



Pakistan's Challenges of Climate Change, Health, and Nutrition in the Context of Sustainable Development Goals: Strategies for Change

Seminar Report | March 6 – 7, 2022, Karachi

Hosted by: Institute for Global Health and Development, Aga Khan University

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OVERVIEW

The Institute for Global Health and Development (IGHD), an interdisciplinary research-intensive initiative at Aga Khan University (AKU), convened a seminar, **‘Pakistan’s Challenges of Climate Change, Health, and Nutrition in the Context of Sustainable Development Goals: Strategies for Change’** on March 6 and 7, 2022 at the Aga Khan University Auditorium, Karachi. It was a gathering of prominent local and international experts on the subject, who not only shared their invaluable knowledge and learnings, but also expressed their concern for the imminent threat of climate change to sustainable development.

The objectives of this seminar were twofold. First, it served as the launch of Sustainable Development Solutions Network, Pakistan (SDSN Pakistan), a newly formed national structure, housed within IGHD at the Aga Khan University. SDSN Pakistan is part of a global network of national-level action bodies that promote integrated approaches to implement the Sustainable Development Goals and the Paris Agreement on Climate Change, through education, research, policy analysis, and global cooperation.

Second, the seminar served to introduce a three-year project called ‘Driving Inter-sectoral Strategies to Progress on Health and Health-related Sustainable Development Goals (HHSDGs): Building a Consortium of Think Tanks and organizations to address Climate Change, Health, and Complex Challenges (CHOICE)’. CHOICE aims to improve health and wellbeing and address inequality in low- and middle-income countries of Asia and Africa. CHOICE will be jointly implemented by IGHD and Centre for Global Child Health at the Hospital for Sick Children (SickKids), Canada, with the support of the International Development Research Centre (IDRC) and the Aga Khan Foundation Canada.

This engagement has established a platform for collaboration and forward action, as the Institute firms up its leadership in all the regions it serves, in the areas of:

- 1) Climate change and environmental health
- 2) Agriculture, food security, and nutrition
- 3) Gender equality and women empowerment
- 4) Other health related sustainable development goals.

ILLUSTRATIONS OF THE HEALTH IMPACTS OF CLIMATE CHANGE

Opening Remarks

Prince Rahim Aga Khan

Chair, Environment and Climate Committee Aga Khan Development Network (AKDN)

Prince Rahim Aga Khan stated that the AKDN serves the world's poorest and most vulnerable communities. It is actively building climate resilience across 30 countries by working with communities, alongside government, civil society, and the private sector. Prince Rahim highlighted four principles that permeate all operations of the Network's agencies in this regard:

- 1) Responsible stewardship of the environment
- 2) Proactive, socially responsible leadership on the most urgent issues facing the world
- 3) Leading by example
- 4) Putting people at the centre

While maintaining that the Aga Khan University has a special role to play in mitigation and adaptation efforts, Prince Rahim Aga Khan called for a thorough study and thoughtful policy consideration on the interactions between the impacts of climate change on human health and that of healthcare systems on climate change. He stated that the University must identify concrete steps of action and sophisticated solutions to reduce the carbon footprint of the healthcare sector. With IGHD's initiatives, there are special opportunities for even more scholarship, research, and capacity development in areas of climate resilience and climate justice.

Keynote Address: A Path for Pakistan to Achieve Sustainable Development

Dr Jeffrey Sachs

Professor and Director, Center for Sustainable Development, Columbia University, New York and President, UN Sustainable Development Solutions Network

Professor Sachs spoke about the global network and extended support to the national node in Pakistan. He expressed serious concern about the impact of global conflicts on the progress of

sustainable development and stressed on the need for an approach in which the best minds around the world are working collaboratively to find common solutions for climate change crisis. Professor Sachs highlighted six areas for SDSN, Pakistan to cover: education for boys and girls; a public health system; decarbonisation of energy; sustainable agriculture and land use; robust urban infrastructure; and digital connectivity for all. These are the core investments that a society needs to be prosperous, socially just, and environmentally sustainable.

