WEBINAR SERIES

November to December 2021

5th Karachi International Water Conference

Hisaar Foundation
a foundation for water, food and livelihood security

CLIMATE CHANGE AND PANDEMIC: IMPACT ON WATER

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Foreword

The Karachi International Water Conference (KIWC) is a well- established and "must attend" water event in Pakistan and globally. This year the conference theme was "Climate Change and Pandemic: Impact on water". With the backdrop of the pandemic and in the wake of the COP26 dialogues, the 5th KIWC succeeded in generating healthy discussions and charted out valuable lessons learned to advance SDG6. This year, we were compelled by global circumstances into doing something different: the 5th KIWC was converted from an on-site and in-person event to a webinar series, which was recorded and transmitted from Television studios. We thus experimented with a hybrid style, with some of our presenters and guests in the studio and others on virtual Zoom platform.

The conference was transformed into four webinars, which allowed us to deliver sessions that were richer in content, higher on visibility and larger in attendance since they were on online. We also experimented with different formats for our sessions this time, with one session in the form of presentations and another in the panel discussion style, followed up with studio discussion and recordings. After the four thematic webinars, a concluding webinar was held in which facilitators of each webinar presented the main findings and the conference declaration was presented. Each webinar was recorded, edited to capture the main points, and rendered into Urdu and English versions. These were then uploaded onto YouTube for further dissemination.

It makes us very happy to see the growth of this conference over the years and fulfilment of its aspirations. We introduced this conference in 2013 in an environment when water was not a stated priority of the government of Pakistan. But we soldiered on and were able to deliver on our commitments because the cause of water was very important not only to us but to the whole nation and this region. We had the belief that the support and attention for this type of conference will be forthcoming from a range of stakeholders who were hoping for appropriate and durable water interventions. Hisaar Foundation is a neutral platform welcoming diverse viewpoints and players and welcoming all stakeholders regardless of their affiliation, politics or social standing.

The success of this conference can be attributed to its substantive content and participation of high profile and noteworthy speakers and their active participation. We are especially thankful to our guests Dr. Adil Najam (Boston University), Dr. Aditi Mukherji (IWMI, New Delhi), Roberta Ianna (Ministry of Climate Change, Italy), Dr. Patrick Bond (Cape Town, South Africa), Dr. Diego Juan Rodriguez (World Bank, Southern Africa), Dr. Pay Drechsel (IWMI, Colombo, Sri Lanka), Dr. Shahbaz Khan (UNESCO ,Beijing), Dr. Josiane Nikiema (IWMI, West Africa), Seema Taher Khan (CEO, Airwaves Media), Meher Marker Noshirwani (Board Member, Hisaar Foundation, Afia Salam (Indus Earth Trust) and many others.

We look forward to the 6th Karachi International Conference in 2023 with expectations of meeting water friends and colleagues in person, and with our continued aspirations for better and more valuable contributions to the water sectors in this Pakistan and globally.

Given that the negative impacts of climate change on water are now well-documented, and it is accepted that we are in the age of climate adaptation, the failure of COP 26 to adequately address the impending catastrophe is indeed alarming. We at Hisaar Foundation understand the crucial importance of mutual dialogue and action on the ground going hand in hand. As in past years, this series of webinars has also come up with an action-oriented declaration. You can read it in full elsewhere in this report.

Simi Kamal
Chairperson, Hisaar Foundation

Purpose of Conference

It is evident that climate change alters the relationship of all species on Earth which has a direct impact on human health and risk for infections. The COVID-19 pandemic is wreaking havoc in countries across the world, causing a global health crisis and forcing economies to slow down due to the strict quarantine measures. However, the outbreak has also impacted the environment in an intriguing way. A reduction in CO2 emissions and human mobility has improved air quality, although it is questionable in terms of whether this will lead to a positive impact in the long term.

The 2019 novel coronavirus (COVID-19) outbreak has highlighted the importance of water, sanitation, and hygiene (WASH) in protecting human health. It is important to understand the role SDG 6 played in the management of the COVID-19 outbreak, how progress has been impacted, and what actions are required to accelerate SDG 6 progress in a COVID-19 context.

In the long term, the COVID-19 pandemic will offer lessons and opportunities leading to environmental action.

For instance, we will have a new baseline of what can be achieved digitally: remote work, education, shopping, and more. In addition, as our governments, private institutions, and even social media succeed in partnering, we will possibly feel more capable of tackling other pressing issues such as climate change. Our response to this health crisis will shape how we will deal with a climate crisis in the next decades.

The sub-themes for the conference webinar series were as follows:

1. Code Red for Humanity; Climate Action Now
2. Circular Water Economy in Urban context
3. Thinking the Unthinkable: Harnessing the Pandemic to Improve SDG-6, Health and Sanitation
4. Water and Climate Change: Reimagining Women's Leadership

Webinar Statistics

Between November to December **webinar series successfully held**	**4** Webinar Sessions	**18** Presentations	**600** Attendees	**11** International Speakers
	4 Sponsoring organizations	**2** Panel Discussions	**28** Technical Partners	**19** National Speakers

Social Media

Conference Hashtag
#5KIWC #Webinar Alert

Facebook, Instagram &Twitter
Over 5000 views

Conference Themes

Code Red for Humanity: Climate Action Now

Human activity is changing the climate in unprecedented and sometimes irreversible ways. The landmark study (6th IPCC Report 2021) warns of increasingly extreme heatwaves, droughts and flooding, and a key temperature limit being broken in just over a decade. The report "is a code red for humanity", says the UN chief. But scientists say this catastrophe can be avoided if the world acts fast. It is hoped that deep cuts in emissions of greenhouse gases could stabilise rising temperatures.

The report, prepared by 234 scientists from 66 countries, highlights that human influence has warmed the climate at a rate that is unprecedented in at least the last 2,000 years.

In 2019, atmospheric CO2 concentrations were higher than at any time in at least 2 million years, and concentrations of methane and nitrous oxide were higher than at any time in the last 800,000 years.

Global surface temperature has increased faster since 1970 than in any other 50-year period over at least the last 2,000 years. For example, temperatures during the most recent decade (2011–2020) exceed those of the most recent multi-century warm period, around 6,500 years ago, the report indicates.

Meanwhile, global mean sea level has risen faster since 1900, than over any preceding century in at least the last 3,000 years.

The document shows that emissions of greenhouse gases from human activities are responsible for approximately 1.1°C of warming between 1850-1900, and finds that averaged over the next 20 years, global temperature is expected to reach or exceed 1.5°C of heating.

Experts will debate and discuss the impacts of unprecedented climate change and mitigation and adaptation measures to cope with anthropogenic climate change.

Circular Water Economy in Urban Context

Circular Economy principles have emerged as a response to the current unsustainable linear model of "take, make, consume, and waste." Circular economy principles offer an opportunity to recognize and capture the full value of water (as a service, an input to processes, a source of energy and a carrier of nutrients and other materials).

Around the world, there is a transition towards the 'circular economy' that focuses on the 3Rs of reducing material consumption, reusing materials, and recovering materials from waste. In the context of water resources management, cities and their respective water utilities are beginning to promote the reduction of water consumption, reuse of water, and recovery of materials from wastewater.

Rethinking urban water through the circular economy and resilience lenses offers an opportunity to tackle all these challenges by providing a systemic and transformative approach. Experts will share strategies for policymakers to improve delivery of water supply and sanitation services in a more sustainable, inclusive, efficient, and resilient way. Moreover, recommendations will be given in terms of how governments should use advanced technologies for supplying agriculture and industrial activities with recycled water and limit the impact and use of fertilizers.

Thinking the Unthinkable: Harnessing the Pandemic to Improve SDG-6, Health and Sanitation

The 2019 novel coronavirus (COVID-19) outbreak has highlighted the importance of water, sanitation, and hygiene (WASH) in protecting human health. However, while the Asia-Pacific region has seen significant progress towards SDG 6 targets during the past 20 years, the region still faces critical challenges due to scarce water resources, rapid population growth, and poor public infrastructure.

COVID-19 is a highly communicable disease, transmitted by contact and airborne particles and was declared a 'Global Pandemic' in March 2020. However, the most notable recommendation was the need for comprehensive WASH practices, which requires communities to have safe, accessible, and sustainable water resources. COVID-19 has impacted almost every aspect of human life from health, to livelihoods, food security, human rights, gender equality, and mortality. This crisis calls for collaboration and solidarity on the development of improved prevention strategies and strengthened resilience in the face of global health shocks. Namely, it is important to understand the role SDG 6 played in the management of the COVID-19 outbreak, how progress has been impacted, and what actions are required to accelerate SDG 6 progress in a COVID-19 context.

Experts will assess the role of water in the current responses to Covid-19 and in future phases of recovery and resilience. How Covid-

19 has impacted differently in improvement of the water, health and sanitation.

Water and Climate Change: Reimagining Women's Leadership

Good water governance will be a cornerstone of global water security over the coming decades. A central dimension of water security involves the protection, allocation and sharing of increasingly scarce and polluted water resources among humans and the environment. Comprising approximately 50% of the population and despite their recognised pivotal role in water management since 1992 through the Dublin principles, women remain under-represented in water governance processes in local, national and transboundary settings. Involving women in water projects has made them more sustainable, more effective and also up to seven times more efficient (UNDP-SIWI Water Governance Facility, 2017)

Agenda 2030, and in particular combining the implementation of SDG 6 and SDG 5, offers a great opportunity to break the vicious circle of exclusion of women in water management and governance. Experts will share how women are prone to impacts of climate change on water and strategies of involving women as a compulsory stakeholder in the water sector and highlighting the women leaders around the world.

Webinar Series Declaration

Karachi International Water Conferences have always been action-oriented and focused on impact. Our previous four conferences led to the launch of the Think Tank for Rational Use of Water, Universities for Water Network, Recommendations for Pakistan's National Water Policy Framework and the establishment of the Panjwani-Hisaar Water Institute. This fifth conference in the form of a webinar series focused on the theme of Climate Change and Pandemic: Impact on Water with sessions focused around four themes: climate action; circular water economy; water and health and women's leadership in the water sector.

Each webinar concluded with a call to action which will set the path for some of Hisaar Foundation's initiatives till the next conference in 2023.

The first webinar Code Red for Humanity – Climate Action Now called for youth engagement and inclusion of youth in awareness raising activities. Hisaar Foundation pledges to increase its youth engagement by hosting events geared towards young people such as youth jamborees, competitions for youth and training and awareness raising activities for young people.

Hisaar Foundation is planning a beach clean-up drive in collaboration with SMIU and invites the youth to participate and join us. Moreover, Hisaar Foundation is planning to engage students of different universities for water conservation and clean-up drives in urban and rural areas including coastline belts. In addition, Hisaar Foundation also pledges to advocate and promote more green technologies and renewable energy options in its projects on the ground.

The second webinar Circular Water Economy in Urban Context highlighted that not many people know the concept of water economy and even fewer understand how this concept can be applied in an urban context. Therefore, Hisaar Foundation will aim to conduct orientation and training on the concept of circular water economy. These will be organized through the Panjwani-Hisaar Water Institute at NED University.

The third webinar highlighted the crucial link between water and health. The critical role of water in managing the coronavirus pandemic was particularly emphasized. As a follow up to this webinar, Hisaar Foundation will develop research and policy papers on how the pandemic was managed in different parts of the world and Pakistan and use those learnings to advance SDG-6.

The fourth webinar centred on reimagining women's leadership in water, environment and related sectors. Several outcomes emerged from this webinar. Hisaar Foundation pledges to continue to work on highlighting women water professionals and mainstreaming women's concerns in the water discourse, as well as to change the discourse. We challenge the perspective of women as "victims of climate change and water" and want to change this to "agents of water and climate action". To further strengthen the commitment to Women and Water Networks (WWNs), Hisaar Foundation will reorient and develop WWN into a formidable platform in the water, environment and climate change sectors. Learning from the grassroot movements such as Chipko movement, Lake Biwa and the Love Canal, we will research and highlight grassroots action for climate and water across Pakistan and publish untold stories of how women have coped and taken over as 'managers' in difficult situations.

Webinar Proceedings

Code Red for Humanity: Climate Action Now

Webinar 1
Nov 17, 2021

- Session Introduction by Moderator **Dr. Zulfiqar Ali Umrani**
- Keynote Speech by **Dr. Adil Najam: "**Why Code Red" what needs to be done"
- Keynote Speech by **Dr. Patrick Bond**: "Glasgow climate pact problems and implications for water justice
- Presentation by **Dr. Aditi Mukherji**: "Summary of 6th IPCC report assessment and implication on water sector"
- Presentation by **Roberta Ianna**: Activities of the ministry of ecological transition on youth before and at COP 26
- Presentation by **Rafay Alam:** "Overview of the climate crisis in the context of Pakistan's water economy as well as a legal critique of the water policy in light of the worsening climate crisis"
- Presentation by **Mehmood Nawaz Shah**: "Impact of climate change on farmers and farming patterns"

The conference this year moved to a virtual platform and took place in the form of a webinar series. At the beginning of the inaugural session Ms. Sanaa Baxamoosa, General Manager, Hisaar Foundation welcomed all the participants and Chairperson, Hisaar Foundation, Ms. Simi Kamal led with the opening remarks. Reflecting on the history of the Karachi International Water Conference (KIWC) and Hisaar Foundation, Ms. Simi Kamal shared that over the last eighteen years, the Foundation has built a Think Tank on the Rational Use of Water and formed a Universities for Water Network that work on developing solutions to water issues across different areas of Pakistan and embarked on its latest project Panjwani-Hisaar Water Institute (PHWI), a water centre established at NED university Karachi for training future water professionals.

She explained that the Foundation works very closely with government, international agencies, businesses, agricultural communities as well as with civil societies organizations and promotes the effective use of water. She shared that the biannual KIWC was initiated in 2013 where the theme of the first conference was Water Cooperation in Action, as an outcome of this conference the Universities for Water Network and Think Tank on Rational Use of Water were launched. In 2015 the conference was themed Securing Sustainable Water and put forward the first of its kind,

Recommendations for Pakistan's National Water Policy Framework, the third conference in 2017, Future of Water concluded with the tripartite agreement with NED university and the Panjwani Charitable Foundation for establishing the water centre PHWI. At the fourth KIWC in 2019 the academic program offered at PHWI was launched by the president of Pakistan Dr. Arif Alvi. Ms.Kamal further briefed on the fifth conference and the webinar series to be held.

