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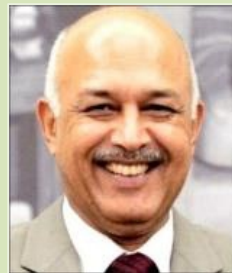
## Advisory Board, Pakistan House



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## Introduction

**Pakistan House** organized a one day National Conference on 2<sup>nd</sup> of December 2019 in Islamabad on "Water Crisis: An Imminent danger to Pakistan's Stability". Ms Sana Maqbool, News Anchor at PTV World, was the Master of Ceremony.

This popular event witnessed the participation of ambassadors, diplomats, policy makers, academics, civil-military bureaucrats, government officials, media personnel, university students, and other dignitaries.

H.E. Omar Ayub Khan, Federal Minister Energy (Power Division) graced the occasion as the Chief Guest. Mr. Muhammad Riaz Ahmed, Chief Meteorologist delivered the Keynote speech.

Mr. Ahmed Kamal, Chairman Federal Flood Commission, Syed Mehr Ali Shah Pakistan Indus Water Commission and Dr. Qamar Uz Zaman Chaudhry and Syed Nasser Ahmed Gillani were speakers for the first and second session respectively.

The esteemed Chief Guest, Keynote speaker, and other speakers, dignitaries, diplomats, civil-military bureaucrats and a wide variety of audience members praised the content and eminent speakers for delivering an invaluable analysis on "Water Crisis: An Imminent danger to Pakistan's Stability"

This report presents a summary of statements by the Chief Guest, Keynote speaker, and key remarks delivered by the speakers during the conference.

## Programme Layout

### “Water Crisis: An Imminent Danger to Pakistan’s Stability”

#### PROGRAM

<b>Arrival of Guests/Registration</b>	
<b>Recitation from Holy Quran</b>	
<b>Opening remarks by Muhammad Athar Javed</b> DG Pakistan House	
<b>Remarks by Chief Guest:</b> <b>Omar Ayub Khan, Federal Minister for Energy (Power Division)</b>	
<b>Keynote Speaker</b> <b>Mr. Muhammad Riaz Ahmed, Chief Meteorologist of Pakistan</b>	
Interactive Discussion/ Q&A Session	
<b>Session I</b>	
<b>Topic: Water Crises: Floods, Management and Futures Strategy,</b> <b>Chair: Dr Abid Qaiyum Suleri, Executive Director SDPI</b>	
Pakistan’s Water Crisis: Floods & Water Shortages	<b>Mr. Ahmed Kamal, Chairman, Federal Flood Commission</b>
Problems of Climate Change & Solutions	<b>Dr. Qamar Uz Zaman Ch.</b> Ex- official of Pakistan Meteorological Department
Interactive Discussion/ Q&A Session	
Wrap up by Chair	

## Session II

**Topic: Water Scarcity & and Indus Water Treaty**

**Chair: Syed Naseer Ahmad Gillani**

Water Scarcity Threats & India's Violations of Indus Water Treaty	<b>Syed Mehr Ali Shah</b> , Pakistani Indus Water Commissioner
Water Resources, Planning and Mitigation	<b>Dr. M. Zia Ur Rehman Hashmi</b> , Head of the Water Resources and Glaciology Section, Global Change Impact Studies Centre, Islamabad
Interactive Discussion/ Q&A Session	
Wrap up by Chair	
Vote of thanks by Lt Gen Khalid Rabbani, Senior Advisory Board Member, Pakistan House	

## Speakers' Profiles



**H.E Mr. Omar Ayub Khan** is a Pakistani politician who is the current Federal Minister for Power and Petroleum, in office since 11 September 2018. He has been a member of the National Assembly of Pakistan, since August 2018. He is grandson of former president of Pakistan General Ayub Khan. Previously he was a member of the National Assembly from 2002 to 2007 and again from 2014 to 2015. He served as Minister of State for Finance in the federal cabinet from 2004 to 2007. He was elected to the National Assembly of Pakistan from Constituency NA-19 (Haripur) as a candidate of Pakistan

Muslim League (Q) (PML-Q) in 2002 Pakistani general election. He received 81,496 votes and defeated Pir Sabir Shah. Khan was inducted into the federal cabinet of Prime Minister Shaukat Aziz and was appointed as the Minister of State for Finance where he served from 2004 to 2007. On 11 September 2018, he was inducted into the federal cabinet of Prime Minister Imran Khan and was appointed as Federal Minister for Energy (Power Division).