Keynote Address: Calamities of Change; Challenges and Choices for Pakistan

Senator (R.) Javed Jabbar

Politician and Environmental Advocate

Senator (R.) Javed Jabbar highlighted some of the pressing calamities that pose a threat to Pakistan's sustainable development, including population growth of 2.4 percent per annum, which is the highest amongst major Muslim countries, increase in the disease burden of chronic illnesses, and lack of data surveillance for SDG indicators. He underscored the need to find a way forward where country's resilience and adaptability to calamities arising from climate change are seriously considered. As such, he provided three areas that require dramatic reforms: political, professional, and societal.

Political: there must be strong cohesion between federal and provincial/regional administration, a larger and holistic conceptual framework beyond tree planting to reiterate nexus amongst climate change, health, nutrition, population growth, and sustainable development, and a responsibly allocated Green Budget to implement this framework.

Professional: inter-disciplinary and multi-sectoral advocacy and activism for an effective public discourse.

Societal: Increased coordination and actions amongst civil society forums, NGOs working for environment, health, education, and equality.

Remarks from the Chief Guest

Mr Zakir Mahmood

Chairman, Board of Trustees, AKU

Chairman Zakir Mahmood reflected on the inordinate impacts of climate change and inequality in low- and middle-income countries. Marginalized communities within these economies have far fewer resources to prepare, react, and recover from such adversities, and

are thereby trapped in a vicious cycle of inequality and poverty. One such example is the climate change induced migration; nearly 750 million people are expected to migrate or will try to migrate to escape the calamities of climate change. Majority of these migrants are living in geographies that are responsible for less than one-tenth of the global share of green-house gas emissions.

While stressing on the importance of climate resilient development and effective mitigation strategies, Chairman Zakir called to examine the costs of both, action and inaction. The most immediate and severe impact of inaction is on the agriculture sector, which is a backbone of the economy. It contributes 20 percent to the GDP and employs over 40 percent of the country's workforce, including millions of women. Unfortunately, the labour productivity in agricultural sector has dropped drastically in the past decade due to heat stress and is expected to drop further up to 20 percent by 2050. Climate change induced stress is believed to have accelerated this trend. Similarly, the cost of action is an equally daunting challenge, in that the infrastructure needs of the country are enormous. Pakistan's latest submission to the United Nations Framework Convention on Climate Change (UNFCCC) estimates the investment requirement of transition to clean energy at USD 100 billion by 2030 and a further USD 65 billion by 2040. In 2021, International Monetary Fund (IMF) calculated an additional annual spending need of 5.7 percent of our GDP to meet education goals and 5.4 percent to realize health objectives. Furthermore, the cost of climate adaptation in Pakistan is estimated between USD10 and 30 billion per year. These are sizeable costs and investment requirements for any country, but especially for a resource-constrained country like Pakistan. Yet, there is no alternative to climate resilient development.

Chairman Zakir invited institutions like the Aga Khan University to integrate health and political economics with environmental studies, and to work towards conscientious and deliberate curriculum reform to include such disciplines and training programmes.

AKU Leadership Address

Mr Sulaiman Shahabuddin

President, AKU

President Shahabuddin asserted that climate change adversities are of serious concern to AKU, as they are elsewhere globally. They are high priority challenges guiding the directives of University's and its health system's research, curricula, and strategic planning. Taking after its

parent network, AKDN, the institution is committed to leading by example, in that it aims to have carbon neutral operations by 2030 and help other healthcare institutions of Pakistan to slash their emissions.

The University is home to diverse and sophisticated expertise, resources, and invaluable experience in the areas of clinical care, research, advocacy, and public-private partnerships, and IGHD is no exception. President commended Dr Bhutta and the entire team for taking up the responsibility of championing Sustainable Development Solutions Network, Pakistan. He extended support and encouragement to all efforts guided towards achieving SDGs and expressed his firm belief in the collective integrity and ability of scholars and practitioners to alleviate the climate induced suffering of the people of Pakistan.