The session moderator Dr. Zulfiqar Ali Umrani, Director ORIC, Sustainability Office, Ziauddin University reviewed highlights from the recent COP-UNFCC 26th meeting event and shared that significant gap exists between climate change pledges and actions. He set the layout of the session and invited Dr. Adil Najam, Dean of the Frederick S. Pardee School of Global Studies at Boston University for his keynote speech.

In his speech, 'Why Code Red, What Needs to be Done?', Dr. Najam called for a new approach for analysing climate change as he argued that we are living in the age of adaptation. He highlighted the shortcomings of COP 26 negotiations and stressed that we have to focus on what the global climate is telling us rather than outcomes of global climate meeting events. As we move forward in this age of climate adaptation, water is increasingly becoming a dominant determinant as compared to carbon emissions previously. He shared that what seemed impossible to achieve for climate financing under the Paris Agreement has been proven otherwise by the Covid 19 pandemic. The pandemic has demonstrated that once the risks and threats are believed to be real, the required financing emerges instantly all across the globe exhibiting that climate change financing is simply taken as rhetoric.

He added that global failure to address climate mitigation has put earth on the trajectory towards warming of 2 degrees by 2030 rather than maintaining it below 1.5 degrees which lands us into the age of adaptation. Climate change is no longer a future issue and people have already faced impacts of climate change all across in the form of record extreme

temperatures, floods and fires yet the policy makers view climate change as a future event. There is an increased amplitude and frequency of these extreme events reinforcing further that we have moved into the age of adaptation.

One of the implications of the age of adaptation, Dr. Najam mentioned that the climate discourse shifts from being carbon emission centric to a water focused enterprise. Climate discussions have to move beyond carbon emissions and energy focused towards climate change impacts which are largely water centric such as glacial melts, floods, droughts and sea level rises. He added that as the shift occurs there is a disconnect becoming more apparent between the developing countries which are largely facing these climate adaptation challenges and the developed countries, focused on addressing their mitigation challenges. He concluded that climate change does not impact everyone equally and in such a politically divided atmosphere, there is an urgent need for looking at climate change from an inclusive development approach.

The second keynote speech, 'Glasgow Climate Impact Problems and Implications for Climate Justice' was delivered by Dr. Patrick Bond, Political economist & Professor at University of the Western Cape School of Government, Cape Town, South Africa. Dr. Bond was of the view that climate events at Glasgow (2021) reproduced the flaws and shortcomings of their predecessors, Copenhagen (2009), Durban (2011) and Paris (2015). He shared that water is central to climate justice politics as was demonstrated in the oppressed Sioux peoples struggles where their defence of water was their defence of liveable climate. Similarly, for Pakistan, from the 2010 climate catastrophe flood events, it has not been awarded its climate debt of $460 million under relief operations instructed by the United Nations Secretary General Ban Ki Moon, whereas the climate damages in this case are estimated to be $43 billion. He highlighted that recently at these climate events and speeches by world leaders the climate language has seen new phrases emerge for the shifting the discourse in their favour such as coal working rather than coal phasing out. Expressing his disappointment at the countries failing to achieve their climate pledges, the United Nations climate conference in his view was rather a conference of polluters. On highlighting the positives of Glasgow events, the Bloomberg green the media coverage talked of the first time where words like coal made way into a climate agreement right and some emissions cuts still promised, the credibility of such promises remains questionable.

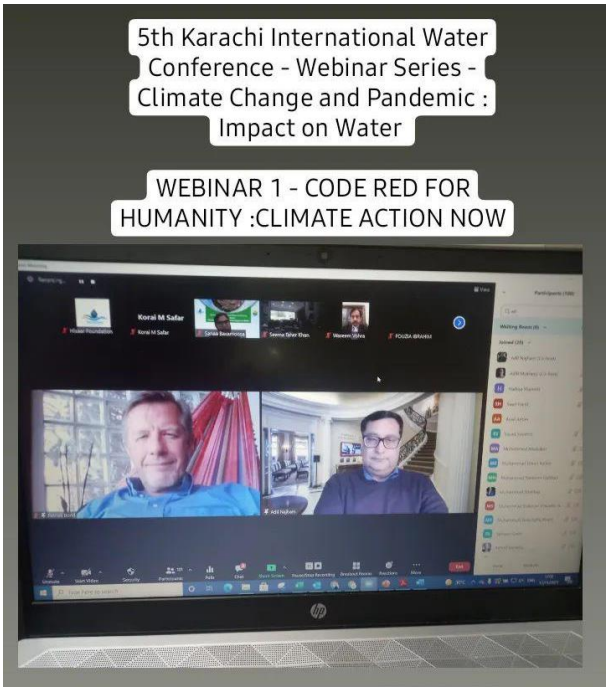
Dr. Bond explained that the climate justice movement demands have been over the 20 years to cut down the greenhouse gases, carbon emissions including the military, maritime emissions in a fair manner and to have job rich just transitions for bringing

labour on board, inclusion of feminist, youth, LGBQT, climate migrants, nature and biodiversity agendas and making green technology should be a global public good without the acquisitive intellectual property rights. These are yet to be achieved.

Furthermore, Dr. Bond reviewed the financial demands of the climate justice movement for planetary and social survival which include application of carbon taxation, pricing, and dispensing with the failed emissions. The movement calls to replace debt-based finance with grants and honour historical responsibilities for climate debt that large emitters owe to cover loss and damage reparations, costs of climate proofing, adaptation and resilience measures for the low emitters. In the context of climate agreements, these are yet to be achieved and what is observed is that the rich developed nations' pledges are largely based on cheating tactics instead. The energy markets are not taking decarbonization seriously as reflected in the oil, gas and coal pricing. The carbon taxes and credits are converted into markets, where the profits are not trickling down to the general population.

Dr. Bond concluded that the multilateral climate financial systems and bilateral north led climate insurance systems are failing us, the global south has its way forward in blocking and divestment strategies and pressure from activism. Both the keynote speeches were followed by a question-and-answer session. Dr. Najam answering a question on waste management's role in climate change stressed that Pakistan must work towards and formulate and implement development oriented, local policies and standards addressing the localized climate challenges. Addressing the question on climate imperialism, and repatriations Dr. Bond mentioned that global south countries don't have enough funding for climate proofing their cities, they must demand money and investment from the global north countries and make these a part of all negotiations.

Moving to the second part of the session, Dr. Umrani welcomed the speakers. The first presenter, Dr. Aditi Mukherji, Principal Researcher, International Water Management Institute, New Delhi, gave a presentation on findings from the UN IPCC and Hindu Kush Himalayan (HKH) Monitoring and Assessment Programme. She reflected that in light of the



evidence the reports have adopted unequivocal language and we are already living in a world which is 1.1 degree warmer than it was in the pre industrial levels. Climate change is no longer in the future it is here and now. With the data systems today, scientists are able to determine how much of the extreme events such as rainfall and flood related events can be attributed to climate change. There has been an increase in agriculture and ecological drought, rainfall and temperature increase instances all across and South Asia is a hotspot with severe climate change impacts.

Dr. Mukherji shared that with every increment of global warming South Asian countries are unlikely to be on a trajectory for 1.5 degree as at higher elevations the HKH region will warm up more as compared to global means. Even on a 1.5-degree rise, the glaciers will lose 36% of their volume which will directly impact the river systems of Indus. She added that our space for climate adaptation becomes constrained beyond the 1.5-degree change. She concluded that just transitions are necessary where every bit of warming matters, every year matters and every choice matters.

The next speaker Ms. Roberta Ianna, Senior Advisor Climate Change Negotiations Team of the Italian government shared the initiatives of the Italian government of youth participation at pre-COP and COP 26. The 'Youth4Climate: Driving Ambition' (Y4C) program allowed for the voices of youth to be streamlined and presented to the governments towards real commitments and change. She briefed that on its final day, Y4C participants met with Ministers attending Pre-COP engaging in a discussion on the main elements of the outcome document, as well as on possible next steps. The Y4C event was built on the experiences from the" Youth4ClimateLive Series' ', a series of 9 webinars held from June 2020 until March 2021, hosted by the Italian Ministry of Ecological Transition, OSGEY and C4C. The Y4C was structured along four major themes (working group setting), each featuring a number of topics (breakout group setting), in line with the most pressing issues and priorities in the international climate agenda: youth driving ambition, sustainable recovery, non-state actor's engagement and climate conscious society. Ms. Ianna explained that in cooperation with the UNFCCC and its

Regional Collaboration Centres (RCC), a capacity-building training programme was also provided to foster participants' knowledge and skills.

Dr. Umrani invited Mr. Rafay Alam, Environmental Lawyer, to share his views on the climate crisis in the context of Pakistan's water economy and his critique of Pakistan's water policy in light of the worsening climate crisis. M. Alam began by stating that the global north does not care about the 1.5 degrees limit set by the Paris agreement, this limit is rather a manifestation of the politically acceptable level of climate destruction and calamity that the global north is willing to bear. Agreeing to what Dr. Mukherji mentioned earlier, he stated that under the current situation of 1.1

degree rise in global average temperature, the oceans are acidifying, coral reefs are bleaching, most of earths rivers are dammed destroying the ecosystems, flood and fires in Europe and with forest fires in the arctic, the humans are facing the 6th extinction event, there is no safe amount of climate change given such situations. In the scenario of 2-degree global temperature rise, 150 million deaths will occur in Asian and African cities mostly associated with air quality. The air quality we are witnessing at Lahore is at its worst an impact of the ongoing climate crisis, other impacts include food shortages and loss of biodiversity. Mr. Alam questioned how humanity will work towards civilizational unbundling, the civil systems put in place and supported by cultures, as these will be tested by the vagaries of climate change.

He put forward the drivers of climate change as capitalism, the neo liberal global economic system, patriarchy, consumerism and colonialism. Under such an economic system there is an unaccountable accumulation of wealth in the hands of few at the cost of the environment and human labour. The economic system has to evolve to where there is accountability for the exploitation of fossil fuels and human labour, nature is made central in policies and no discrimination exists in decision making processes. The habits of the global elites have to change and these systems have to be dismantled.

He explained that in such a context the discourse on water in the global south has to change. Pakistan's discourse on water is largely secular and technical, characterized by a fetish for hydropower and large storages, its highly centralized and excludes women, we need a new way of analysing water. Sharing a case study Mr. Alam specified that Pakistan currently exports more rice than it consumes locally, same for cotton and sugar, the sugar industry has 24 ethanol plants which collectively exported $420 million worth of food grade alcohol, our water analysis therefore has to focus on where the water is going and who is profiting from it. Such a discourse will contextualize climate justice in Pakistan. Water should be local issue, the water policy should be bottom up, led from the province and debated on in the national assembly. The integrated future of water in Pakistan will succeed only if there is coordination among provinces, good governance, federalism, democracy and mutual respect among the provinces.

The last speaker of this session, Mr. Muhammad Nawaz Shah, Senior Vice President, Sindh Abadgar Board, presented on impacts of climate change on farmers and farming practices. Mr. Shah mentioned that while agriculture contributes 20% to the global emissions, it is directly impacted by climate change, the agricultural economy, production and food security. Over the last 4 years in Pakistan, there has been a reduction in production of wheat, due to unexpected humidity, high temperatures and shorter winters. He revealed that all across Pakistan the seed varieties are becoming increasingly vulnerable to climate change. Cotton production in Pakistan has reduced and farmers have moved to growing water intensive crops such as rice and sugarcane, exhibiting that the nexus of climate change has impacts beyond the temperature increase.

He concluded by sharing some mitigating strategies, including adapting with reduced use of pesticides, provision of climate resilient infrastructure, information sharing, demand driven support for small farmers such as credit support and post disaster mitigating strategies.

This wrapped up the presentations and talks from the speakers and Dr. Umrani opened the floor for questions from participants across multiple digital platforms. Answering the question, whether science helps solve real world problems, Dr. Mukherji stated many features of COP declaration are based on the findings from the IPCC reports backed by science, and the Covid vaccine is recent example to refer to, Dr. Bond added that while science has aligned the politicians and activists to an extent, the IPCC has been conservative and has biases such as its failed to called the climate change a catastrophe as serious as it should and there are instances where science presents technical fixed solutions without going into an understanding of socio-political contexts. Speaking on climate justice, Rafay mentioned that there have been civil justice cases where activists have gone to courts for climate issues in Europe as well as Pakistan. Climate justice further opens up discussions on areas such as colonial injustices and discrimination.

Addressing a question on climate mitigation and adaptation Dr. Najam specified that both are two sides of the same coin and the less you mitigate, the more you have to adapt. Both these strategies are location and region specific. Answering the question on climate financing for Pakistan, he clarified that while the climate justice case exists for us, the climate damages and reparations are difficult to materialize, aid and grants are too few and frequently squandered upon by the governments themselves

. While it is a grim scenario, climate finance should not be an excuse for inaction. Where Pakistan can improve upon is better domestic policies, urban policies, good adaptation policies are good development policies. So, while we keep the pressure on industrialized countries for loss and damages and mitigation, we must include adaptation as a central feature of our developmental, agricultural and urban policies. Concluding the session, Dr. Umrani thanked the participants for their questions and summarized the session discussion, Ms. Baxamoosa followed with a vote of thanks for the speakers, sponsors, technical and media partners, Hisaar Foundation governors and the webinar team. Towards the end Ms. Kamal wrapped up the webinar with her concluding remarks and leanings from the session. She reviewed that people's voices must be heard, all marginalized communities and youth have to bring forward their perspectives as they are the most impacted by climate change.