**Mr. Muhammad Riaz Ahmed** is a Chief Meteorologist of Pakistan. He has done MSc in Physics. He worked as Chief Meteorologist, Flood Forecasting Division, Lahore, Mr Riaz worked as a Chief Meteorologist, Seismic Monitoring & Tsunami Early Warning Centre, Karachi. He also holds the position of Director, Regional Meteorological Centre, Lahore. He worked as a Senior Meteorologist, Allama Iqbal International Airport Lahore. His publications include:



Upper Tropospheric Westerly Trough as an Instrument for the Development Intensification and Northward Movement of the Tropical LPS with Reference to Case Study of September 1988 Flood Event, Pakistan Journal of Meteorology, Vol. 3 Issue 5, June 2006.

Pattern of Precipitation under the Tropical Depression Seasonal Low Interaction, Pakistan Journal of Meteorology, Vol. 3 Issue 6, December 2006.

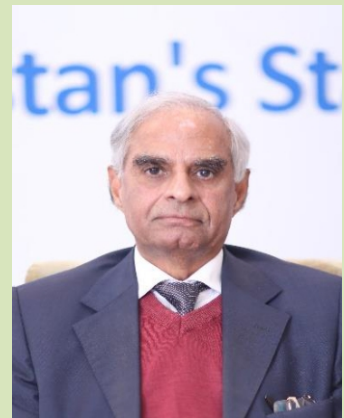


**Mr. Ahmed Kamal**, Chairman, Federal Flood Commission, CEA/ CFFC Ahmed Kamal is no stranger in water policy circles of the capital. Most recently, in his role as the Chief Engineering Advisor for Ministry of Water Resources (MoWR), he was instrumental in drafting of National Water Policy, 2018. Kamal joined the ministry in 1990 as a junior engineer and has spent a greater part of his thirty-year long service working for Federal Flood Commission.

Under his chairmanship, Federal Flood Commission formulated the fourth 10-year National Flood Protection Plan, which is awaiting Planning Commission assent for fund allocation.

Kamal has also served with National Disaster Management Authority in two stints since its inception, where he was responsible for formulation of National Disaster Risk Reduction Policy, 2013.

**Qamar-Uz-Zaman Chaudhry** is a Pakistani climate scientist. He is a researcher in the fields of climate change, meteorology, atmospheric sciences, hydrology and seismology and has written over 50 articles in the fields of meteorology, atmospheric sciences, hydrology, seismology, plate tectonics and earthquakes. He is the lead author of Pakistan's first National Climate Change policy He served as the Vice President of the World Meteorological Organisation. He was born in Sargodha, Pakistan. Chaudhry received his early education from Lahore. Later, he attended Government College University where he received his B.Sc. in Physics with honours and M.Sc. in Physics from the Quaid-i-Azam University. He received his Ph.D. in meteorology from University of the Philippines Los Baños. He joined Pakistan Meteorological Department (PMD) in 1971 and became Director General in 1996. He served as Permanent Representative of Pakistan with WMO and as Secretary of the WMO/ESCAP Panel on Tropical Cyclone for the Bay of Bengal and the Arabian Sea. In 2009, he served as Vice President of World Meteorological Organization Asia Region.







**Syed Mehr Ali Shah**, Pakistani Indus Water Commissioner. Joint Secretary (Water) Ministry of Water & Power, Government of Pakistan.

Mr. Mehr had been in charge of the Modelling and Trans-boundary Waters Section, responsible for leading a team of water resources engineers and GIS professionals, to carry out the technical reviews of various hydropower projects of India as submitted to the Government of Pakistan. The reviews are particularly focused to check the compliance of the design and operation of various components of the projects according to the relevant provisions of the Indus Waters Treaty signed between Pakistan and India in 1960.

Numerical modelling and stream flow measurements are other main areas in which our section provides its services. Numerical modelling involves flood modelling including rainfall-runoff and hydrodynamic modelling, modelling of sediment transport in reservoirs, rivers and canals, reservoir operation of multi-purpose water reservoirs present or proposed in the system to fulfil various sectoral demands including hydropower, irrigation, environment, municipal and industry.

Discharge and sediment measurement is a relatively new area in which we have just entered by taking up the flow measurement activity of various watercourses, minors and distributaries in Sindh province of Pakistan.