Dr Carl Amrhein

Provost & Vice President, Academic, AKU

Dr Amrhein provided his perspective on how the scholarship in climate change and environment sustainability might look for AKU in 10 years. He expressed great hopes for AKU's contribution to research, teaching, innovation, and service that is at the nexus of climate change and global health. While encouraging students and young people to develop breadth of knowledge across multiple fields alongside expertise in their chosen professions, he stressed on the need of multi-disciplinary mindsets to solve grand challenges such as climate change.

While speaking from his experience as a geographer and Provost & Vice President, Academic, Dr Amrhein maintained that we must acquire humility in our response strategy and be prepared for unexpected outcomes apparent in extreme weather events, such as forest wildfires, floods, droughts, and heatwaves. He cautioned the forward action strategies to include agility, decisiveness, and alertness to unpredictable circumstances.

Learnings and Forward Action: Climate Change, Nutrition & Health in Pakistan

Dr Zulfiqar A Bhutta

Distinguished University Professor and Founding Director, IGHD, AKU

Dr Bhutta provided a broad overview of climate change's interactions with health and nutrition, with a specific insight into stunting in Pakistan. There Rapid increase in temperature in the last 100 years have brought along extreme weather events that pose

enormous challenges for certain populations. This worrying trend paints a bleak picture with a record of 10 warmest years since 2012, with 2021 as the sixth warmest year. This kind of rapid climate change causes imminent threats to the survival of species, including mankind, and results in population migration and conflicts. While there is sufficient data to provide for the impact of climate change on agricultural yield and food security, it is often not recognized that climate change also has a slow and subtle, yet definitive impact on the nutrient content of crops. Wheat, rice, and soybeans are not resilient to changes in sunlight and water, and therefore, have reduced protein content with rising temperatures and reduced Zinc and Iron content with elevated carbon dioxide levels. With food insecurity rising at the current rate, projections indicate that there will be additional 95,000 child deaths from malnutrition and 7.5 million children will be moderately or severely stunted.

Dr Bhutta's key messages included:

- 1) In Pakistan, stunting and wasting overlap with each other in a subset and are associated with maternal undernutrition. Both are related to sub-national inequity, in that there is tremendous national disparity and a clear north-south gradient.
- 2) The prevalence of stunting and wasting are much higher in the south of Pakistan than in the north.
- 3) Maternal and child nutrition are strongly interlinked. If a mother is malnourished, it is highly likely that the child will also be malnourished with intergenerational consequences.
- 4) Social, cultural, and contextual drivers must also be studied to understand the prevalence of these conditions, including women's empowerment, education, social inequity, ethnic differences, and climate change and environmental factors.

Dr Bhutta asserted that the relevance and impact of the interlink between climate change and nutrition must be studied through ecological data sets, such as geo satellite information.

Data sets acquired from satellite imaging between 2011 and 2018 shows a strong correlation between climate change and crop yield. The average change in surface temperature in Pakistan between 2011 and 2018 went up by 0.5 C°. During the same period, there was a considerable decrease in annual precipitation, specifically in Sindh, Baluchistan, and Southern Punjab. Furthermore, the average change in soil moisture or soil water went down across the country, particularly in Baluchistan. Consequently, the agricultural yield in Pakistan between 2011 and

2018 has either remain unchanged or decreased for various crops, maize being the most affected.

The multi-variate analysis of this data provided for three sets of factors that are concurrently impacting the linear growth of children under the age of 5 years:

- 1) Poverty, reflected by the wealth index, food security, and urban-rural distribution
- 2) Maternal health, which reflected by a combination of maternal education, age, BMI, height, parity, and size at birth.
- 3) Climate change, reflected by average change in temperature, soil water, and yield since 2011.

While concluding, Dr Bhutta pointed out that maternal and child health in Pakistan is multifactorial, and related to complex socio-economic, cultural, behavioral and environmental risks. While malnutrition poses greater risk to extreme poor in the country, it cuts across all socio-economic strata. Therefore, climate change in the context of health and nutrition must be addressed across all socio-economic levels and regions of the country.