Circular Water Economy in Urban Context

Webinar 2-
30th November 2021

- Webinar Introduction by Moderator **Dr. Mohsin Hafeez**
- Keynote Speech by **Dr. Pay Drechsel**: "Needs and Opportunities for a Circular Economy in the Urban Water and Sanitation Sector"
- Keynote Speech by **Dr. Diego Juan Rodriguez**: "Water and the wider world of the circular economy"
- Presentation by **Sohail Ali Naqvi:** "Innovative ideas on water replenishment and sustainable development"
- Presentation by **Rui Owase** "Environment Protection by "JOHKASOU" Water & Sanitation Solution."
- Panel Discussion on "Water as a key enabler of the circular economy; recovery, recycling and reuse"

The webinar was opened by Ms. Simi Kamal, Chairperson, Hisaar Foundation and in her remarks, she shared the history and achievements of previous four of the Karachi International Water Conference (KIWC) and the Foundation itself, she then welcomed the moderator and handed over the proceedings to, Dr. Mohsin Hafeez, Regional Representative Central Asia, IWMI, Pakistan.
Speaking on the untapped potential of wastewater in Pakistan, Dr. Hafeez expressed that it offers us an opportunity to remarkably increase water productivity and aid in water management for resolving water scarcity. He then invited the first keynote speaker, Dr. Pay Drechsel, Research Quality Advisor, IWMI, Colombo, Sri Lanka to share his views.

Dr. Drechsel shared that circularity is a key component for achievement of the SDG 2030 agenda, as the overall demand for water grows, wastewater is the only water source that grows in quantity and it is only waste water when we choose to waste it. He highlighted that circular economy is not based on technology and is not limited to technically advanced countries only. Circular economy solutions include needs awareness, markets, business models, a supportive social regulatory framework and financial environment. He added that there are different value propositions possible for waste water reuse in the water sector starting from the irrigation water, nutrient or energy recovery, fish (feed), production of insect-based protein all the way up to industrial or drinking water. There are many opportunities for resource and cost recovery for the treatment plant operators, the global water recovery from an estimate of 380 billion m3 of municipal wastewater could theoretically irrigate (undiluted) ca. 42 million ha. For nutrient recovery, wastewater treatment could potentially offset 13% of global NPK demand. He further shared that there is enough methane in global waste water to provide electricity to 150m households, which could help waste water treatment plants to

become more energy efficient or neutral as well.

He compared it to reality of wastewater reuse which remains meager, less than 2% of the nutrients in our food entreating urban areas are recovered from solid waste or sanitation

systems. Among the global regions South Asia lags way behind in terms of composting, recycling and nutrient recovery. Dr. Drechsel then delved into the reality of water reuse in irrigated agriculture, where data gaps remain a challenge. He added that wastewater collection does not ensure water treatment and a treatment plant does not mean that the wastewater is being safely treated. He shared examples from Ghana where the operation statuses of many treatment plants were unsatisfactory. Absence of wastewater treatment plants leads to degradation of water quality especially where faecal sludge treatment plants which serve on-site sanitation systems are missing. Insufficient wastewater treatment and

poor solid waste management make urban areas key sources of water pollution as a result of which severe pathogen pollution affects around one-third of all rivers in Latin America, Africa, and Asia, putting the health of millions of people at risk.

Dr. Drechsel explained that this severe pathogen pollution affects around one-third of all rivers in Latin America, Africa, and Asia, putting the health of millions of people at risk, however the farmers using polluted water for growing food are not necessarily unhappy as the get larger produce form it. Global area under unplanned informal reuse of raw or diluted wastewater is estimated to be about 30m ha, downstream of 3 of 4 cities in the Global South and such unregulated use of wastewater is major health concern for World Health Organization. He shared many options that IWMI has been exploring from treatment to best practices (from farm to fork) that have been tested and verified.

Linking, cities, agriculture and industries Dr. Drechsel shared on the need for scaling circular systems. He highlighted that about 28% of the world's largest cities are moving towards a "Day Zero', often accelerated by climate change. In Cape Town's case water reallocation was implemented where agricultural donor region is upstream of downstream city, farmers donated 10m m3 of

water from their reservoirs to the city, and had to restrict their water use. Urban water crisis usually means that rural water in demand and turns into a big business. With agriculture being the largest water user, rural farmers 'could spare' some of their water resources for higher value urban use. But under water scarcity there is no water to spare. Compensation of rural areas is seldom clear, resulting in a high potential of conflicts.

Water reallocation provides opportunities for circular water economy and to compensate farmers for their high value water. Such water swaps require legal framework, business models, and contracts providing incentives for farmers. Wastewater use offers an important opportunity for climate change adaptation, and well-planned water swaps can be a win-win for both, the urban and agricultural sectors. Dr. Drechsel concluded his speech by sharing those investments in wastewater treatment for circular systems are small compared with economic losses and social costs of water cuts or what follows a "Day Zero".

The second keynote speaker Dr. Diego J. Rodríguez, Lead Water Economist for Eastern and Southern Africa, World Bank, shared his views on 'Water in Circular Economy and Resilience'. He began by sharing that to address the climate change and water management challenges and global commitments we must shift from a liner approach which has a high social and environmental cost to a circular approach to capture the full value of water. He shared the WICER framework developed by the World Bank where the implementation of the circularity concept in urban water supply can support three main outcomes, delivery of inclusive and resilient services, design out waste and pollution and preservation and regeneration of natural systems.

He further explained that to achieve the outcome of delivering resilient and inclusive services we need to plan and invest for climate and non-climate uncertainties, which requires diversification of water supply sources, including sources with different risk and cost profiles, and low vulnerabilities such as rain water harvesting and drainage systems. Such service delivery also requires protection of those water supply sources and further inclusion of integrated water storage such as natural aquafers and dams. The planner should maximize the use of existing infrastructure and optimize the planning by bringing in the efficiency from exiting systems rather than building new infrastructure.

Speaking on the second outcome of designing out waste and pollution in a circular system, He stressed that the plans should be designed to recover resources from water and wastewater inform of energy, nutrients and water for reuse. The optimization of water management and treatment operations should include reduction in non-revenue water and increase the overall efficiency in the water and sanitation systems. The systems should be designed to be energy efficient and use renewable energy sources.

For the third outcome of preservation of natural systems, Dr. Rodríguez shared that at the city level the utilities have to examine how to restore degraded land and watersheds, manage and recharge groundwater as well as incorporate nature-based solutions. The WICER framework addresses the following four cross cutting issues in the water sector: Manage water demand, Leverage digitalization, Create the right Policy

institutions and Regulatory environment, financing and providing the necessary funding and lastly Inclusiveness with participation of all stakeholders. Both high- and low-income countries can benefit from Circular Economy by capturing the full value of water. Adoption of circular economy systems makes a lot economic and financial sense. Investments in energy efficiency and reducing NRW can be recovered in less than 3 years, investments in nature-based solutions such as upstream reforestation, can reduce treatment needs and costs. Self-generating renewable energy can reduce energy costs and increase system resiliency and utilities are creating additional revenue streams to cover O&M costs.

Dr. Rodriguez shared an integrated wastewater reuse case study from, San Luis Potosi, Mexico where implementation of the WICER framework led to economic benefits for the power plant which received treated wastewater is 33% cheaper, more consistent (quality and quantity) and more sustainable than the groundwater that the power plant used. The power plant saved $18M in 6 years. For wastewater treatment plant, it generated extra revenue stream to cover almost all O&M costs. The Mexican farmers received better water quality and agriculture production increase. On the environmental and social front: the aquifer was restored with net reduction of groundwater extractions, the was rehabilitated into a natural wetland, preserving biodiversity and providing habitat for wild birds and other animals. The treated wastewater improved living standard for the population.

The next speaker Mr. Sohail Ali Naqvi, Sr. Manager/Head Freshwater, WWF-Pakistan presented on "Innovative ideas on water replenishment and sustainable development", he shared water demand statistics in urban cities of Pakistan, there is a large gap in water demand and supply for cities such as Lahore, Karachi and Faisalabad. The impacts of climate change in recent years have resulted in urban flooding in these cities. He shared that freshwater resources are being compromised due to urban wastewater leakages, agricultural runoffs, untreated industrial effluents and over abstraction of ground water. Dr. Naqvi then presented on the circular economy solution that can be adopted in the local context.

For the urban wastewater he suggested the use of combined wastewater treatment plants for the effluents and the treated water to be reused, he stressed on the need to categorize the waste water drains and treat them accordingly rather collectively. For agricultural runoff, drip and sprinkler irrigation techniques should be adopted to reduce agricultural runoffs, introduction of better management practices for reduction in agro chemical use through farmer inclusive awareness sessions e.g., BCI (Better Cotton Initiative).

For managing industrial effluents to reduce water pollution Dr. Naqvi suggested establishment of a stakeholder integrated database (GIS based) for surface and ground water quality for continuous monitoring. The industrial zones should operate with combined effluent treatment plants for industrial estates/parks. There is room for improved environmental compliance through adoption of Resource Efficient Cleaner Production Techniques (RECP) (WWF-Pakistan, International Labour and Environmental Standards). The authorities should develop, notify and facilitate implementation of industry specific environmental quality standards.

Presently, activities such as over abstraction of groundwater and concrete layers in cities prevent water from seeping through the land and degrading the water quality. For water reuse, he shared nature-based solutions such as floating treatment wetlands in Faisalabad and Lahore and rainwater harvesting and rainwater recharge well. He encouraged to explore different home-grown solutions on the water replenishment rather than depending on technologically advanced solutions alone.

For the next presentation, Dr. Hafeez invited Mr. Rui Owase to explain on "Environment Protection by "JOHKASOU" Water & Sanitation Solution." He introduced the Johkasou technology for sewage water treatment. Johkasou is on-site treatment system that can treat both gray and back water and its performance is way better than a septic tank. It treats water to recoverable quality in natural water body and can be used for irrigation. He shared that 50 years ago, rapid economic growth in Japan lead to increased water pollution, in 1974 the Japanese government introduced the Johkasou Act under which all wastewater had to treated to be released back in water bodies for the environment to recover. The natural water bodies conditions recovered after Johkasou-STP was installed at various places.

Mr. Owase shared that a key feature of the Act was approval of the Johkasou model, without the governments certificate Johkasou cannot operate in Japanese market. Johkasou onsite treatment system is effective in both high and low population density areas and its installation can be adjusted to the development speed of the location. He elaborated that according to the data of environmental ministry of Japan, Johkasou is the most cost effective as compared to other centralized treatment systems. Concluding his presentation, Mr. Owase then shared the company's, Daiki Axis Co international activities and projects India, Sri Lanka and Myanmar.

Dr. Hafeez wrapped up the first half of the webinar and moved towards the second half panel discussion focused on "Water as a key enabler of the circular economy; recovery, recycling and reuse". He invited Ms. Simi Kamal, Mr. Umer Karim, Consultant, Water and Agriculture Sectors Development and

Prof. Mahmood Ahmad, Professor of Practice (WIT), LUMS to share their views. Ms. Simi was of the view that Pakistan's water policy requires clearly defined actions and objectives and shared that Hisaar Foundation has prepared an implementation framework and shared with the Ministry of Water Resources. She said that in Pakistan recycling water and its reuse is particularly challenging as people's mindset is unwilling to accept recycled water is ok for particular uses, we need to work on awareness and adopt actions at all levels to make recycled water acceptable for reuse at a large scale.

Mr. Umer agreed with Dr. Mohsin's remark that local farmers are increasingly using untreated wastewater for growing crops and feeding livestock which has serious health consequences. He shared that many countries across the globe are increasingly using treated wastewater to cope with drought like conditions. Mr. Karim remarked that people have to realize that water is a finite source and treat it accordingly which requires a behavioural change. Dr. Hafeez shared his experience from Australia, where depending on the water availability, people are provided guidelines to not use potable water for carwash, gardening and flushing and have adopted water reuse for such purposes. Prof. Mahmood shared his experiences from Morocco and expressed that Pakistan is way behind in terms of water reuse. Jordan and Israel are treating approximately 90% of wastewater by providing the needed incentives such as pricing the irrigation water and the treated wastewater much lower for farmers to reuse it. For Pakistan, it remains primary that we need to reduce water use in agriculture, and those water savings can be transmitted to wastewater. Pakistan has to adopt demand management for water efficiency.

Dr. Hafeez opened the floor for questions from the audience. Answering the question for water reuse for Karachi, Ms. Kamal shared that there is no such specific policy, there are many international donors funded projects that are interest driven. There are however groups of people and activists in the city that are independently working on promoting water treatment and reuse, what is required is a mindset transformation, examples of this include reusing water condensate from air conditioners for gardening and other purposes. There are simple everyday solutions we can adopt for water savings rather than solely depend on large infrastructure solutions.

Answering the questions on wastewater treatment and reuse in Karachi Ms. Simi shared that we all are aware of the solutions there is a lack of collective will at citizen and political level. Karachi's circumstances are unique as it is governed by various bodies and

agencies in different locations and it is particularly challenging to agree on a set of common solutions as was experienced in the case of setting up the water treatment facility at Mai Kolachi. On the question of funding and financing, it was remarked that decentralized, small community based and owned projects are more likely to achieve their objectives in large polarized metropolitan cities. Mr. Karim questioned the social cohesion and lack of political will for improving the water management challenges in the metropolitan city of Karachi, Dr. Drechsel added that circular economy solutions require holistic approaches towards addressing water management issues. For projects to succeed they must be designed with business approaches, social acceptability, resource availability, technology, safety and health regulations and enabling environments, projects that fail to adopt holistic approaches do not do well. Dr. Rodriguez built upon this added that all stakeholders must be a part of such city-wide solutions with a bottom to top approach for influencing the political will. In most cases a lot of sectors have to work together to develop regulatory framework and incentives to drive the projects to success. Dr. Hafeez wrapped up the session and commented that we have to look for out of box solutions to minimize the impacts of untreated waste water being discharged into the system and extract the maximum benefits from treated wastewater reuse. The economic pricing of water and wastewater has to worked upon for both urban and rural use. System level approaches have to be adopted for water treatment solutions to provide maximum benefit. He called for various water research departments and organizations to from a consortium to provide data-based solution and approaches for policy making at all levels.

In her closing remarks of the webinar, Ms. Kamal stressed that the time for circular economy water approaches to be adopted in Pakistan is here. Intra Basin water can be applied at Pakistan and the social costs of not treating water are immense, we have to develop the leadership that will take forward the circular economy of water in different contexts, which calls for collaborations across all stakeholders., Ms. Faria Uqaili followed with a vote of thanks for the speakers, sponsors, technical and media partners, Hisaar Foundation governors and the webinar team.

