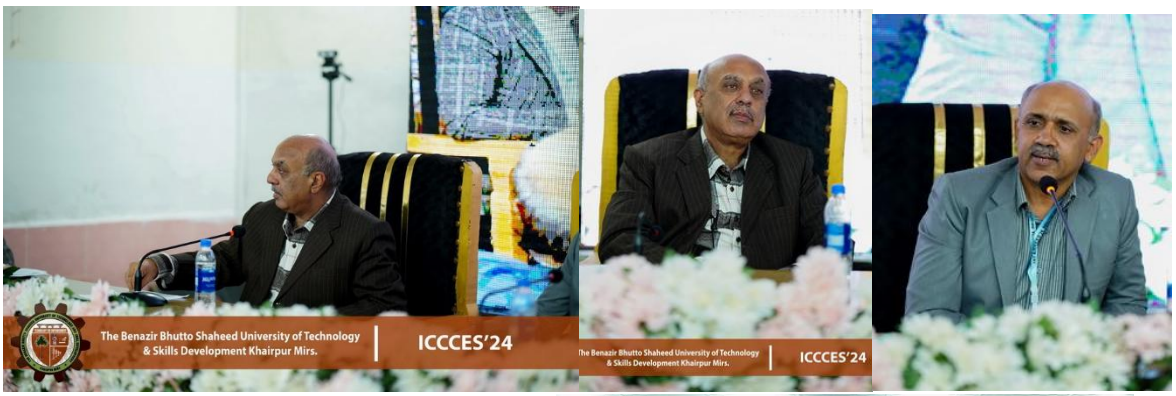
3. **Mr. Naseer Memon** – *Consultant, Climate Change and Disaster Management*

   Mr. Memon discussed the critical need for policy coherence and cross-sectoral collaboration, advocating for the development of adaptive governance structures to address hydro-climatic challenges effectively.

4. **Dr. Ayoub Shaikh** – *Editor, Daily Awami Awaz Karachi*

   Dr. Shaikh emphasized the media's role in raising awareness about climate adaptation. He proposed leveraging journalism to highlight local success stories and disseminate actionable information to communities and policymakers.

(Note: Mr. Mahmood Nawaz Shah and Mr. Amir Ghaouri were unable to attend due to prior commitments.)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& Skills Development Khairpur Mirs.
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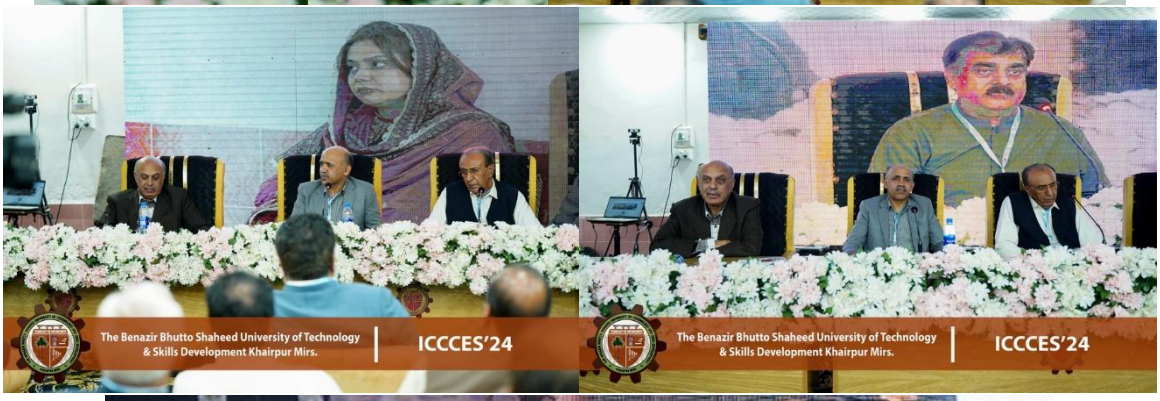
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13. Plenary Session 02

Theme: Navigating Climate Change and Sustainable Development in Pakistan: Projections, Innovations, and Collaborative Pathways

Session Chair: Prof. Dr. Hussain Bux Mari
Co-Chair: Dr. Imdadullah Thaheem

Description:
This session delved into critical climate challenges faced by Pakistan, focusing on the impacts of global warming and sea-level rise on the nation's coastal areas. Experts presented innovative solutions such as floating solar photovoltaic systems and explored policy pathways to enhance Pakistan's resilience to climate change. Discussions also emphasized the significance of international partnerships, particularly between Pakistan and the United Nations, in tackling sustainability and governance issues. The session addressed food security, public health, and nutrition as pivotal concerns under climate adaptation frameworks.