Dr Pir Shaukat Ali

Global Change Impact Studies Centre, Ministry of Climate Change, Government of Pakistan

Dr Shaukat outlined in detail the impact of climate change on the prevalence and transmission of Dengue. According to the World Health Organization (WHO), since 2010, Pakistan is a Dengue endemic country, with 53,000 cases reported between October and December 2021 alone. Some of the key messages from Dr Shaukat's study include:

- 1) While Dengue can be attributed to urbanization, poor sanitation, and similar socioeconomic determinants, one of the prominent underlying causes for this wide spread of Dengue at such an accelerated rate is also climate change and global warming.
- 2) Extreme weather events like elevated temperatures and changing rainfall patterns are recognized as favourable conditions for dengue vector proliferation. There is a higher number of cases in northern Punjab. For example, at higher temperatures, they showed a higher biting rate, low extrinsic incubation period, low mortality rate, and higher reproduction rate.
- 3) Key determinants that influence the transmission of Dengue include temperature, rainfall, humidity, urbanization, and socioeconomic inequity.

- 4) Due to seasonal shifts and changing temperature conditions, Islamabad and Karachi are likely to encounter a more prolonged season for dengue in the future.

Dr Shaukat stressed on the dire need of extensive research on the interlink between climate change and Dengue transmission, as preventive measures and sophisticated innovations to curb the spread of this endemic depends on the research-driven outcomes.

Dr Mohammad Wasay

Professor, Department of Medicine, AKU

Dr Wasay discussed the correlation between climate change and non-communicable diseases (NCDs), and the rising risk factors of NCDs in Pakistan. Some of the key takeaway messages from Dr Wasay's talk include:

- 1) More than 70 percent of deaths in the country are a direct result of NCDs, including hypertension, diabetes, cardiovascular issues, cancer, and stroke.
- 2) According to the WHO report on environmental health, 23 percent of all deaths globally are linked to the environment. It roughly translates to 12.6 million deaths per year.
- 3) 8.2 million out of 12.6 million deaths are a direct cause of environment's impact on NCDs.
- 4) Stroke accounts for 2.5 million deaths, highest burden of the reported mortality amongst all NCDs.
- 5) Air pollution has a strong correlation with non-communicable diseases, especially stroke. Karachi is amongst one of the world's most polluted cities with increased long term exposure risk due to poor air quality.
- 6) High risk populations include children and elderly between the ages of 65 and 79 years.
- 7) Emerging data is also linking air pollution with neurodegenerative diseases and neurodevelopmental disorders.

Dr Wasay called for a more robust research and data sets on air pollution and its impact on NCDs, not just in Karachi, but across Pakistan so that experts can define appropriate preventive care and strategies for accelerating rate of mortality from NCDs.

Dr Abid Suleri

Executive Director, Sustainable Development Policy Institute (SDPI), Islamabad

Dr Suleri highlighted the challenges of achieving SDGs, including the pandemic and stressors that come along with it. Most multilateral and bilateral institutions had cautioned for two primary challenges to accompany COVID-19: economic recession and food insecurity. At the time, no one had foreseen a major conflict arising between Russia and Ukraine and its far spreading impact in various spheres.

COVID-19 is more than a health crisis; it is elevating the pre-existing poverty and inequalities locally, making the achievement of SDGs difficult. For example, 60 percent of Pakistan's population comprising of the low-income strata, falls in the lowest quartile of Human Development Index (HDI). Such inequalities make vulnerable and marginalized populations in the country most susceptible to COVID-19 and its social impact, and consequently, slow down the progress of achieving SDGs. At present, Pakistan's progress in achieving SDGs stand at 26.2 percent higher than its baseline in 2016, against a global average of 47 percent along the same timeline.