Thinking the Unthinkable: Harnessing the Pandemic to Improve SDG-6, Health and Sanitation

Webinar 3
9th Dec 2021

- Webinar Introduction by Moderator **Dr. Daanish Mustafa**
- Keynote Speech by **Dr. Shahbaz Khan:** "Role of water in the current responses to COVID-19 and future phase of recovery and resilience"
- Keynote Speech by **Dr. Josiane Nikiema:** "Thinking the Unthinkable: Harnessing the pandemic to Improve SDG 6 capacity development"
- Presentation by **Dr. Nida Hussain**: "Technical brief on water, sanitation, hygiene to prevent infections and reduce the spread of antimicrobial resistance"
  Presentation by **Dr. Shaikh Tanveer Ahmed**: "Case study of HANDS with respect to Covid-19 and water"
- Presentation by **Afia Salam**
- Presentation by **Dr. Noman Ahmed:** "Sanitations Issues in Karachi"

The third in the series of webinar was opened by Ms. Simi Kamal, Chairperson, Hisaar Foundation and she introduced the Foundation and shared the history and achievements of previous four of the Karachi International Water Conferences (KIWC), she then welcomed the moderator and handed over the proceedings to, Dr. Daanish Mustafa, Professor, Department of Geography, King's college London, Dr. Daanish welcomed the participants and invited Dr. Shahbaz Khan, Director UNESCO, Beijing for his keynote speech.

Dr. Shahbaz discussed the role of water in COVID responses and the actions that UNESCO has committed to in these regards. He explained that SDG6 of clean water and sanitation is not isolated and water is connected and interlinked with many other SDGs, therefore the hydrological seasonal variability and climate change impacts have far reached consequences for water scarcity in the South Asian region. Prior to COVID-19, there already was a challenge of provision of safely managed water and SDG6 was lagging behind in achieving its targets. He shared that in terms of access and quality of services, one third of the global population lacks access to safely managed drinking water services which is a setback to 'leaving no one behind' agenda of the SDGs. In the pre-pandemic era WHO (World Health Organization) estimated that improving water, sanitation, and hygiene has the potential to prevent at least 9.1% of the global disease burden and 6.3% of all deaths.

When the pandemic struck, frequent and proper handwashing became a frontline defence against the spread of COVID 19, hence availability of safely managed water became integral. Dr. Khan commented that the pandemic heightened awareness of both the extent and consequences of this access gap and it could slow down progress in meeting the SDG 6 development goals as the revenue losses by water utilities due to shift in spending on COVID 19 measures directly affects their abilities to make critical capital investments. Against this backdrop of a struggling economy, the world's poorest received the COVID 19 shock on top of existing major urban water and sanitation deficits, all pointing towards a potentially overwhelming burden to contain the virus. He shared figures from Global Water Market outlook which reported that investment and overall utility capital expenditures declined majorly in the South Asian region.

Dr. Khan mentioned that during the cycle of pandemic response and recovery phases, we are evolving and learning with analysis of government responses, it is becoming evident that achieving SDG6 under the pandemic is becoming more difficult. In his view, to address potential supply disruptions, we need a clear understanding of where and how municipal or rural water infrastructure is coping with pandemic related spikes in demand.

He highlighted that water is integral in the recovery phase of pandemic, where ensuring public safety with provision of safely managed water is essential for the health of all and should be a paramount concern for all water service providers during the pandemic. The governments should work towards enhancing service providers' resilience by integrating the lessons of COVID 19 pandemic into planning and operations. Water delivery and services should be capable of protecting the welling and ensuring social outcomes for the marginalized sectors such as women, children and poor. Building a water management system that is resilient to shocks such as those of pandemics, will require investments in constructing water, sanitation and hygiene systems that will deliver the fundamental services. Investing in wastewater treatment will provide the double win of protecting communities and ecosystems against biological hazards while safely recycling water, energy and nutrient resources. Appropriate accounting of water in agricultural trade and production policies and investments is critical to sustainability. He suggested that as international organizations work to address these complex overlapping challenges, systems thinking is crucial as water connects health, food systems, climate change, nature,

energy and finance. Concluding his speech, he shared efforts of UNESCO in various regions for risk mapping, promoting value ethics and culture for water and effective communication and awareness activities.

The second keynote speaker, Dr. Josiane Nikiema, PhD, Research Group Leader, Circular Economy and Water, IWMI, West Africa, specified that for SDG6 progress, 129 countries are not on track to have sustainably managed water resources by 2030. She agreed with Dr. Shahbaz that SDG6 issues cascade onto other interlinked SDGs such as poverty, gender equality and climate change. She pointed out that some of the main sanitation related issues are poor sanitation service chain, the operation of treatments plants is not sustainable and there is hardly and reuse or recycling of the waste and this directly impacts the abilities of countries to respond effectively to pandemics and health hazards.

Addressing the negative impacts of COVID 19, she shared that globally for the first time in over 20 years, we have observed a rise in percentage of people living in extreme poverty. Workers in the informal sectors have had to migrate out of cities. Slowing economic progress has threatened the sustainability of water infrastructure and essential WASH services. On the positive side, the pandemic has increased awareness on the need for adequate sanitation, highlighted the significance of cooperation and knowledge sharing, emphasized on the need for resilient food chains and demonstrated the value of investing in IWRM, monitoring and data collection.

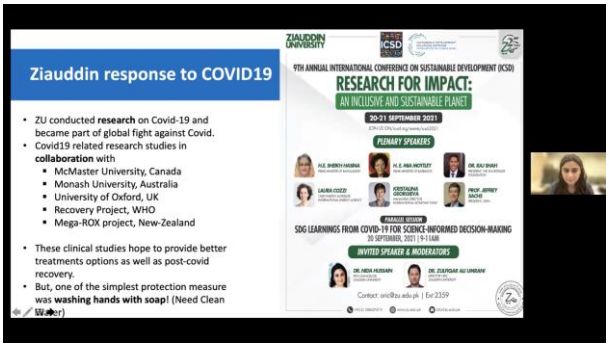
Dr. Nikiema was of the view that the solutions to build back better from COVID 19, lie in the support of local circular economy. She explained that in the circular economy model what is waste from one sector can be utilized by another sector of the economy as a resource. This has benefits in terms of reduced competition and driving health and economy sectors towards sustainable practices. The circular economy builds resilience and supports mitigation or adaptation to climate change. She pointed out that SARS- COV-2 virus dies quickly in wastewater, therefore health related impacts on waste-based products are limited, promoting water recovery from wastewater treatment.

She stressed on the significance of collaboration to accelerate transformation for achieving SDG6 targets. She shared the SDG acceleration framework, which can be applied to better understand COVID 19 impacts and its impending challenges, here the key takeaway is that integrated approaches are necessary to address multi-facetted complex issues. Reflecting on the financial commitments towards WASH during COVID 19, she shared

that while there was a huge increase observed in March 2020, it soon faded away by April as donor agencies suffered budget cuts due to economic crisis. She concluded that there is need to monitor how investments are targeted to ensure public and social interests.

Dr. Daanish Mustafa thanked the keynote speakers and invited Dr. Nida Hussain, Pro chancellor, Ziauddin University, to share her views on lessons learnt from COVID 19 for advancing the SDGs in Pakistan. She shared her experience from the health care perspective and Ziauddin hospital's response to COVID-19 where she and her team were at the frontline.

Dr. Hussain shared a few measures for COVID 19 response taken by the hospital such as monitoring and implementing WHO guidelines for lockdown and outbreak control and the hospital set up a designated 50-bed COVID ward facility, which was expanded to other sites later. The hospital also made vaccination mandatory for all its health-care workers, faculty and students. She added that the COVID response was an inclusive process as efforts were taken to facilitate the vulnerable such as home vaccination service, home covid-testing, online self-screening and tele-medicine. The Ziauddin university supported its students by rapid digitalization of services including online classes and hybrid learning for continued education. The university carried out COVID 19 related research studies in collaboration with many international organizations in order to provide better treatment options and post-covid recovery.



Dr. Hussain stated that while COVID 19 has negatively impacted the SDGs and impaired the progress towards SDG 6 targets, perhaps the learnings from pandemic response and handling experience could help advance the progress. She compared the fatalities occurring from COVID to those due to waterborne diseases, and added that WHO has categorized waterborne disease as the world leading killer. Another area of comparison was funding, where USA alone has provided COVID 19 funding amounting to $13 trillion whereas WASH funding requirements are estimated to be $114 billion therefore investing and financing in WASH makes economic sense.

The global response to COVID 19 brought forward different platforms for free and open data sharing made accessible around the globe. Scientific policy processes were reinforced and different stakeholders developed partnerships between academia, business, civil society and governments in order to find solutions. Dr. Nida reiterated that these are some of the actions that can be replicated for SDG6 and WASH sector as well. She pointed out that within a span of a year, scientists have come up with nine vaccines to combat COVID 19 Perhaps the same urgency and drive is required for solutions SDG 6. She concluded that we need to learn from our COVID 19 experiences and form a united front for addressing SDG 6 challenges in our region.

At the end of the first half of the webinar, Dr. Daanish opened the floor for questions from the audience. Answering a question on university collaborations, Dr. Hussain shared that Ziauddin University has formed collaborations with various local universities as well for awareness raising and youth participation towards SDGs achievement. On the question of water scarcity, Dr. Shahbaz remarked that from the hydrological perspective there is a physical water scarcity in many regions of the world, there is also structural water scarcity as water is not where it should be or is needed, in Pakistan we are inefficient users of agriculture water. Dr. Josiane added that urban areas experience demand of water that is much higher than other areas, therefore the water managers have to come up with innovative solutions to reduce gaps in water availability.

Answering the question of financing and funding, Dr. Josiane shared those countries have to adopt smart strategies where the investments should have benefits outside the SDG6 domain as well such as health and jobs etc. The responsibility of developing financially and socially feasible business models lies with the individual countries and here working with a different range of stakeholders is essential.

Dr. Daanish thanked the speakers and participants and initiated the second session of the webinar, he invited, Dr. Shaikh Tanveer Ahmed, CEO, HANDS to present on HANDS' COVID-19 response, where they implemented 19 different projects across 39 districts of Pakistan targeting a population of 2 million. To minimize the impacts of COVID 19, these projects were implemented in WASH, health, disaster management and livelihood sectors.

Dr. Shaikh categorized the challenges faced by HANDS due to the pandemic as community based and service delivery-based for water sanitation and hygiene programmes during COVID. At the community level, hand washing practices were not so common due to poor access and non-availability of water. Soap's affordability and accessibility was an issue exacerbating lack of access to safe sanitation. He observed that many families faced transportation and livelihood issues due to the lockdown. On the service delivery front there was a lack of availability of protective gear, most of the public sector hospitals were not even equipped with basic handwashing facilities.

He added that while achieving SDG6 seems difficult, the growing importance of public health due to Covid-19 may encourage governments to prioritize the supply of clean water to their citizens. Furthermore, he shared progress on various COVID-19 community outreach & mass Communication efforts undertaken by HANDS. Concluding his speech, he shared some recommendations for the way forward and called for that a highest permanent forum needed to be established (Provincial & Federal), with multi sectoral stakeholders to deal with any pandemics. He suggested strengthening of integrated public and private health systems including primary, secondary and tertiary levels with optimal WASH facilities and formation of a health management information system to effectively deal with pandemics in the future.

Speaking next, Ms. Afia Salam, President, Baanhn Beli and Chair of the Board of Trustees of the Indus Earth Trust, shared the reality of pandemic and challenges faced by communities in rural and peri urban areas of Pakistan. The pandemic SOPs consisting of frequent handwashing, sanitization, masked covering, social distancing, vaccination and social isolation cannot be achieved under the circumstances faced by these marginalized communities where we see households of up to fifteen individuals living in single room housing. The close proximity of shops and markets are hubs of economic activity in these areas and people are at risk of losing their livelihoods under the absence of any social safety nets under lockdowns. She elaborated those women and child who bear the burden of fetching water for daily needs in rural villages are exposed to all sorts of health and COVID risks, with low water availability, a lack of WASH facilities leads to open defecation in these villages. While better sanitation is considered to be one of the key elements in management of COVID-19 spread, it seems like a far-fetched reality for these communities.

To address these challenges, Ms. Afia identified a set of responsibilities where the government has to generate adequate resources, the civil society organizations ought to work towards awareness raising and support the local governments in service delivery where appropriate. With individuals lies the responsibility of collective action and water conservation. The way forward lies in the government accelerating action on WASH and devoting resources towards it. Collaboration and development of partnerships with all stakeholders is essential to overcome inequity and social injustices in water resource allocation and management.

The next speaker Dr. Noman Ahmed, Dean AMS, NED University shared his insights on 'Karachi: Perspectives on Pandemic, Climate Change, and Infrastructural Vulnerabilities'. He mentioned that COVID emerged in Pakistan through returning travellers from different regions as a result of which strict lockdown was imposed in March 2020. In Karachi, and Sindh all activities and mobility were closed down, except essential services. He appreciated the efforts of National Command and Operation Center (NCOC) and united actions that federal and provincial governments came up with while facing the pandemic such as Ehsaas (care) programme which ensured cash distribution to the turn of Rs, 1.2 trillion on a nationwide basis including Karachi.

He shared findings from his research studies where it was observed that managing religious activities such as Ramazan, Eid Festivals, Muharram processions and congregations led the government to issue specific SOPs, and these SOPs were followed only in few mainstream areas and there was a rise in infection rates attributed to violations of SOPs issued.

These COVID 19 measures resulted in enormous hardship experienced by urban poor such as closure of public transport, many people in informal sectors such as domestic help lost jobs, lack of adequate water &

sanitation enhanced vulnerabilities. Many small-scale services, social enterprises and entities dependent on local clientele ran out of business. Addressing WASH challenges, Karachi Water & Sewerage (KWSB) arranged wash basin fitted bowsers to facilitate hand washing in some katchi abadis. In agreement with Ms. Afia, Dr. Nouman added that in katchi abadis it is tough to maintain social distance and follow other SOPs related to the pandemic. While people faced COVID 19, many ill planned Supreme court led evictions were conducted which rendered thousands of residents of Karachi in informal settlements homeless. He concluded and questioned whether large metropolitan cities have any institutional arrangements in place to deal with emergencies related to pandemic, climate change and other catastrophes.