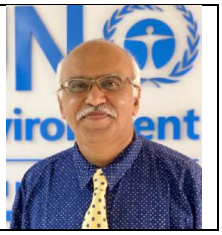
Objectives:

1. To assess the impacts of global warming and sea-level rise on Pakistan's coastal areas, alongside strategies for mitigation.
2. To discuss innovations like floating solar systems for renewable energy.
3. To evaluate Pakistan's current climate responses and suggest collaborative reforms.
4. To underline partnerships between Pakistan and international bodies for climate resilience.
5. To explore the nexus of climate change, nutrition security, and governance for sustainable solutions.


Paris Climate Agreement 2015
The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at COP 21 in Paris, on 12 December 2015 and entered into force on 4 November 2016.
The Benazir Bhutto Shaheed University of Technology & Skills Development Khairpur Mirs.
ICCCES'24
First International Conference on Climate Change & Environment Sustainability (ICCCES 24) at BBSUTSD Khairpur Mirs
Global Warning and Projections of Sea Level Rise along Pakistan Coast

Plenary 02 Speaker Profiles and Abstracts

Mushtaq Ahmed MEMON, Ph.D.
Regional Coordinator for Resource Efficiency and SWITCH-Asia RPAC Project Manager United Nations Environment Programme, Regional Office for Asia and the Pacific



Dr. Memon is working with the United Nations Environment Programme (UNEP) as a Regional Coordinator for Resource Efficiency in Asia Pacific Office located in Bangkok. He is supporting resource efficiency, sustainable consumption and production, green economy, green financing, sustainable public procurement, sustainable tourism, sustainable industries and various areas for Asia and the Pacific. Dr. Memon is also Project Manager for the Regional Policy Advocacy Component of the EU-funded SWITCH-Asia Programme to promote sustainable consumption and production and uptake of SDG 12 in Asia.

Dr. Memon has a Doctorate degree in environmental and resource economics from Hiroshima University in Japan, a Master's degree in national development and project planning from University of Bradford in UK, a postgraduate diploma in Transport from Karachi University and Chartered Institute of Transport, Bachelors in civil engineering from Mehran University of Engineering and Technology Jamshoro and schooling at Cadet College Petaro in Pakistan. He has also published various papers in international journals and has delivered various training programmes.

Living Indus Initiative

Partnership between Government of Pakistan and the United Nations

Mushtaq Ahmed Memon – United Nations Environment Programme

Pakistan is characterized by diverse topography, ecosystems, and climate zones. Rich in natural resources, including fertile agricultural lands, natural gas reserves, and mineral deposits, Pakistan faces challenges in balancing competing objectives between economic development and environmental protection. It is the fifth most populous country in the world, with an estimated population of over 231 million in 2021. The average population growth rate between 1998-2017 stood at 2.40%. The country falls into the low human development category, ranking 161 out of 191 countries – far below the average human development index value compared to other South Asian countries. As of 2018, approximately 21.9% of the population still lived below the national poverty line while non-monetary dimensions of poverty are expected to have worsened because of the ongoing economic crisis and natural disasters. With declining incomes, people have less access to nutritional food, which undermines human development outcomes. Moreover, floods have disrupted access to sanitation, improved drinking water, schools, health centers, and markets, likely leading to increased hardship, a worsening of health outcomes, and increased stunting rates among the affected population.

More than 80% of Pakistan's arable land is irrigated by the waters of the Indus, a transboundary river that flows down from the Himalayas, through Indian and Pakistan Administered Kashmir, Gilgit-Baltistan and Khyber Pakhtunkhwa, flowing south-by-southwest through the length of Pakistan, before emptying into the Arabian Sea near the city of Karachi. Some 90% of Pakistan's people and more than three-quarters of its economy resides in the Indus basin. The Indus Basin is also Pakistan's most important carbon sink and one of the world's most vulnerable natural systems to the effects of climate change. The Indus Delta is one of the world's largest delta systems and possesses the seventh largest mangrove forest system. It occupies an area of around 472,800 hectares and is characterized by mudflats and mangrove forests between Karachi (Pakistan's most populous city) and the Desert of Kutch. Recognised as one of WWF's Global 200 Ecoregions, the Delta contains the largest area of arid climate mangroves in the world.