Dr Suleri outlined six action areas as 'make or break' deal for achieving SDGs in Pakistan:

- 1) Aligning SDGs with national planning process
- 2) Analysing Vertical and horizontal linkages amongst institutional structures to advance coherence post-18th Amendment
- 3) Raising sufficient funding to implement SDGs and Agenda 2030
- 4) Mobilizing partnerships for effective participation and facilitation in implementing SDGs, such as think tanks, private sector, civil society, judiciary, etc.
- 5) Data sets to guide advocacy and policy action.
- 6) Adapting to life with COVID-19

Sharif Wahdati

Advisor, Afghanistan Institute of Nutrition and Home Economics

Mr Wahdati stepped back from the local lens to regional lens, specifically Afghanistan, to highlight the impact of climate change on the pre-existing vulnerabilities in the country. According to the Global Climate Risk Index 2021, Afghanistan is the sixth most affected country from climate change. This acute challenge is compounded heavily by the socioeconomic inequity and long-standing conflict. Having one of the lowest HDI in the world

and a poverty rate of 72 percent, Afghanistan's four-decade long conflict has put millions of people in extreme poverty and perpetual food insecurity. 3.2 million children under the age of 5 suffer from acute malnutrition, out of which 1 million are at the risk of dying.

While there is increasing rate of internally displaced individuals and loss of human capital due to conflict torn areas, there is additional climate induced migration due to rising events of droughts and floods.

Keeping these highly unfavorable circumstances in consideration, Mr Wahdati provided future development prospects in the context of achieving SDGs in Afghanistan. These included:

- 1) Multi-sectoral developmental approach to tackle the issues of climate change, food insecurity, and malnutrition through integrated interventions
- 2) Scalable, contextual, and cost-effective interventions
- 3) Stronger engagement and collaboration amongst development partners on aligning activities towards SDGs and avoiding duplication of work
- 4) Encouraging development initiatives around national capacity, research, data, and evidence for sound design and decision-making around SDGs
- 5) Strengthening monitoring, evaluation, and accountability mechanisms

Learnings and Forward Action: Climate Change, Gender Dimensions & Mental Health in Pakistan

Mishalle A Kayani

Manager, Programmes and Outreach, Gallup Pakistan

Ms Kayani presented learnings and outcomes from her research on gender interactions with the environment, focused on rural women of Sindh.

The impact of climate change on gender is relatively pronounced in Pakistan due to over reliance on our natural environment for livelihood. About half of the total population of our country is comprised of rural women, and 70 percent of them form a labor force in agricultural sector. They play a key role in farming and livestock activities. On flip side, this group of women is more susceptible to climate induced extreme weather events than the other gender because of their productive and reproductive roles. For example, during the floods of 2010,

713,000 women between the age of 15 and 49 years and 133,000 pregnant women were reportedly affected.

Focusing specifically on the rural women of Sindh, they comprise of 47 percent of the total population in the province. They work for 12 to 14 hours a day, including agricultural farming, livestock farming, and/or collecting water. Since they share a double burden of tending to home and economical needs, extreme weather events such as heatwaves and droughts severely impact their mobility and access to basic physiological needs.

Women are further disenfranchised by the rigid structures in place at various levels of the society, including federal, provincial, district, and tehsil. For example, feudal system encourages feudal landlords to hoard majority land ownership, forcing the local population to be constrained by poverty and often bonded labor. Similarly social infrastructure is concentrated in urban areas, depriving rural population, especially women to quality education and health infrastructure.

Ms Kayani made few policy recommendations to mitigate the impact of socioeconomic determinants and climate induced inequity:

- 1) Investing in capacity building for women in agricultural sector; developing technical training programmes for rural communities in various districts of Sindh
- 2) Development and strengthening of disaster management infrastructure, including restoration, improvement, and upgradation of flood embankments
- 3) Developing more immersive health and education programmes, whereby community leaders are encouraged to empower women population of their villages.

Dr Zafar Fatmi

Professor, Community Health Sciences, AKU

Dr Zafar presented the interventions that Pakistan has pledged to deliver as its contribution to Agenda 2030. These are published in the WHO report titled 'Health Benefits of Raising Ambition in Pakistan's Nationally Determined Contributions (NDCs) for Climate Change 2021'.