Lastly Ms. Seema Taher Khan, CEO, Airwaves media, discussed the role of the media in the response to COVID-19 and highlighted the lack of consensus and collaboration at the cost of data and information gaps to significantly address the water challenges of Pakistan. For media and social media to play its role effectively for WASH sector there needs to be a collective roadmap to raise awareness and bring forward ground realities. During the pandemic, digital media presented a platform for the public to express their views and concerns openly. While Pakistan benefited from global information and knowledge sharing and adopted timely measures to control the spread of COVID 19, such efforts have to be replicated in the WASH sector as well. Ms. Afia added that the entire hierarchy of media systems in Pakistan has to be sensitized to WASH challenges in order for these to be brought forward in mainstream media for public awareness.

Dr. Daanish Mustafa summarized the session and concluded that insecurity and militarization of water and public life is a sad commentary of the state of affairs in Pakistan. The relationship between the state and public has to move forward with honest dialogue amongst all stakeholders whereby social issues and impacts of pandemics are explored with a mutual understanding and trust to arrive at innovative inclusive and practical solutions. The webinar ended with a vote of thanks by Ms. Sameen Binte Huda, Research and Communication Associate, Hisaar Foundation and she thanked the speakers, participants, sponsors, technical and media partners, Hisaar Foundation governors and the webinar team for all their efforts.

Water and Climate Change: Reimagining Women's Leadership"

Webinar 4
23rd Dec 2021

- Welcoming remarks by **Zarreen Baqir**
- Presentation by **Aisha Khan:** Water and Climate Change: Reimagining Women's Leadership"
- Presentation by **Simi Kamal**: " Changing Women's Role in Water Sectors: Building Women's Leadership"
- Presentation by **Dr. Fazilda Nabeel**: ""When Women Lead: Looking Back at Ecofeminist Movements in History"
- **Panel Discussion (Moderated by Meher Noshirwani)**
    a) Equal participation and mandates for decision-making
    b) Climate Change and impact on water: Further challenge for gender equity
    c) How do you reimagine women's leadership

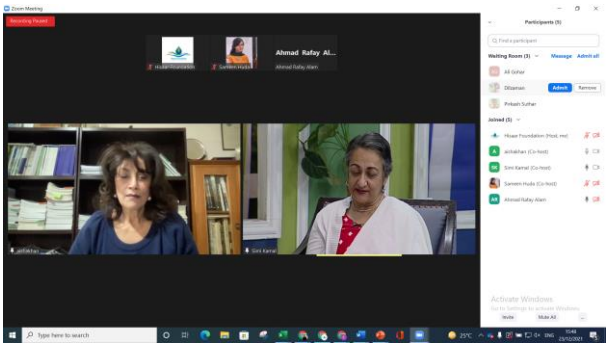
The final webinar in the 5th Karachi International Water Conferences (KIWC) focused on the recognised pivotal role of women in water management. Ms. Zareen Baqir, Governor Hisaar Foundation welcomed the participants and invited Ms. Sanaa Baxamoosa, General Manager, Hisaar Foundation to share the history and achievements of previous four of the conferences and highlights of the webinar series conducted so far. Ms. Sanaa also briefed on 18 years of Hisaar Foundations projects and work towards advancing water security in Pakistan.

The keynote speaker, Ms. Aisha Khan, CEO, Mountain and Glacier Protection Organization was of the view that climate, COVID and conflict are going to be the new normal and a game changer on a planet that is warming up rapidly and, in a world, where the population growth rate is exceeding the capacity of the finite resources that sustain life this imbalance will widen the supply and demand gap hitting vested interest groups against each other. She shared that this in turn would trigger demographic shifts and create new pockets of vulnerability hence, climate change will affect all. In this context the bigger challenge that countries will face is the impact of climate change will not be spread evenly across the globe, extreme weather events ranging from floods to droughts and wildfires to heat islands will increase vulnerability and exacerbate inequality.

Reflecting on how climate changes impact women, Ms. Aisha Khan mentioned that due to climate induced forced displacement we have observed a higher rate of malnutrition in women and increased incidences of violence against women and girls, this has a knock out effect in terms of equity of access to education, health care land capital employment and together these perpetuate

and worsen the situation for many women in rural communities.

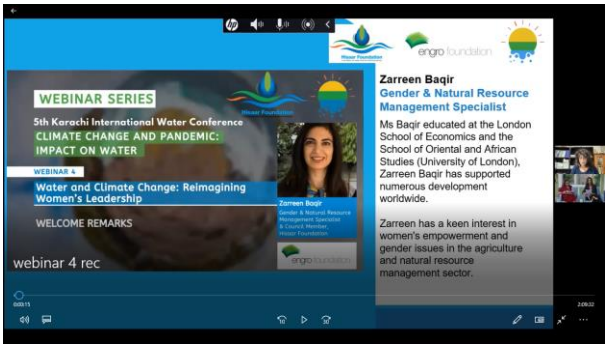
Reflecting on her personal experience of working with rural communities she shared that women are the primary caretakers of these households and their responsibilities extend from domestic chores to fetching firewood and water as well as providing a labour on farms other responsibilities including looking after the sick and the elderly and managing multiple relationship dynamics the changing weather patterns in stock, imbalances in the hydrological regime are also affecting traditional livelihood activities like farming fishing and cottage industries. The male out migration is on the rise leaving unequipped women to perform tasks for which they have no skill set or training.



The pandemic has exposed the fragility of social systems and the vulnerability to a virus that keeps mutating in waves with no end in sight. In her view, COVID like climate is an equalizer, that spares no one and has brought the vulnerability of women into sharp relief, combination of lockdowns, loss of mobility and income, death of male providers and lack of integration of women in policy and planning has led to women with less empowerment bearing the brunt of pandemic impacts.

Ms Aisha Khan stressed that in light of these threats of climate change and COVID it's important to reimagine the role of women in society. The time for projecting women as victims is over, we now need to look at them as part of the solution and empower them to become partners in decision making, as agents of advocacy, as independent actors instead of perpetuating the dependency syndrome that has outlived its time. She pointed out that South Asia, in particular is vulnerable to climate change with extreme weather events become frequent which will have a critical implication for marginalized members of the community, given the intersection of climate and gender issues, the future of 48% of women in South Asia will be jeopardized and compromised, undermining their worth and dignity. She remarked that despite the commonalities of the region, we have not been able to overcome the differences in the

larger interest of humanity, women and children are the ones paying the price of societal strife, political polarization and economic disparities. She added that cultural barriers and societal norms are often used as constraints that hamper gender equality.



Sharing her outlook on the future, Ms. Aisha said that the new era that we're entering is fraught with uncertainties. Many old myths will need to be discarded if we want to cope with threat multiplier challenges. Looking at women as victims or with a subservient role in society no longer makes sense in a world where we need all hands-on deck.

The coming decade will challenge us at many levels in which it would be immoral to keep half the population vulnerable in the name of upholding cultural and social values. On a positive note, she mentioned that despite gender constraints women have always shown their mettle and proven their worth when given the opportunity. South Asian women are resilient and proactive, they have consistently demonstrated their ability to use traditional knowledge and ecological awareness to adapt to changes in the environment. Ms. Aisha pointed out that the main barrier to women's full participation is not the vulnerability of their gender but society and culture that prevent them from realizing their full potential and prevent them from being as proactive and useful in society as they have the potential to be.

While the conversation about climate has gained global recognition in her opinion it is yet to find traction in South Asian countries. She highlighted that woman by and large are missing from the climate debate, partly due to approaches that favour a patriarchal control on societal hierarchy and cement as the power brokers in policymaking. Women are side-lined using subtle and nuanced messaging to prevent them from aspiring beyond traditional roles assigned to them. She shared that it is therefore not surprising that women without emotional and psychological empowerment even educated women find it difficult to claim their rightful place in society.

Religion also retains a strong hold in South Asia and its self-serving interpretation is used by a male dominated society to influence culture and politics to subordinate status of women. Ms. Aisha elaborated that the wide-ranging consequences of climate change working through male dominated silo approaches will no longer remain a long-term option. Growing gender disparities will result in economic losses and social destabilization forcing inclusion as a critical need in climate adaptation and mitigation. Speaking on the role of women she mentioned that as the climate regime changes it will need a system reset to tackle associated issues, it will become increasingly important for governments and societies to include women in climate conversations to address social economic vulnerabilities as a preliminary course of policy action. The road to resilience is through women and to get there, society will need to provide that enabling environment where

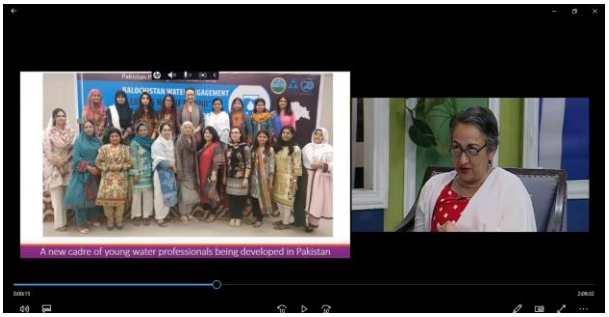
women have the confidence to dare, the freedom to aspire and the free will to choose.

Sharing her vision, she expressed that in the new global order, governments, agencies and institutions will be under pressure to employ a mix of top down and bottom-up approaches to fight climate change and pandemics. Women will have to be given their rightful share and access to resources and opportunity. Financial inclusion and meaningful role in decision making will not only be critical for a gender balanced climate future but necessary for social harmonization and political stability. She concluded by sharing the concept of deep ecology, where man and nature interact constantly and modify each other in order for both to thrive in tandem so that balance is retained between human activity and nature. As women constitute nearly half of humanity, deductive logic dictates that without the functional and active participation of 50% of the global population striking balance and living in harmony with nature may remain an elusive goal.

The second keynote speaker Ms. Simi Kamal, Chairperson, Hisaar Foundation, questioned whether we are changing and doing enough to meet the challenges of climate change. She spoke on 'Changing Women's Role in Water Sectors: Building Women's Leadership' and explored the linkages of women, environment and water nexus. Women are the primary users and managers of water in households and communities yet they have no control over the decision-making processes. Referring to the National Water Policy for Pakistan, she added that while women account for 48 percent of the population that have been mentioned only once in the policy in the context of domestic water supply and hygiene. This shows that in spite of Pakistan's agriculturally based economy heavily dependent on women's labour and skills, the policy only takes into account women's participation as domestic users of water. Ms. Simi criticized the lack of women inclusion in decision making platforms at various water management institutions of Pakistan such as WAPDA and Sindh Irrigation Department.

She highlighted that SDGs can be a critical pathway to transforming gender relations and supporting women and girls as agents of change to lead and participate in social, economic and political aspects of water. Ms. Simi suggested that time has come for now for women to lead the efforts in addressing the challenges of water resource management. She looked back at the history of women leadership in water sector and observed that it was as recently as 1952 that we saw women in leadership roles globally. Countries where women are presidents and prime ministers, there is focus on environment, water and natural resources. Most commonly held portfolios by women ministers are environment, natural resources and energy, followed by social sectors such as education and family. At the level of local government data has shown that the councils that have women as chairs of members consistently spend more on water, environment, pollution control and nature-based solutions. She

shared examples of professional women heading water utilities, water partnerships for change, winners of global water prize and awards and female scientists in water research, science and policy. She summarized that woman have made a big mark in global non-profit water organizations in the past 20 years where these organizations have been lobbying for change at many levels. She emphasized on the role of young women like Greta Thunberg and their movements stressing on the learning to live minimally for the health of the natural ecosystems.

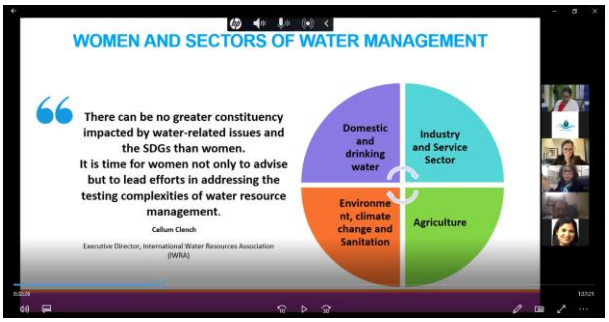


At the local level, Ms. Simi shared the efforts of Hisaar Foundation in promoting women leadership in the water sector, initiatives such as Women and Water in Central and South Asia, the Women and Water Networks, Urban women aiding rural women and communities with water solution and Women Water Professionals online campaign. Exploring the question of what draws women to pursue careers, she mentioned that a passion for water, environment and public health is the key element here. Women have been prepared for centuries to do the work required in the climate change world and already have the capacity to change the way we live now. Women have already proven, where they led the countries, the responses to COVID have been better. Women's collaborative networks are working across the globe and they have been mobilized for dealing with the fallout of COVID, similarly they can be mobilized to manage water use, hygiene, and discipline needed in a climate change world with new water challenges.

She stressed that the need for women to act is urgent. We have to work towards to get authorities to accept women as an essential legitimate group to engage along with other water stakeholders. Combining Pakistan's gender equity and equality commitments with water related goals can give a solid boost to gender mainstreaming in the water sector. Women should have fixed quotas in all levels of government and grassroots governance to ensure their voices, unions and their knowledge is internalized. She identified policymakers, scientists/technicians, researchers and trainers and entrepreneurs as some of the roles for women in the WASH sectors. Talking about some of the challenges women traditionally face while building their professional careers, Ms. Simi elaborated that the actual reasons are rooted in a patriarchal society where women are expected to manage both careers and home without sufficient childcare and support. Workplaces are not built to be suitable to women's needs and they face sexual harassment, intimidation and constant judgmental behaviour towards them. There is a need for a new feminist social contract for sustainability and social justice, we have to transition from a masculine to more feminine form of leadership that promotes cooperation, collaboration and is planet focused rather than profits oriented.

Ms. Zarreen thanked Ms. Simi for her inspirational speech and invited Dr. Fazilda Nabeel, University of Sussex, to share her insights on 'When Women Lead: Looking Back at Ecofeminist Movements in History'. She

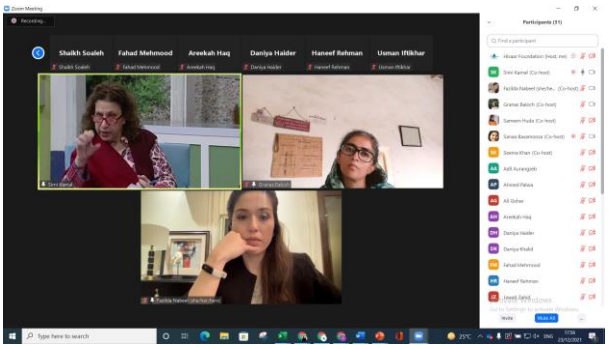
took a historical perspective to explore the role of women in leading efforts for change. These famous historical environmental movements were led by women and Dr. Fazila drew inspiration from these eco feminist movements in order to analyse we can bolster women's role for effectively leading climate activism in Pakistan. Explaining ecofeminism, she mentioned it is both an ideology and movement that sees climate change, gender equality and social injustice as related issues and then all tied to male dominance in the society, therefore typically people who are most affected by environmental destruction are women, particularly indigenous women who are dependent on their natural environment for subsistence and also women of colour, these are the ones who are best equipped to address these challenges and identify the right solutions.