The genesis of Living Indus Initiative stems from a dynamic collaboration between the United Nations (UN) and the Government of Pakistan, specifically through the Ministry of Climate Change and Environmental Coordination (MoCC&EC). This collaborative genesis underscores the commitment of diverse stakeholders to address the pressing environmental challenges in the Indus Basin. This visionary initiative did not emerge in isolation but through a series of inclusive consultative sessions held nationwide. These sessions served as forums for engaging stakeholders from various sectors, including government bodies, non-governmental organizations, local communities, and environmental experts. The result was the crystallization of a collective vision encapsulated in the 'Living Indus' prospectus, a comprehensive roadmap designed to restore the ecological health of the basin. The Living Indus Initiative stands as a pivotal and visionary undertaking, strategically positioned to confront the critical challenges confronting the Indus Basin, specifically in the Pakistan region. At its core, this initiative is not just a response to the looming issues; it is a testament to the transformative power of comprehensive stakeholder engagement in shaping sustainable solutions.

Chaudhary Ghulam Rasool
Program Manager IUCN

Ghulam RASUL is presently Advisor for China-Pakistan Joint Research Center after serving as Head of Climate Change Program of IUCN in Pakistan and worked on enhancing the community resilience against changing climate in Gilgit Baltistan and the Indus Delta through Nature Based Solutions. Through an extensive consultation engaging all the stakeholders prepared First Climate Change Gender Action Plan of Pakistan including six priority actions in collaboration of Ministry of Climate Change funded by Green Climate Fund. With the help of French Embassy in Pakistan started the Gender Climate Award for young women climate leaders working in six priority actions including food security and DRR.

He has led MENRIS Program at ICIMOD for three years with initiatives on SERVIR HKH, Regional Database System and Climate Services in 8 regional member countries. As co-lead with UK Met Office launched Asia Regional Resilience to Changing Climate (ARRCC) project activities in 4 South Asian Countries from the coast to the HKH mountains. Geospatial Information System of NASA was digitized and integrated on the disasters experienced by the South Asian Region including floods, drought, GLOF, heat waves, storm surges, landslides, and forest fires. Several new tools such as HIWAT, RDMOS, NWP etc. were developed using climate services complemented with satellite technology through digital integration, machine learning and artificial intelligence. Regional Drought Monitoring and Outlook System (RDMOS) was developed for the South Asian Region extending to Afghanistan with the technical support of NASA and US Scientific Team. The RDMOS is not limited to Afghanistan rather provides wholistic water balance picture in the region with high confidence level.

Dr Rasul is a climate scientist with professional career over 3-dacades served in diverse range of disciplines such as agrometeorology, marine meteorology, Glaciohydrology, satellite meteorology, climate change research as well as impact based weather forecasting and retired as head of Pakistan Meteorological Department. He spearheaded PMD team in GLOF-I project of Adaptation Fund updated glaciers and glacial lakes inventories of Pakistan in 2014 and established EWSs in 3 pilot valleys of Gilgit-Baltistan and Chitral. Based on this success story GLOF-II received funding from GCF and its execution is in progress. He is recipient of two international research awards in climate modeling. He has served the Asia-Pacific Region from WMO platform initially as Regional Coordinator of Climate Services for Agriculture and DRR and late as Vice President. Working with Global Earth Observation System of Systems (GEOSS) as co-chair of Asian Water Cycle Initiative developed Data Integration and Analysis System (DIAS) on Drought, Flood and Climate Change initiatives for 19 Asian River Basins which is replicated 8 north African countries on drought.

He has published more than 100 research papers in international journals, written 3 books and contributed chapters in 9 books.