The NDCs of Pakistan encompass both, mitigation and adaptation strategies across all sectors. However, by implementing the following seven energy policy interventions, the Government

of Pakistan could achieve ambitious green-house gas emissions reductions of 27.5% in 2030, while preventing more than 65,000 annual deaths from air pollution:

- 1) Increase renewable energy generation up to 75% by 2030
- 2) Increase energy efficiency with combined sectoral targets to achieve a total of 3% annual improvement
- 3) Transition from biomass to electricity in 30% of households by 2050
- 4) Increase share of electrical vehicle up to 100% of all new vehicles by 2040
- 5) Fully phase out fossil fuel subsidies by 2025
- 6) Introduce a 10% fossil fuel tax by 2025
- 7) Reinvest revenues in health

The report also provided four health policy recommendations, which will allow the Government of Pakistan to ensure that health considerations remain a focus, contribute positively to climate ambition, maximize synergies, and optimize tradeoffs between climate, economic, and health objectives:

- 1) Put health at the Centre of Pakistan's NDC
- 2) Adopt a Health in All Policies (HiAP) approach to energy policy
- 3) Establish mechanisms to facilitate collaboration between health and energy professionals
- 4) Continue to obtain reliable data on health co-benefits of climate ambition in Pakistan to inform policies in various sectors

Ms Sara Hayat

Consultant & Lawyer, Climate Change and Policy

Ms Hayat shed light on the nexus of climate change and mental health and underscored its importance at the same degree as physiological health.

The impacts of climate change on mental health may occur:

- a) directly with immediate effect from weather events, such as heatwave
- b) indirectly in the short term during extreme events, such as floods and hurricanes
- c) indirectly in the long term due to changes in natural surroundings such as prolonged droughts, increased sea levels, deforestation, and forced migration

While speaking on the climate induced trauma and Post Traumatic Stress Disorder (PTSD), she highlighted that vulnerable populations of the country are most susceptible to growing eco-anxiety and ecological grief, particularly those living in the flood and drought affected regions. Climate induced mental health issues arise from personal injury, injury of a loved one and/or pets, death, damage to or loss of personal property, and disruption in or loss of livelihood. The key determinants associated with the degree of trauma and PTSD include severity of exposure, age, gender, socioeconomic status, impact on employment and livelihood status, and history of mental health problems.

Some of the key policy recommendations to address the impact on mental health made by Ms Hayat include:

- 1) Enacting mitigation strategies for climate change at all levels of governance
- 2) Strengthening surveillance on the mental health impacts of climate change
- 3) Raising awareness on mental health impacts of climate change through action-oriented research initiatives
- 4) Engaging with and building capacity amongst vulnerable communities to strengthen response to extreme weather events
- 5) Providing access to mental health professionals
- 6) Infrastructure planning to increase the number of communal parks and other green spaces
- 7) Ensuring equitable distribution of resources in a calamity
- 8) Ensuring diversity of backgrounds, cultures, and abilities in climate resilience planning

Mr Ali Tauqeer Sheikh

Principal Advisor, Planning Commission of Pakistan

Mr Tauqeer shared his learnings and perceptions about challenges in climate mapping and quantifying the health of communities impacted by climate change, either directly or indirectly. He cautioned that climate crisis is a threat multiplier for public health and is becoming increasingly visible in Pakistan. For example, the standard of living and economic per capita income, which have an established correlation to nutritional intake, are facing severe threat due to rising number of extreme weather events. With decreasing standard of living, prevalence of stunting and malnutrition will be heightened.

While discussing the slow onset of climate impact drivers, Mr Tauqeer pointed out some of the apparent changes in weather patterns. These include new monsoon areas in the regions of

Chitral and Swat, increased torrential rains in Baluchistan, increased frequency and severity of tropical storms, coastal rains, and seawater intrusion along the coastal belt of Sindh and Baluchistan, extended and frequent riverine floods, and increased aridity in arid and semi-arid regions of Baluchistan, Sindh, and parts of Punjab. This slow onset of changes cannot and must not be ignored.