Dr. Fazilda mentioned that when you are close to the problem you are necessarily close to the solutions as well, and therefore there is a large space for women as leaders in Environmental Activism. Within this context she shared examples of historical eco feminist movements such as The Chipko Movement. The word 'Chipko' means to embrace the tree to avoid it being felled, the movement took place in 1973 in the Uttar Khand region in India. Here the local forest department refused to grant permission to the local indigenous population to make basic tools from the trees however, it granted a sports goods manufacturing company permission to clear the same forest area for commercial use. This led to a collective mobilization of women for the protection of forest, at the forefront of this was a woman named Gaura Devi, who hugged the trees to stop them from being cut down. The matter escalated to the level of the chief minister and the government made a committee to investigate the felling of trees in the region and labelled it as an ecologically sensitive zone.

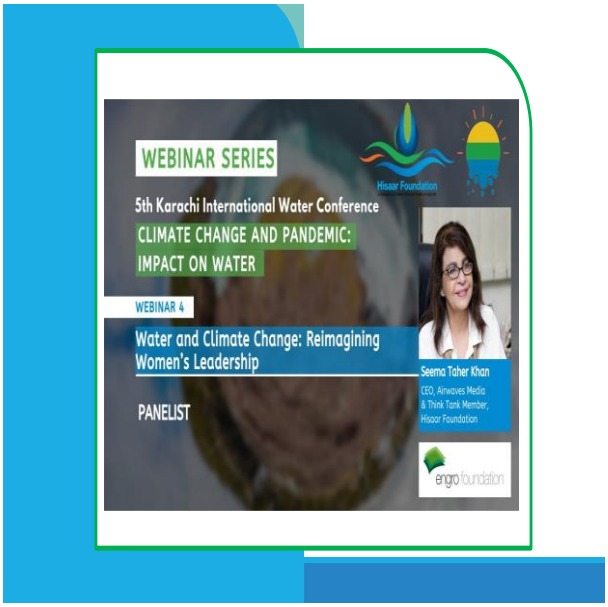
Discussing the next example from Love Canal, a housing society in suburbs of Niagara Falls, United States in 1950s, she mentioned that, this excavated site for the abandoned canal became a dumping site for effluents both from the city and a nearby chemical company, Hooker Chemical Company whereby 21000 tons of chemical waste were deposited here over a period of 30 years. The company later covered this land and sold it to the school board, over the next few years with the construction of school and housing society on this land people complained of health-related issues and a mother from this area, Louise Gibbs, organized women in the area and formed the Love Canal Homeowners Association, they sued the Hooker Chemical Company and won the case. Their collective action led to the formation of Super Fund, where the company paid $102 million for clean-up and for the relocation of 1000 families. These women faced numerous challenges during this period where they were not taken seriously and threatened by their own husbands and families. She stated other examples of local environmental struggles led by women, such as the Green Belt movement and Spanish women against Industrial waste

and shared and further useful resources in this context.

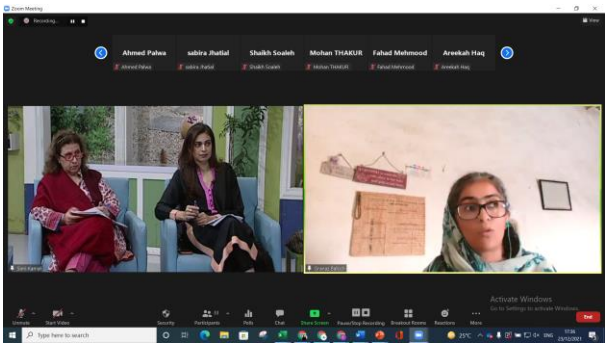


In Pakistan we have seen inspiring examples of women led environmental activism such as the Climate Action Now, Haqooq e Khalq movement, the women and water networks but she questioned the way forward for these movements. We will not only have to focus on the relationship between women and nature but amongst the women in the society as well. The indigenous women who live in close proximity to nature suffer more from environmental degradation. We need to empower and support indigenous women as the future of climate activism.

Ms. Zarreen thanked the speakers and opened the floor for questions from participants. Answering the question of water scarcity in Pakistan, Ms. Simi commented that it depends on multiple factors such as population, water use and efficiency and the dependence of economic activity on water. Pakistan will reach water scarcity earlier as compared to countries where the per capita water is lower. Dr. Fazilda added that it's a question of water management and governance rather than absolute water scarcity for a country like Pakistan where you will find within a city pockets of water abundance. Ms. Zarreen invited Ms. Mehr Noshirwani to moderate the panel discussion during the second half.



The first panellist Ms. Seema Taher Khan, CEO, Airwaves Media visualized the role of women in future where the women are environment leaders as compared to the present realities where they have limited opportunities to succeed. Drawing inspiration from nature she compared women to eagles, where they are flying all across the globe and discovering young girls challenging patriarchal norms for education like Malala to climate justice like Greta Thunberg and indigenous rural women searching for water for their daily need in drought prone areas. Ms. Seema shared that woman are the key towards addressing water availability challenges and the women leaders should promote inclusiveness in the policy making processes and ensure that rural women are given a platform to face the threats of climate change and pandemics. Ms. Mehr added that women play a pivotal role as agents of change in the society and moving forward the stereotypical image of women has to be countered.



The second panellist, Ms. Granaz Baloch, Climate Facilitator, Global Assembly shared her experiences from her life in rural Balochistan. She mentioned that water scarcity is a reality she lives with every day, to manage everyday tasks such as making coffee, drinking water and sanitation needs her community has to rely on water fetched by walking distances of 10-12 kms daily. Climate change, gender equality and girl's education are all interlinked, women and girl children in rural areas have a default job of water collection for entire households.

The water quality of this water collected by women is unchecked and poses health risks for the whole community. Ms. Granaz added that in the absence of provincial water policy and climate change policy, women are the most disadvantaged by water scarcity. Sharing personal examples, she said that, women in her neighbourhood are tasked to collect 12-40 litres of water every day and in most cases wake up before dawn and face added risks of harassment and rape while fetching water at odd hours for their families. She criticized the donor funded projects in Balochistan as they only tend to address the water availability issues and ignore the role and needs of the local women in this context. It is no longer just about water provision but a story of many young girls who may have dropped out of school or have little time to enjoy due to these responsibilities.

In rural communities such as hers, water poses additional health risks specifically for women, as men have the privilege to consume bottled and packaged treated water, while women and girl children must only rely on underground water that they collected despite health issues. Ms. Granaz stressed on the significance of education and awareness and recommended that young girls in rural communities should receive green skills training and issues of female mobility must be addressed as well.

At the end of panel discussion, Ms. Mehr opened the floor for questions, Ms. Simi addressing a question on human rights to water for rural communities remarked that under the constitution and legal framework of Pakistan, areas with a population of less than five hundred individuals are not catered to which creates issues where basic human rights for provision of water for drinking and water for livelihood are denied. Ms. Simi added that in such rain fed areas where people depend on groundwater, pondage and rain water harvesting can offer sustainable solutions for water provision.

Ms. Mehr reflected that gradually over time, there is a greater understanding on the role of women in water and development. We have now ascertained that women are the managers of natural resources and this has changed the approaches towards developing projects and programs and gender mainstreaming. There is now alarming evidence surfacing on the link between climate change and gender-based violence, there has been a lot of awareness created on these issues due to the participation of women at various forums and activist movements and we need to build upon this. She added that while we address multi-sectoral and cross cutting issues the gender aspect should be kept at forefront, the responsibility of which lies with the women leaders and professionals of today.

Women leaders should offer mentorship, guidance and support for the younger generation. Sharing her experience of working on development projects in many countries, Ms. Zarreen highlighted that for project results or for movements of change to be effective, there has to be ownership at grassroots level from the communities themselves.

Ms. Simi Kamal concluded the session with commitments amongst the panellists to bring ecofeminist stories and narratives from Pakistan to the forefront. The webinar ended with a vote of thanks by Ms. Sanaa Baxamoosa and she thanked the speakers, participants, sponsors, technical and media partners, Hisaar Foundation governors and the webinar team for all their efforts.

Speakers Profile

Adil Najam is the inaugural Dean of the Frederick S. Pardee School of Global Studies at Boston University which was founded in 2014 with a generous gift from BU alum Frederick S. Pardee. He is also a Professor of International Relations and of Earth and Environment. Earlier, Prof. Adil Najam served as Vice Chancellor of the Lahore University of Management Sciences (LUMS) in Lahore, Pakistan and as the Director of the Boston University Pardee Center for the Study of the Longer-Range Future.

Dr. Patrick Bond is a political economist and professor from University of the Western Cape School of Government in South Africa. He was born in Ireland in 1961, studied economics at Swarthmore College, finance at the Wharton School and geography at Johns Hopkins University in Baltimore. He also worked at the Institute for Policy Studies in Washington, DC and learned politics in the U.S. anti-apartheid, labour, student and community movements.

Roberta Ianna, currently serving as senior adviser within the Climate Change Negotiation team of the Italian Government. National Focal Point for Art. 6 of the UN Framework Convention on Climate Change (Education, Training and Public Awareness), co-chair of the Paris Committee on Capacity Building (PCCB), established at COP 21 in 2015 to address current and emerging gaps and needs in implementing and further enhancing capacity-building in developing countries and in charge of Capacity Building, Environmental Education and Global Climate Action Agenda issues.

Dr Aditi Mukherji is a Principal Researcher at the International Water Management Institute, New Delhi. Earlier, she led the Water and Air Theme at the International Centre for Integrated Mountain Development (ICIMOD) in Nepal. Aditi is a Coordinating Lead Author (CLA) of the Water Chapter in the Working Group II of the Intergovernmental Panel on Climate Change (IPCC,) and a member, Core Writing Team of the IPCC's AR6 Synthesis Report.

Ahmad Rafay Alam is an environmental lawyer and partner at Saleem, Alam & Co. a law firm specialising in the energy, water, natural resources and urban infrastructure sectors. Mr. Alam has vast experience in environment law and regulation and regularly advises clients on environment, water, sustainability, climate change, energy efficiency and air quality issues. Mr. Alam has served as Chairman of the Lahore Electric Supply Company and Lahore Waste Management Company and as Vice Chairman of the Urban Unit

Mahmood Nawaz Shah represents growers as Vice President of Sindh Abadgar Board. He did his B.S.(Marketing), and M.S (Engineering Management) from George Washington University. He has remained on the Board of Privatisation Commission, Zarai Taraqiati Bank of Pakistan, Sindh Enterprise Development Fund, and is currently on the board of Pakistan horticulture development export company and trade development authority of Pakistan, representing farmers.

Dr Zulfiqar Ali Umrani is the Director of Research, Innovation & Commercialization and heads the Sustainability Office at Ziauddin University Karachi. He has a PhD in Renewable Energy from France and he established an award-winning innovation centre (UBI-Global 2019-20) in Jamshoro. His areas of interest are Climate Change, Social Entrepreneurship and Sustainable Development."

Diego J. Rodríguez is currently a Lead Water Economist for Eastern and Southern Africa based in the World Bank's office in Pretoria where he is responsible for analytical work on climate change, resilience, and urban water security. Prior to this, he spent five years as a Senior Water Resources Management Specialist based in the Bank's office in Mexico City where he was responsible for the formulation and implementation of lending operations, and the design and implementation of sectoral, policy, and analytical studies.

Dr. Pay Drechsel holds a PhD in Environmental Sciences. He works as Research Quality Advisor at the International Water Management Institute (IWMI), based in Colombo, Sri Lanka, leads the Rural-Urban Linkages flagship of the CGIAR research program on Water, Land and Ecosystems, and is editor of IWMI's Resource Recovery & Reuse publication series. Pay has 30 years of working experience, coordinating projects on the safe recovery of resources from domestic waste streams for urban and peri-urban agriculture, in particular waste water irrigation.

Prof. Mahmood Ahmad, Professor of Practice (WIT), LUMS. Dr. Ahmad is internationally renowned expert on agriculture and water policy. He did his PhD from the University of Massachusetts in Resource Economics (1979). He carries an experience of around 40 years, including 24 years with the Food and Agriculture Organization of the United Nations, working in more than 15 countries. He led the formulation of FAO programmes on agriculture and water policy.

Muhammad Umer Karim is a consultant in Water and Agriculture Sectors Development, FAO. He is an Engineer and Alumni of Sindh Agriculture University Tandojam. He has been working in the field of Natural Resources Conservation, Agriculture Productivity, Irrigation Rehabilitation - Modernization, Master Planning, Policy and Strategy Formulation in Water and Agriculture Sectors of Sindh since the last eighteen (18) years.

Sohail Ali Naqvi is a Sr. Manager/Head Freshwater, WWF-Pakistan.
Mr. Naqvi is an engineer by profession having an experience of more than 14 years in the Environment and water sector. He is leading the Freshwater programme in WWF-Pakistan and has been working with different donors (EU, ILO, ADB, Pvt sector donors) in the textile and leather sector as well as in the Water stewardship domain.

Dr Mohsin Hafeez is working as a Principal Researcher (Water Resources Management), Country Representative of Pakistan and Regional Representative of IWMI Central Asia. He has an outstanding professional, scientific, industry, research and management background experience of more than 25 years in climate and water governance, sustainable land and water management, integrated water resources modelling and management.

RUI OWASE Sanitation Expert, Executive Officer & General Manager Global Division at Daiki Axis Co Ltd. Tokyo Japan. UI OWASE Is accredited Engineer holding the Chemical engineering degree from National Shizuoka University, Japan .He also has national qualifications for Johkasou management and construction. The green technology highly effective and feasible resolve big issues with decentralized approaches.