Global Warming and Projections of Sea Level Rise along Pakistan Coast

Ghulam Rasul
Former Director General Pakistan Meteorological Department,
Regional Program Manager International Center for Integrated Mountain Development,
Head Climate Change Program International Union for Conservation of Nature Pakistan,
Advisor China-Pakistan Joint Research Center on Earth Sciences

Global average temperatures have already been touching the rise of 1.5C above the pre-industrial era, the emissions of CO2 and other greenhouse gases are the ever highest resulting into the intensification of the hydrological cycle producing extreme events around the globe. Global community realizing the adversities of global warming reached the historic consensus as Paris Climate Agreement in COP 21 held in Paris during 2015 to control the GHG emissions to the lowest levels to capture the global average temperatures well below 2C preferably 1.5C compared to the pre-industrial average temperatures by the year 2100. The implementation of that commitment is lacking the serious efforts as the GHG emissions have further increased adding more and more heat to the climate system dynamics. Its impacts are visible on the global scale as well as in Pakistan including the increased frequency and intensity of floods, drought, heat waves, Shifting weather patterns, tropical storms, depletion of snow, recession of glaciers, sea level rise, intrusion of sea water into the farm lands, storm surges and the environmental flows to deltaic regions. Due to the intensification of monsoon winds as a result of the land and sea temperature difference, the heavy downpour during summer has become a common feature on the windward side these mountain ranges generating flash floods as hill torrents. During 2011, Thar desrt received more than 1400mm rainfall in two weeks persistent downpour flooding the desert while 2022 broke all the previous records. The Indus Delta is the most vulnerable hot spot of Pakistan due to climate change representing discharge pathway to sea resounding upstream and downstream connections of Indus Basin. The year 2022 happened to be the most disastrous producing 48 GLOF events against the annual average of 1 or 2 and 163 flash floods resulting in land degradation, damage to infrastructure and loss of lives and livelihood. While Lower Indus Basin (LIB) is impacted by reduced environmental flows, sea level rise, storm surges, sea water intrusion, coastal erosion and increasing salinity. Global Sea level rise has been doubled since 1993 and 10mm increase recorded over the last 3 years (WMO 2022). Over the last three decades, sea level has increased @ 2-3mm per year and its expected to reach 4-5mm per year by 2050. There is a dire need to enhance the understanding of the Government officials on upstream-downstream connections, preparing communities for climate change adaptation through DRR, climate resilient development and nature based solutions.

Afia Salam
Environmental Journalist, Media Development Specialist, and Chairperson, Indus Earth Trust

Masters in Geography and a career journalist having 4 decades of experience of print, electronic and web journalism.

Member National Climate Change Council, Prime Minister's advisory body, and National Coordinating Body for Marine Protected Areas.

Fellow of LEAD, FNF's International Academy of Leadership & Australia Awards , member of PUAN, IUCN Commission on Education & Communications and Commission on Economic & Social Policy.

Highlights issues related to environment and climate change through writings, and advocacy through seminars and moderation of panel discussions and round tables. As a development practitioner, is the current elected General Secretary of Baanhn Beli, co-President of Salman Sufi Foundation, Trustee of The Helpline Trust, and Chair Board of Trustees Indus Earth Trust.

She can be reached on X (formerly Twitter) @afiasalam Linkedin: afia salam Instagram: @salamafia my preference would be to do it in Urdu, unless there is an international audience, then i will revert to English and Urdu mix

Climate Change and Our Response
Afia Salam

The science is settled. The danger is real. Climate Change is now being seen as an existential threat, especially in the countries like Pakistan that have been straddling the top 10 bracket of the vulnerability index for the past decade and a half.

Cataclysmic hydro disasters, rising heat index, "monsoon on steroids," as the UN Secy. General said after the bursting and retreating glaciers and the sea creeping into the coast and delta, and rendering large swathes of land victim to desertification.

Lurching from crisis to crisis, the human dimensions of the impacts of climate, which are driving people below the poverty line, and climate induced migrations are still muted conversations at the table where finance to 'deal' with climate change has become the dominant discussion.

Focusing on finance is necessary because the impacted, like Pakistan, fall way short of the wherewithal needed to place themselves within the category of another catchphrase... resilience! And because the optics of the impacts are so horrifying, be they of wildfires, floods or storms brewing their wrath over warming seas, that the fundamental question of limiting climate change through emissions cut seems to have taken a back seat.

Where does Pakistan stand in all of this? With a burgeoning population in excess of 250 million, the question of whether we as a country are ready to 'deal with it' needs to flow through all segments of the population and all sectors of development. Despite being a low emitter of emissions we, being a good global citizen, have submitted ambitious NDCs promising cuts.

However the readiness response has to keep pace with the development pathway charmed through the SDGs or the sustainable development goals. It is not just to check boxes to satisfy the international community; it is in our own interest that we keep an eye on the targets to meet goal 1.. End poverty, because poverty is dehumanizing! And nothing impacts the poor disproportionately as much as climate change impacts.