In conclusion, he stated that human development and wellbeing is central to the adaptation and mitigation strategies and must be guiding principles for policy advocacy and formulation.

Discussion and Audience Engagement

There were two rounds of open discussions, first moderated by Dr Adil Haider, Professor & Dean, Medical College, Pakistan and Dr Anjum Halai, Professor, Vice Provost & Dean, Faculty of Arts and Sciences, and later by Dr Zainab Samad, Professor & Chair, Department of Medicine and Dr Claudia Hudspeth, Global Lead, Health and Nutrition, Aga Khan Foundation.

While responding to the audience's concern about the impacts of conflicts on global progress of SDGs' implementation, Dr Suleri maintained that such circumstances can undo years of efforts and force affected populations into regression. For example, conflict in Afghanistan has not only caused destruction within the country, but also impacted regional progress on health outcomes of Poliomyelitis. Similarly, Ukraine-Russia conflict has caused cutback in funds for the implementation programmes, thus impeding the pace of progress.

The panel discussed the challenges in data surveillance, and consequently, inability to develop a baseline benchmark. Out of 193 indicators, Pakistan does not have reliable or sufficient data on 60 indicators. Therefore, under such circumstances, experts depend on proxy data. The population census activity, planned for December 2022, aims to bring forth data that closely relates to SDG implementation.

Adding to the challenge of data unavailability are data's veracity and inconsistent standards. For example, the definition of 'forests' varies from one province to another, and so does the quality of data collection. The panel members unanimously put forth the need of data revolution whereby real-time data is collected at sub-district level to recognize the granularity of information available amongst diverse population.

Dr Wasay took the opportunity to explain to the audience the strong interlink between climate change and burden of non-communicable diseases; both must be managed and mitigated together. For example, there is established data to provide for the health impacts, especially on cardiovascular system, of rising air pollution in the cities of Karachi and Lahore. Preventing non-communicable diseases will also reduce the carbon footprint of the healthcare sector.

While focusing on civic society's responsibility towards environment sustainability, Mr Ali T Sheikh highlighted adopting mitigation and adaptation measures to reap benefits amongst populations. Healthcare community must engage with development and private sector to mainstream health issues into the discourse of climate change.

Ms Hayat closed the discussion while stressing that awareness on climate change and its adverse impacts must penetrate education system and policy advocacy. Climate and health related programmes must make space for mental health indicators.

Closing Remarks

In his concluding remarks, Dr Bhutta expressed his gratitude to speakers and participants, and core staff of IGHD, notably Ms Masooma Raza and Dr Jai Das. He also expressed his gratitude to the various leaders who had spared their precious time and enriched the discussion. He maintained that this seminar was not a one-time dialogue, and that the Institute for Global Health and Development will keep the momentum going for urgent proactive approach towards climate action. SDSN Pakistan is the step in that direction, whereby collaborative and coordinated efforts will be more efficient and effective. With projects like CHOICE, the Institute will serve communities most vulnerable to the health impacts of climate change.

APPENDIX

A. Programme Agenda

Programme of Events – Sunday, March 6

- 1700-1730 **Registration and guests to be seated**
- 1730 **Arrival of the Chief Guest**
Mr Zakir Mahmood, Chairman, Board of Trustees, AKU
- 1735 **Tilawat**
- 1740-1750 **Introduction & Objectives of the Seminar**
Dr Zulfiqar A Bhutta, Distinguished University Professor & Founding Director,
Institute for Global Health & Development, AKU
- 1750-1800 **Opening Remarks**
Prince Rahim Aga Khan (by video)
- 1800-1805 **Address by** Dr Carl Amrhein, Provost and Vice President, AKU
- 1805-1810 **Address by** Mr Sulaiman Shahabuddin, President, AKU
- 1810-1840 **Keynote Address: A Path for Pakistan to Achieve Sustainable
Development**
Professor Jeffrey Sachs, Renowned Economist, Columbia University, and
President, SDSN Global
- 1840-1910 **Keynote Address: Calamities of Change: Challenges and Choices for
Pakistan**
Mr Javed Jabbar, Policy Analyst & Former Senator
- 1910-1920 **Address by the Chief Guest**
Mr Zakir Mahmood, Chairman, Board of Trustees, AKU
- 1920 **Vote of Thanks**
Dr Adil Haider, Dean, Medical College, AKU
- 1930 **Dinner**