Dr. Professor Shahbaz Khan is the Director of the UNESCO Office in Beijing and UNESCO Representative to the Democratic People's Republic of Korea, Japan, Mongolia, People's Republic of China, and the Republic of Korea.
Prof Khan joined UNESCO in 2008 at its Headquarters as Chief of the Water and Sustainable Development Section. He has worked in Australia, France, Indonesia and Pakistan in various research, consultancy and policy positions around hydrology and sustainable development.

Dr. Josiane Nikiema is PhD, Research Group Leader in Circular Economy and Water, IWMI, West Africa. She is an expert in the field of environmental science. She is a Process Engineer, and she holds a PhD in Chemical Engineering applied to environmental protection from Université de Sherbrooke, Canada.

Dr. Daanish Mustafa is a Professor from the Department of Geography, King's College London. He obtained his BA in Geography from Middlebury College, USA, his MA from University of Hawai'i Manoa, and his PhD in Geography from University of Colorado. He has taught at George Mason University in Fairfax, VA and then at the University of South Florida, St Petersburg, before finding his intellectual home in the Department of Geography. While at King's

Dr. Nida Hussain is the Pro-Chncellor of Ziauddin University and a well-known Internal Medicine Specialist (Diplomate American Board of Internal Medicine Mount Sinai, New York). She has transformed Ziauddin University from Health Sciences specific university to a more general university with 7 diverse faculties. With over 12 years of experience both in Pakistan and the USA, Dr. Nida Hussain can treat a wide range of illnesses from diabetes mellitus, dyslipidaemia to hypertension, influenza and many others.

Dr. Shaikh Tanveer Ahmed is a leading Public Health Professional and Social Worker, CEO of a Non-Profit Organization from the last 25 years named Health and Nutrition Development Society (HANDS). He is a Medical Doctor and Dow Graduate. He did his Master's in Public Health (MPH) from Karachi and Fellowship from Public Health Institute Santa Cruse USA. His experience of Working in a donor agency USAID and Health Department Government of Sindh.

Prof. Dr. Noman Ahmed is currently Dean of Architecture and Management Science at NED University and Acting Director of Panjwani-Hisaar Water Institute (PHWI). He is an architect and planner by profession, he is a well-known researcher and writer on urban water, has about 30 years of experience in teaching and training, published several research papers in national and international journals and writing articles for newspapers.

Afia Salam is president of Baanhn Beli & Chair Board of Trustees Indus Earth Trust. She is a powerful voice in the water sector of Pakistan. She has been writing on water for two decades and highlighting challenges in water and environment sectors. She has championed the cause of women in water. She had a Masters in Geography and is a career journalist with four decades of experience of print, electronic and web journalism.

Dr. Fazilda Nabeel is a Doctoral Researcher and Tutor in International Development at the University of Sussex (UK). Fazilda is also the Co-Lead for Water and Sanitation at the UK-Pakistan Science and Innovation Global Network (UPSIGN). She has also served on the Committee for Water Resource Management, Law and Justice Commission of Supreme Court of Pakistan.

Meher M. Noshirwani is chair specialist group on gender commission on environmental, economic, & social policy, IUCN. She is a specialist on conservation and environmental management, with a particular expertise on gender. With over 35 years of experience, she brings a unique multi stakeholder perspective to all her work. She serves as Regional Vice Chair for Asia, and Chair of the Specialist Group on Gender, for the IUCN Commission on Environmental, Economic, and Social Policy (CEESP).

Aisha Khan has over 20 years' experience in development work. As Founder & Head of the Civil Society Coalition for Climate Change & Mountain and Glacier Protection Organization, she works at the community and policy level to strengthen climate action by supporting inclusive and participatory practices that promote social ecological and democratic equity. She is a member on the Board of Directors of several organizations and provides expert advice on climate change related adaptation and mitigation challenges.

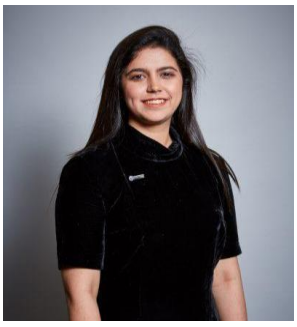
Zarreen Baqir is a Gender & Natural Resource Management Specialist. Ms Baqir educated at the London School of Economics and the School of Oriental and African Studies (University of London), Zarreen Baqir has supported numerous development projects in Pakistan, Egypt, Ethiopia, the Philippines, Haiti, Morocco, Jordan, Iraq, and regional projects in Eastern Europe, Central Asia, East Africa, and Southern Africa.

Simi Kamal is chairperson, Hisaar Foundation. She has 40 years of experience as a geographer, a water professional, a poverty alleviation specialist and a women's rights activist. She also has extensive experience in climate change, environment and green energy sectors. She has travelled to 50 countries and has global recognition in policy, strategy, programming and delivery. She is the Founder and Chairperson of Hisaar Foundation, is on the Board of the International Water Management Institute (IWMI) and served for nine years on the Technical Committee of the Global Water Partnership (GWP).

Granaz Baloch is a cluster facilitator at global assembly. Granaz Baloch works as an independent climate change researcher with its nexus, water, and gender in Balochistan. She is working on a PhD research proposal which focuses on Gender Based challenges in rural Balochistan. She strongly believes that women must be part of every policy agenda; access of clean water and sanitation in public schools, impact of climate change on their lives and participation in decision-making processes and governance without any fear of gender discrimination.

Seema Taher Khan is CEO, Airwaves Media. She is a communication specialist in the field for 40 years. She is co-founder of Interflow Group of companies. She is also a member of the Hisaar Foundation think tank on food and water sustainability. Create awareness campaign on all aspect of the above including ducoes, talk shows, reports and TV serials on the subject. She is executive member of various prestigious boards and an advocate of nature based Indigenous Solutions to address sustainability objectives.

Sanaa Baxamoosa is a water practitioner with more than 10 years of experience in the water sector. She graduated with an MSc. in Sustainable Development from the Center for Development, Environment and Policy, SOAS, University of London. She pursued her undergraduate BA degree in Integrated Water Resources Management and Environmental Studies from Hampshire College, MA in 2007. Sanaa currently serves as General Manager and Company Secretary of Hisaar Foundation. She has been working with Hisaar Foundation since 2009 in various roles and capacities as an integral member of the team.



Faria Uqaili is Manager Strategies and Programs at Hisaar Foundation. She has previously worked on large scale World Bank funded irrigation and agriculture projects. She has a MSc degree in Water and Environmental Management from University of Bristol, UK and she is a Gold Medallist in Bachelors of Environmental Engineering from MUET. Her areas of interest are: Water Policy, Climate Change and SDGs. She has been responsible for environmental compliance, waste management, WFDs, EIAs and ESIAs.

Sameen Binte Huda is Assistant Manager Research and Communication at Hisaar Foundation. She is doing her masters in Project Management. She has done her BS in Development studies from NED University of Engineering and Technology, Karachi. Since graduating, Sameen has been working with various NGOs and urban development consultant companies as an intern where she has been engaged in a number of social and environmental projects.

Acknowledgements from Webinar Director

The 5th Karachi International Water Conference Webinar Series titled "Climate Change and Pandemic: Impact on Water" was held over the two months of November and December 2021. and culminated in 4 webinars with 30 international and local speakers and over 600 participants. The success of the webinar series would not have been possible without the support of the following organizations and people to whom I am grateful. First of all, I would like to thank our sponsors Engro Foundation, IWMI Pakistan, HANDS and WWF Pakistan for their support which enabled our team at Hisaar Foundation to deliver a top-quality webinar series. Engro Foundation deserves a special mention as it has supported the Karachi International Water Conference as a lead sponsor since 2015. Secondly, I would like to thank our media partners Airwaves Media. Ms. Seema Taher Khan's generosity is unparalleled and we are indebted to her for voluntarily providing the TV One studio to host the webinars from. We are also grateful to Sara Taher Khan, Aniya Jabbar and the dedicated teams at TV One and News One for their support with recording and editing, and for producing the concluding webinar programme for television. Next, I would like to thank all our presenters, panellists, and moderators who took time out from their busy schedules to share their knowledge, insights and experiences with us. I would also like to thank Danish Khan and his team at Alif Design for supporting us with digital design work and the conference website. Finally, I would like to thank all the people at Hisaar Foundation for whose hard work and efforts, the webinar series would not have been possible. Ms. Simi Kamal, our founder, current Chairperson and CEO and everyone's mentor and guide at Hisaar Foundation. She always makes us strive to do our best and provides invaluable guidance and support to improve the content and delivery of our webinars. Ms. Faria Uqaili was the driving force of the webinar series. She meticulously took care of each and every detail and provided excellent facilitation to the speakers and presenters. Ms. Sameen Binte Huda tirelessly produced content for social media and developed numerous webinar speaker posters. She also provided critical backend support during the webinars. Thank you to both of you. In the end I would like to thank all my colleagues Sirajuddin khan, Nadeem Siddiqui, Ahmed Palwa and Tabraiz Elahi at Hisaar Foundation. I would like to specially thank our former colleague Daniya Khalid who supported us with the transcribing of all the webinars. Any initiative such as this is always a team effort and each one had an important contribution to make. Till the next conference in 2023 – Stay healthy, stay safe.

Sanaa Baxamoosa
Webinar Director

Conference Coverage and Participation

Media Coverage

The 5th KIWC was extensively covered by the electronic media include Television and social media with the conference proceedings reported in the news channel airwaves media and on social media.

Social Media

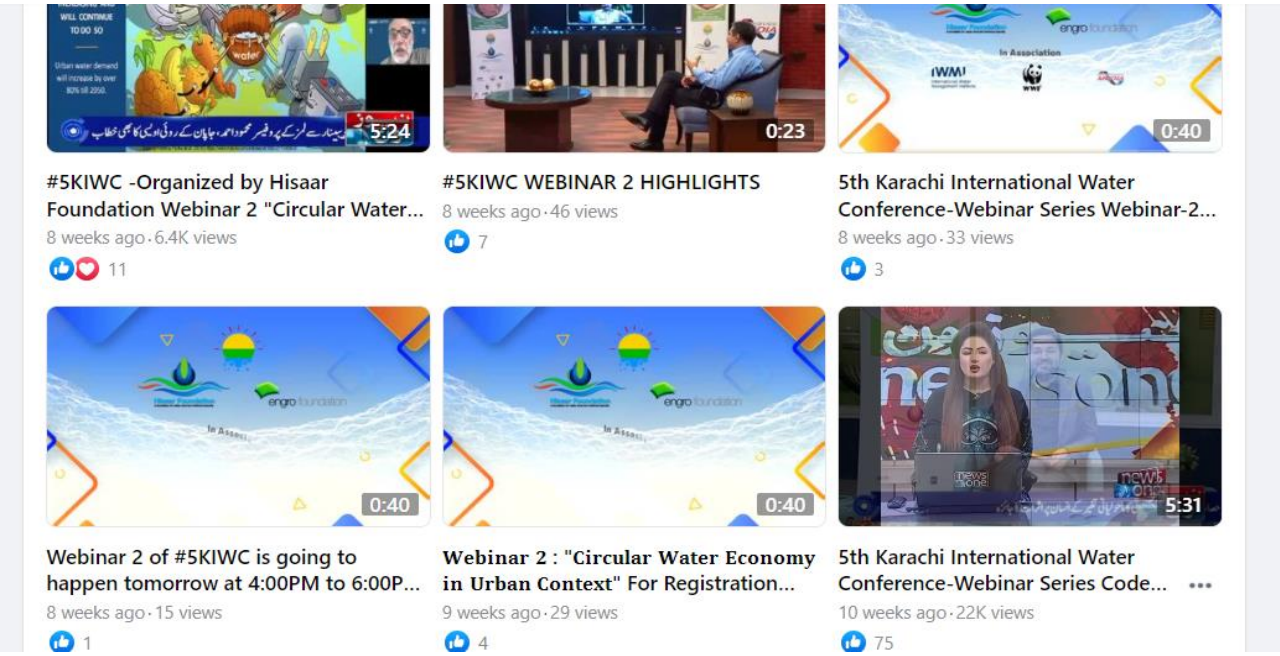
The 5th KIWC-webinar series provided a forum for sharing knowledge, discussing ideas, exchanging information, and learn about cutting-edge research in Pakistan in the context of climate change and pandemic: impact on water to a larger audience through its social media platform. The social media strategy utilized Facebook, Twitter, Instagram and Hisaar Foundation website. To integrate the webinar series, two official conference hashtags were introduced #5KIWC, #Webinaralert. Hisaar Foundation engaged

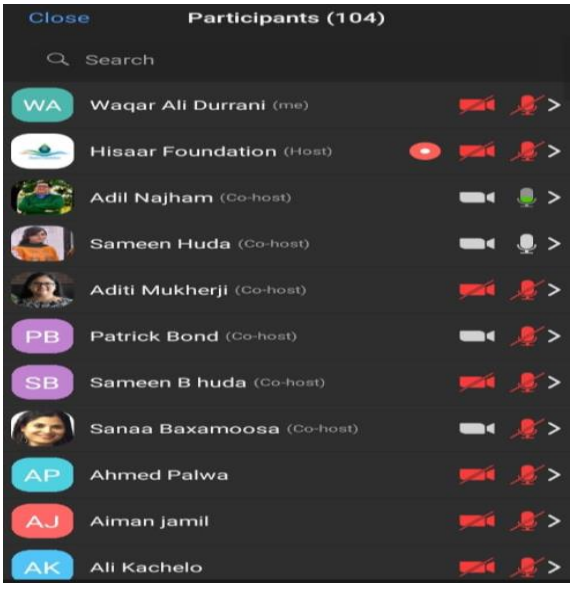
Facebook

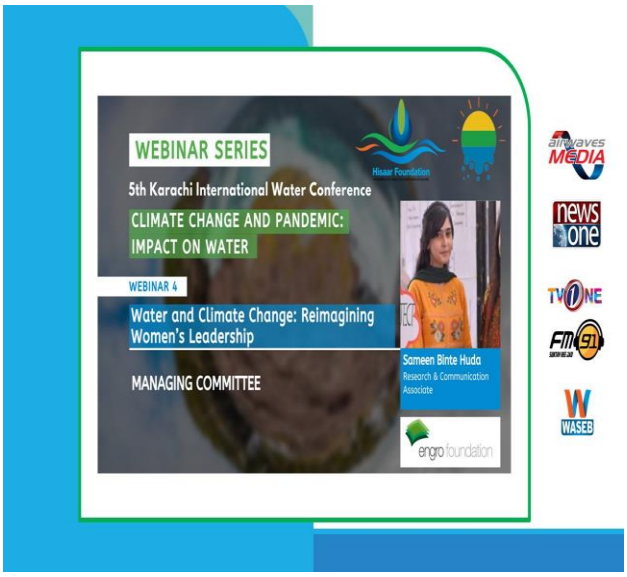
facebook.com/hisaarfoundation

Hisaar Foundation Facebook page had over 15,641 followers during the webinar series. The 5th KIWC event campaign featured, introducing Hisaar foundation and its projects and programs, flashback of previous conference events, information regarding the webinar series formats and sessions, revealing the hashtags, featured speaker posters, highlighting the conference sponsors, as well as regular information on water and climate change news and issues that the region faces. During the conference the posts had the maximum reach of 22k. The picture gallery of each speaker and sponsors is also available on the Foundation's Facebook page.