The prism through which we view the impacts and their response has to be a pro poor one.

Dr. Ranomal Lohano
Public Health & Humanitarian Expert | Advocate for Climate-Responsive Health Systems,
International Rescue Committee – IRC

Dr. Ranomal Lohano is a seasoned public health and humanitarian professional with nearly 25 years of experience in health system strengthening and community-based interventions. With a robust academic background in medicine and health care management, he has led numerous multi-partner initiatives focusing on the intersection of public health, climate change, and environmental sustainability.

Climate-Responsive Health Systems: Dr. Lohano has led disaster risk reduction (DRR) and emergency preparedness projects in vulnerable regions, addressing the health impacts of climate-induced events like floods, heatwaves, and droughts.

Sustainable Development Goals (SDGs): His projects emphasize nutrition security, maternal and child health (MNCH), and resilient health systems aligned with the SDGs.

Community Resilience Building: As Provincial Head for Action Against Hunger, he managed programs to strengthen climate resilience in Sindh's rural communities.

Emergency and Environmental Health: Dr. Lohano has overseen integrated responses combining WASH (Water, Sanitation, and Hygiene), nutrition, and mental health support for disaster-affected populations.

Dr. Lohano advocates for integrating public health frameworks with climate adaptation strategies. He believes in locally driven solutions to mitigate the impacts of environmental degradation on health, particularly in underprivileged areas.

Dr. Lohano's participation in the conference highlights his expertise in designing climate-resilient health interventions, fostering collaborations between health and environmental sectors, and advocating for sustainable policies to combat the effects of climate change on vulnerable populations.

Fluent in English, Urdu, and Sindhi, Dr. Lohano bridges local and global perspectives, making him an invaluable contributor to dialogues on environmental sustainability and public health innovation.

Analyzing the Relationship between Climate Change, Nutrition Security, and Governance Dr. Rano Mal Lohano

This presentation examines the intricate linkages between climate change, nutrition security, and governance, highlighting the significant challenges posed to Pakistan. It addresses the adverse impacts of climate change, such as erratic weather patterns and extreme climatic events, on agricultural productivity and food availability, which intensify malnutrition and disproportionately affect rural and vulnerable populations. Governance challenges, including weak institutional frameworks and fragmented policies, further exacerbate these issues by impeding coordinated and effective responses.

The talk emphasizes the necessity of integrated approaches to mitigate these challenges. Recommendations include the development and adoption of heat- and drought-resistant crop varieties, precision agriculture for resource optimization, and expansion of social safety nets to protect climate-affected populations. Enhancing food fortification programs to combat malnutrition is also highlighted as a critical intervention.

The talk stresses the importance of policy integration, proposing the establishment of a national task force to align climate change, health, and nutrition strategies. Strengthening local governance capacities and empowering community-centered adaptation initiatives are essential to ensure tailored, sustainable solutions. Public-private partnerships and investments in renewable energy to support sustainable agriculture further reinforce these efforts.

By addressing these interlinked issues, the presentation outlines a roadmap for building resilience and achieving sustainable food and nutrition systems in Pakistan, ensuring a more adaptive and equitable future.

14. Closing Ceremony

The closing ceremony of the conference encapsulated its impactful journey and outcomes, starting with the **presentation of conference recommendations** by Dr. Sadam Hussain Jakhrani. This was followed by **closing remarks** from the chief guest, **Prof. Dr. Saleem Raza Samo**, Vice Chancellor of QUEST, reflecting on the significance of the discussions and the path forward.

Next, **Prof. Dr. Nusrat Shah**, Vice Chancellor of SMBBMU Larkano, delivered the **speech of the Guest of Honor**, emphasizing the importance of continued collaborative efforts to address the challenges discussed. Mr. Sabir Hussain Mahar, Chairman of the Sindh Climate Action Network (SCAN), also shared his perspective, inspiring the audience with his vision for actionable climate initiatives.

Finally, a heartfelt **vote of thanks** by Prof. Dr. Rasool Bux Mahar, Vice Chancellor, expressed gratitude to all attendees, panelists, and organizers, ensuring a strong and optimistic closure to the event.