Programme of Events – Monday, March 7

Climate Change, Nutrition & Health in Pakistan

Co-Chair: Dr Anjum Halai, Professor, Vice Provost, and Dean, Faculty of Arts and Sciences, AKU
Co-Chair: Dr Adil Haider, Professor & Dean, Medical College, AKU

- 0900-0920 **Overview of Climate Change, Nutrition and Human Capital in Pakistan**
Dr Zulfiqar A Bhutta, Distinguished University Professor, AKU
- 0920-0940 **Climate Change and Dengue Fever in Pakistan: Temporal and Spatial
Association**

Dr Pir Shaukat Ali, Global Change Impact Studies Centre, Ministry of Climate Change, Government of Pakistan

0940-1000 **Climate Change and Non-Communicable Diseases in Pakistan**

Dr Mohammad Wasay, Professor, Department of Medicine, AKU

1000-1020 **Achieving the SDGs in Pakistan: Has COVID-19 Made This Impossible?**

Dr Abid Suleri, Executive Director, Sustainable Development Policy Institute

1020-1040 **Climate Change, Food Security and Conflict; Observations from Afghanistan**

Mr Sharif Wahdati, Advisor, Afghanistan Institute of Nutrition and Home Economics

1045-1115 **Discussion**

1115-1145 **Tea/Coffee Break**

Climate Change, Gender Dimensions & Mental Health in Pakistan

Co-Chair: Dr Zainab Samad, Professor & Chair, Department of Medicine, AKU

Co-Chair: Dr Claudia Hudspeth, Global Lead, Health and Nutrition, Aga Khan Foundation

1145-1205 **Climate Change and Gender Dimensions: What Can Be Done?**

Ms Mishalle A Kayani, Manager, Programmes and Outreach, Gallup Pakistan

1205-1220 **Health Benefits of Raising Ambition in Pakistan's Nationally Determined Contributions (NDCs) for Climate Change**

Dr Zafar Fatmi, Professor, Community Health Sciences, AKU

1220-1245 **Climate Change & Mental Health Challenges**

Ms Sara Hayat, Consultant & Lawyer, Climate Change and Policy

1245-1300 **Exercising Leadership: Mapping & Measuring Public Health in a Changing Climate**

Mr Ali Tauqeer Sheikh, Principal Advisor, Planning Commission of Pakistan

1300-1330 **Open Discussion**

1330-1430 **Lunch & Closure**

B. Highlights from the Seminar



Prince Rahim Aga Khan, while discussing the commitment of AKDN to supporting vulnerable communities in the regions it serves



Professor Jeffrey Sachs providing the six focus areas to the newly launched national node of SDSN



Dr Zulfiqar A Bhutta outlines the impact of climate change on maternal and childhood nutrition



Senator (R.) Javed Jabbar highlighting the interlink of population growth and climate change



President Sulaiman Shahabuddin highlighting the commitment of AKU to lead by example in the context of climate change research, education, innovation, and healthcare



Sara Hayat underscores the need to study and address rising trauma and PTSD from extreme weather events



Mishalle A Kayani highlights the increased susceptibility of rural women to climate changes



Dr Mohammad Wasay outlining the risk factors of NCDs in Pakistan



Dr Pir Shaukat Ali stressing the study the interlink between climate change and Dengue transmission



Mr Wahdati outlining the impacts of climate change on pre-existing vulnerabilities in Afghanistan



Dr Abid Suleri stressing the six focus areas for achieving SDGs during the pandemic



Dr Zafar Fatmi presenting the ambitious interventions that Pakistan has pledged to deliver to Agenda 2030



Mr Ali T Sheikh outlining the challenges in climate mapping and quantifying the health impacts of climate change