The whole conference was broadcasted live through the medium of zoom and provided a wide range of audience with access to the conference -webinar series.







Twitter:

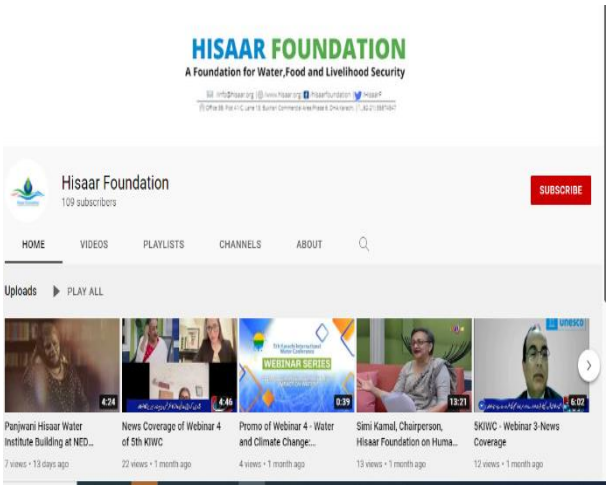
Twitter/ @HisaarF

Hisaar Foundation Twitter page was the focus for promoting 5th KIWC, engaging speakers and participants in conversation, and running a high-visibility webinar series. The conference tweets earned over 20,204 impressions. The hashtags #5KIWC, #Webinaralert were used for engaging the twitter users for the conference. Leading up the conference, all the major highlights of the conference, its speakers, participating organizations and further details of the program was extensively tweeted.

During the conference, the social media team provided photos and video coverage of the sessions along with the tweets.

YouTube:

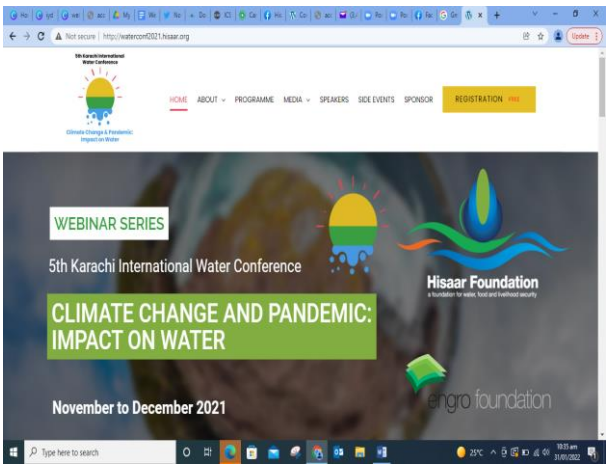
The channel will display all the webinar coverage and events on YouTube



Website:

www.waterconf2019.hisaar.org

The 5th KIWC website was the prime source of information for all interested in attending the conference. The website featured details on the conference themes, format, delegates. A speakers list was also displayed on the website along with the sponsor and participating organizations. The website also serves as an archive for the conference events coverage. The pictures, news coverage is all available on the website.



Appendix A

Code Red for Humanity: Climate Action Now

Webinar 1- 17th November 2021

Topic	**Time**
Code Red for Humanity: Climate Action Now	4:00-6:00 PST
Sponsor	**Moderator**
Hisaar Foundation and Engro Foundation	Dr. Zulfiqar Ali Umrani

Objectives:
Experts will debate and discuss the impacts of unprecedented climate change and possible impacts of mitigation and adaptation measures to cope with anthropogenic climate change.

Description & Featured Participants/Speakers

- Opening by Sanaa Baxamoosa 4:00-4:02
- Introduction Session and welcoming remarks by **Simi Kamal** (5 min) 4:02-4:07
- Session Introduction by Moderator **Dr. Zulfiqar Ali Umrani** (3 min) 4:07-4:10
- Keynote Speech by **Dr. Adil Najam: "**Why Code Red" what needs to be done" (20 min) 4:10-4:30
- Keynote Speech by **Dr. Patrick Bond**: "Glasgow climate pact problems and implications for water justice" (20 min) 4:30-4:50
- Q & A (10 min) 4:50-5:00
- Presentation by **Dr. Aditi Mukherji**: "Summary of 6th IPCC report assessment and implication on water sector" (10 min) 5:00-5:10
- Presentation by **Roberta Ianna**: Activities of the ministry of ecological transition on youth before and at
  COP 26 (10 min) 5:10-5:20
- Presentation by **Rafay Alam:** "Overview of the climate crisis in the context of Pakistan's water economy as well as a legal critique of the water policy in light of the worsening climate crisis" (10 min) 5:20-5:30
- Presentation by **Mehmood Nawaz Shah**: "Impact of climate change on farmers and farming patterns" (10 min) 5:30-5:40
- Q & A (10 min) 5:50-6:00
- Closing Remarks by **Dr. Zulfiqar Ali Umrani** (3 min) 6:00-6:03
- Vote of Thanks by **Sanaa Baxamoosa** (2 min) 6:03-6:05

Circular Water Economy in Urban Context

Webinar 2- 30th November 2021

Topic	**Time**
Circular Water Economy in Urban Context	4:00-6:00 Pakistan Standard Time
Sponsor	**Moderator**
IWMI-Pakistan & WWF Pakistan	Dr. Mohsin Hafeez

Objectives:

Experts will share strategies for policymakers to improve water use efficiency while reducing consumption. Moreover, how governments should use advanced technologies for supplying agriculture and industrial activities with recycled water and limit the impact and use of fertilizers.

Description & Featured Participants/Speakers

- Welcoming remarks by **Simi Kamal** (5 min) 4:00-4:05
- Webinar Introduction by Moderator **Dr. Mohsin Hafeez** (5 min) 4:05-4:10
- Keynote Speech by **Dr. Pay Drechsel**: "Needs and Opportunities for a Circular Economy in the Urban Water and Sanitation Sector" (20 mins) 4:10-4:30
- Keynote Speech by **Dr. Diego Juan Rodriguez**: "Water and the wider world of the circular economy" (20 mins) 4:30-4:50
- Presentation by **Sohail Ali Naqvi:** "Innovative ideas on water replenishment and sustainable development"
- (10 mins) 4:50-5:00
- Presentation by **Rui Owase** "Environment Protection by "JOHKASOU" Water & Sanitation Solution." (10 min) 5:00-5:10
- Panel Discussion on "Water as a key enabler of the circular economy; recovery, recycling and reuse" (20 mins) 5:10-5:30

  Panellists include:

  ✔ **Umer Karim**

  ✔ **Simi Kamal**

  ✔ **Prof. Mahmood Ahmad**

- Q&A (15 mins) 5:30-5:45
- Closing Remarks by **Dr. Mohsin Hafeez** (5 min) 5:45-5:50
- Concluding remarks on the webinar by **Simi Kamal** (5 min) 5:50-5:55
- Vote of Thanks by **Faria Uqaili** (5 min) 5:55-6:00

Thinking the Unthinkable:
Harnessing the Pandemic to Improve SDG-6, Health and Sanitation-

Webinar 3- 9th December 2021

Topic	**Time**
Thinking the Unthinkable: Harnessing the Pandemic to Improve SDG-6, Health and Sanitation	4:00-6:00 PST
Sponsor	**Moderator**
Hisaar Foundation, Engro Foundation and HANDS	Dr. Daanish Mustafa
Objectives: Experts will assess the role of water in the current responses to COVID-19 and in future phases of recovery and resilience	
Description & Featured Participants/Speakers ● Introduction Session by **Simi Kamal** (2min) ● Welcoming remarks by **Sanaa Baxamoosa** (5 min) ● Webinar Introduction by Moderator **Dr. Daanish Mustafa** (3 min) ● Keynote Speech by **Dr. Shahbaz Khan**: "Role of water in the current responses to COVID-19 and future phase of recovery and resilience" (20 min) ● Keynote Speech by **Dr. Josiane Nikiema:** "Thinking the Unthinkable: Harnessing the pandemic to Improve SDG 6 capacity development" (20 min) ● Q&A (10 min) ● Presentation by **Dr. Nida Hussain**: "Technical brief on water, sanitation, hygiene to prevent infections and reduce the spread of antimicrobial resistance" (10 min) Presentation by **Dr. Shaikh Tanveer Ahmed**: "Case study of HANDS with respect to Covid-19 and water" (10 min) ● Presentation by **Afia Salam** (10 min) ● Presentation by **Dr. Noman Ahmed:** "Sanitations Issues in Karachi" (10 min) ● Q&A (15min) ● Closing remarks on "Role of water in a post pandemic world" by **Dr. Daanish Mustafa (5 min)** ● Concluding remarks by **Simi Kamal (5 min)** ● Vote of Thanks by **Sameen Binte Huda (3 min)**	

Water and Climate Change: Reimagining Women's Leadership

Webinar 4 - 23rd December 2021

Topic	**Time**
Water and Climate Change: Reimagining women's leadership	**4:00-6:00 PST**
Sponsor	**Moderator**
Hisaar Foundation and Engro Foundation	Meher Noshirwani & Zarreen Baqir

Objectives:

Experts will share how women are prone to impacts of climate change on water and strategies of involving women as a compulsory stakeholder in the water sector and highlighting the women leaders around the world.

Description & Featured Participants/Speakers

- Welcoming remarks by **Zarreen Baqir** (5 min)
- Introduction Session by **Sanaa Baxamoosa** (5 min)
- Presentation by **Aisha Khan** (15 min): Water and Climate Change: Reimagining Women's Leadership"
- Presentation by **Simi Kamal**: " Changing Women's Role in Water Sectors: Building Women's Leadership" (15 min)
- Presentation by **Dr. Fazilda Nabeel**: ""When Women Lead: Looking Back at Ecofeminist Movements in History" (15 min)
- Q & A (Moderated by Zarreen Baqir) (10 min)

  Panel Discussion (Moderated by Meher Noshirwani) (30 min)

  d) Equal participation and mandates for decision-making
  e) Climate Change and impact on water: Further challenge for gender equity
  f) How do you reimagine women's leadership?

  Panellists include:

  ✔ **Seema Taher Khan (Reimagine the role of women in media)**
  ✔ **Granaz Baloch (water challenges in Balochistan)**
- Q&A (Moderated by Meher Noshirwani) (10 min)
- Closing remarks by **Meher Noshirwani** (5 min)
- Vote of thanks by **Sanaa Baxamoosa** (5 min)

Appendix B


Hisaar Foundation
a foundation for water, food and livelihood security
WEBINAR SERIES
November to December 2021
5th Karachi International Water Conference
Climate Change and Pandemic: Impact on Water
SPEAKERS
Dr. Shahbaz Khan
Director
UNESCO, Beijing
Aditi Mukherji
Principal Researcher
IWMI, New Delhi
Arvea Marieni
Principal Strategy Advisor
GcM consulting, Italy
Aisha Khan
Founder & Head
Civil Society Coalition for Climate Change (CSCCC)
Dr. Daanish Mustufa
Professor
Department of Geography, King's College London
Dr. Fazilda Nabeel
Doctoral Researcher
Development Studies
University of Sussex
Sohail Ali Naqvi
Sr. Manager/Head Freshwater
WWF-Pakistan
Dr. Josiane Nikiema
PhD, Research Group Leader
Circular Economy and Water,
IWMI, West Africa
Dr. Shaikh Tanveer
Chief Executive
HANDS
Kusum Athukorala
Chair
Network of Women Water Professionals
Mehmood Nawaz
Senior Vice President
Sindh Abadgar Board
Nausheen Anwar
Director
Karachi Urban Lab
IBA Karachi
Dr. Patrick Bond
Political Economist, Professor
University of the Western Cape
School of Government,
Cape Town, South Africa
Dr. Nida Hussain
Pro Chancellor
Ziauddin University
Simi Kamal
Chairperson
Hisaar Foundation
Dr. Adil Najam
Dean
Frederick S. Pardee School of Global Studies,
Boston University
Roberta Ianna
Senior Adviser
Ministry of Climate Change, Italy
Rafay Alam
Environmental lawyer and activist
Saleem, Alam & Co
Umer Karim
Water Management Specialist
FAO
Dr. Diego Juan Rodriguez
Lead Water in Circular Economy and Resilience Initiative
Dr. Pay Drechsel
Research Quality Advisor
IWMI, Colombo, Sri Lanka
Hira Wajahat Malik
Program and Projects Manager
Stimulus
Prof. Mahmood Ahmad
Professor of Practice (WIT)
LUMS
MODERATORS
Dr. Zulfiqar Umrani
Director ORIC,
Sustainability Office,
Ziauddin University
Dr. Mohsin Hafeez
Regional Representative
Central Asia,
IWMI Pakistan
Dr. Daanish Mustafa
Professor, Department of Geography,
King's College London
Meher Noshirwani
Regional Vice Chair Asia
Commission on Environmental, Economic, & Social Policy (CEESP)
IUCN
Zarreen Baqir
Gender in Agriculture & Natural
Resource Management
Specialist


Hisaar Foundation


engro foundation


airwaves
MEDIA


IWMI
International Water
Management Institute


HANDS
هینڈز


WWF


TV ONE


FM 91
SUNTAY HEE JAO


news one


WASEB


Panjwani – Hisaar
Water Institute