15. Conference Recommendations

Conference Recommendations

The conference on climate resilience and sustainability concluded with a set of actionable recommendations aimed at addressing the challenges of climate change, sustainable development, and disaster management. These recommendations emphasize a comprehensive and collaborative approach involving policy reforms, ecological restoration, capacity building, and innovative practices to safeguard communities, ecosystems, and livelihoods. Below is the consolidated list of recommendations:

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1. Policy and Governance

- Enact and enforce protective legislation, such as the Indus Protection Act, and strengthen provincial water and climate laws.
- Develop equitable transboundary water-sharing frameworks and ensure governance to address fragmented institutions.
- Link disaster recovery efforts to long-term sustainable development objectives aligned with the SDGs.
- Formulate integrated policies addressing the nexus of climate, health, and nutrition.

2. Ecological Restoration and Natural Resource Management

- Develop urban forests along critical areas like the Indus Basin to mitigate urban heat and support biodiversity.
- Prioritize biodiversity restoration through protected areas and innovative reforestation techniques.
- Address salinity intrusion in coastal areas and invest in nature-based solutions for watershed management.

3. Water Resource Management

- Modernize irrigation systems, promote efficient water storage, and improve reservoir maintenance.
- Introduce 100,000 community ponds for rainwater harvesting and sustainable groundwater use.
- Promote conservation techniques such as agroforestry, crop rotation, and organic fertilization.

4. Disaster Preparedness and Risk Reduction

- Establish disaster shelters and early warning systems for climate-induced risks.
- Rehabilitate damaged flood protection systems and prioritize vulnerable populations through comprehensive mapping and planning.
- Provide transitional shelters and livelihood restoration programs for disaster-hit areas.

5. Sustainable Agriculture and Food Security

- Promote climate-resilient agriculture through drought-resistant crops, smart irrigation, and precision farming.
- Encourage conservation agriculture practices such as no-till farming and crop rotation to maintain soil health.
- Expand nutrition-sensitive social safety nets and enhance food fortification programs to combat malnutrition.
- Prioritize rehabilitation of agricultural lands impacted by floods and invest in livestock recovery programs.

6. Pollution Control and Waste Management

- Implement zero-plastic waste initiatives in urban centers to reduce water pollution.
- Strengthen industrial and urban effluent treatment systems for clean water supply.

7. Capacity Building and Public Awareness

- Train farmers and local communities on sustainable and adaptive techniques.
- Launch climate education campaigns and integrate climate awareness into school curricula.
- Create a knowledge-sharing platform, such as the Living Indus Knowledge Platform, to crowdsource information and best practices.

8. Climate Finance and Incentives

- Establish an Indus Trust Fund and introduce climate performance bonds to finance sustainability projects.
- Provide subsidies and financial incentives for adopting climate-resilient technologies.
- Facilitate access to green financing for farmers and recognize those adopting sustainable practices.

9. Innovation and Technology Integration

- Invest in renewable energy and floating solar photovoltaic systems to enhance energy capacity.
- Leverage remote sensing, GIS, and mobile applications for effective monitoring and management.
- Encourage community-based ecotourism and social entrepreneurship for sustainable livelihoods.

10. Collaboration and Monitoring

- Align interventions with international goals like the SDGs and COP agreements.
- Establish a National Task Force on Climate and Nutrition Security to monitor and implement inter-sectoral policies.
- Ensure multi-stakeholder collaboration among governments, the private sector, and civil society organizations for coordinated efforts.

16. Conference Committees

Steering Committee:

S.No	Name	Status in Conference
01	Prof. Dr. Rasool Bux Mahar Vice Chancellor BBSUTSD Khairpur Mirs	Chair
02	Engr. Abdul Jabbar Shaikh C.E.O Al Manzar Foods Assistant Rotary Coordinator Zone1-B for RID 3271	Co-Chair
03	Prof. Dr. Manthar Ali Keerio Professor & Dean – Faculty of Engineering Technology BBSUTSD Khairpur Mirs	Convener
04	Prof. Dr. Azad Ali Lashari Prof. of Surgery, Khairpur Medical College Khairpur. LUMHS, Member Rotary International	Member
05	Dr. Aftab Ahmed Soomro Dean, Faculty of Skill Development BBSUTSD Khairpur Mirs	Member
06	Mr. Imtiaz Ali Shaikh President - Rotary Club Khairpur Green City	Member
07	Mir Sajjad Hussain Talpur Registrar BBSTUSD Khairpur Mirs	Member
08	Engr. Abdul Shakoor Shaikh Assistant Professor / Focal Person – Climate Change & Environmental Sustainability Center – BBSUTSD	Conference Secretary

Finance & Logistics Committee:

S. No.	Name	Designation	University	Status
1	Engr. Safdar Ali Abro	Assistant Professor	BBSUTSD	Convener
2	Engr. Khalid Shah	Lecturer	BBSUTSD	Member
3	Engr. Arif Lakho	Lecturer	BBSUTSD	Member
4	Engr. Samiullah Pathan	Transport Officer	BBSUTSD	Member
5	Mr. Ali Akbar Qureshi	Accountant	BBSUTSD	Member
6	Mr. Ali Imran Jalbani	Assistant Registrar	BBSUTSD	Secretary

Marketing and Registration Committee:

S. No.	Name	Designation	University	Status
1	Dr. Sadam H. Jakhrani	Assistant Professor	BBSUTSD	Convener
2	Mr. Abul Qasim Shah	Lecturer & Dy. Director Marketing	BBSUTSD	Secretary
3	Engr. Ali Mustafa Shah	Lecturer	BBSUTSD	Member
4	Engr. Ali Shan Shah	Lecturer	BBSUTSD	Member

Printing & Publication Committee:

S. No.	Name	Designation	University	Status
1	Dr. Asim Ali Abro	Assistant Professor	BBSUTSD	Convener
2	Abdul Razaq Shaikh	Past President	Rotary Club Khairpur Green City	Member
3	Syed Asim Ali Shah	Lecturer	BBSUTSD	Member
4	Mr. Ghulam Abid Phulpoto	Jr. Clerk	BBSUTSD	Secretary
5	Mr. Azad Ali Shah	Jr. Clerk	BBSUTSD	Member

Sponsorship and Fund-Raising Committee

S. No.	Name	Designation	University	Status
1	Engr. Asmatullah Memon	Lecturer	BBSUTSD	Convener
2	Mr. Saifullah Shaikh	Secretary	Rotary Intl.	Member
3	Engr. Ali Mustafa Shah	Lecturer	BBSUTSD	Secretary
4	Engr. Ali Shan Shah	Lecturer	BBSUTSD	Member
5	Mr. Fahad Soomro	Jr. Clerk	BBSUTSD	Member

Stage Committee:

S. No.	Name	Designation	University	Status
1	Dr. Imdadullah Thaheem	Assistant Professor	BBSUTSD	Convener
2	Engr. Abdul Shakoor Shaikh	Assistant Professor	BBSUTSD	Member
3	Engr. Asmat Memon	Lecturer	BBSUTSD	Member
4	Ms. Aqsa Ali	Jr. Clerk / Comp. Operator	BBSUTSD	Secretary
5	Student Volunteers		BBSUTSD	Member

Audio Video Committee:

S. No.	Name	Designation	University	Status
1	Mr. Waqar Ahmed Narejo	Database and Network Administrator	BBSUTSD	Convener
2	Syed Zuhaib Ali Shah	Web / Manager / Programmer	BBSUTSD	Member
3	Mr. Muhammad Rafique Mangnejo	Assistant Manager (Hardware & Network)	BBSUTSD	Member
4	Ms. Afshan Hassan	Senior Clerk	BBSUTSD	Secretary

17. Pictorials


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18. Souvenir Distribution


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19. Our associates & Partners

1st International Conference on Climate Change & Environmental Sustainability (ICCCES'24)

The Earth is Calling—Will We Answer?

The storm has arrived—not in the distant future, but here and now. Floods swallow our lands, heat scorches our cities, and water slips through our fingers. Pakistan stands among the most vulnerable nations on Earth, yet the world continues to turn a blind eye.

But we cannot afford to wait. The climate crisis is not coming—it is already here. The question is no longer what will happen? but what will we do? Will we stand by as disasters rewrite our history, or will we rise as the generation that chose to fight for the future?

This report is not just a document—it is a wake-up call. It holds the ideas, the solutions, and the path forward. BBSUTSD, through the Climate Change & Environmental Sustainability Center (CCESC), has taken a stand. We have brought together minds, research, and action. But the real battle lies beyond these pages.

We cannot rewind the clock, but we can still change the ending. Read. Act. Inspire. Because the future is not something we inherit—it is something we build.

And the time to build is NOW...!!!!

Conference Report

Compiled by:

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Assistant Professor / Conference Secretary,

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Benazir Bhutto Shaheed University of Technology Skill Development (BBSUTSD)