Mr Mehr has served as Principal Engineer Hydrology and Hydropower Section of Water Resources Division in NESPAK along with Senior Engineer Hydrology and Hydropower Section of Water Resources Division in NESPAK

**Dr. Zia Hashmi** is currently heading the Water Resources and Glaciology Section. He is a skilled research engineer with a doctorate in civil engineering from the University of Auckland, New Zealand. His doctoral research focused on multi-model statistical downscaling for hydrologic impact assessment studies. He has got a strong background in water resources engineering and management with ample experience of research in hydrology in relation to climate change, working with a range of scientific disciplines. He has been collaborating in a number of joint projects at international and national levels and, authored several high-quality research publications including international journal articles, book chapters, research reports and newspaper pieces.



## Welcome Address

**Mr. Muhammad Athar Javed**

**Director General Pakistan House**



The subject of water scarcity is one of the most pressing issues which Pakistan has been facing and would face in future. The idea to deliberate “Water Crisis” in public discourse is aimed to highlight the dangers of mismanagement of water resources. The rapid population growth has remarkably strained the existing water reservoirs, in addition to meagre water management systems. Most importantly, the way Pakistan’s agriculture system is utilizing water has caused huge water loss. It is this situation in addition to the Indian’s 5<sup>th</sup> August decision to abrogate Article 370 and 35-A, has put Pakistan on a very high alert in terms of countering domestic water related issues and what India would do next to control

water resources coming from Indian occupied Kashmir. It is the centre piece of this discourse. There is also a need to look at the relations between water and agriculture. Our technology is very much obsolete and the world has gone beyond this traditional conventional means. Using modern technology would directly impact the water will help saving significant amount of water during irrigation. The issue of dams needs attention too because the due to politicisation of “building dams” (e.g. Kalabagh), for the past 50 years has negatively impacted the state’s policies and divided some segments of society. There is a need to emphasize the importance of managing the water. Building small dam initiative by the current government is a positive development. The climate change issue is of great importance although we are not contributing much to pollute the environment, but we are facing the issues of floods and irregular monsoons. Moreover, it is very crucial to know what the general needs of Pakistan are and how India is to use water as a weapon in future conflicts. Pakistan House has launched a flagship project under the title of “Islamabad Dialogue”. The project will openly discuss and facilitate issues related to Pakistan both in domestic and international context. We will be inviting Subject matter Experts (SMEs) to present solutions to the problems.

## Keynote Addresses

### **Mr. Muhammd Riaz Ahmed** **Chief Meteorologist of Pakistan**



The issue of water crisis is very important. Water is not only important for the economic development of the country but there are other areas like human resource development that depends on water. The regions that are facing the issue of permanent drought their economic development and health of the people have been affected due to the shortage of water. Developed countries have managed their water resources. Looking at the issue of water it is a known fact that the source of water is either the rain or the glaciers that depends on the weather. Considering the current condition of glaciers and temperature due to the climate change from the past 60

years there has been an increase of .74 degree Celsius increase in the temperature. Moreover the reservoirs of Tarbela are entirely dependent upon the glaciers. It is expected that there will be an increase of about 4 degrees in the coming years which will further aggravate the issue water crisis. There is a need to manage the rain water as more than 200 acre feet of water is coming from rain water. Therefore, considering the climate change and management of water inability to manage the water will lead to a critical situation. As it can be clearly seen that there has been a significant change in rainfall causing drastic effects like floods in the region. Therefore, we should not close our eyes and instead should go for planning and managing whatever resources of water are available. It is not only the responsibility of the government organizations but it is also the responsibility of each one of us to save water. Even the agriculture people have started managing the amount of water that is necessary for a crop therefore, such type of methodology is likely to be adopted in the areas where water is being utilized. The developed countries have developed methods to control and manage the consumption of water and have built dams to save the rain water. There is a need to manage the water resources to minimize or control the consequences of water shortage.

# Guest of Honour

## H.E. Omar Ayub Khan Federal Minister for Energy (Power Division)



Thank you Pakistan House Advisory board and special thanks to Muhammad Athar Javed for this opportunity. It is a privilege and pleasure to be here with members of the diplomatic core, Foreigners and everyone here in this seminar.

Let me just start by telling you one thing as an aviator who did not listen to the meteorological report and took off without due preparation of flight planning. There is a concept called pirate report which basically to correlates the weather pattern above at 18000 feet. The meteorological reports are used to predict the weather up there.

There are applications which can even tell you about the temperature on Mars, Moon and other planets. That is the level of prediction of science, one can predict the temperature of upper hemisphere in any given day – at 12,500 feet above the surface right now that is the level of prediction and technology is taking over. So when the chief meteorologist of Pakistan is telling us that there is a problem then we all should know that there is serious problem and we all have to find a solution of that issue and start preparing for it. The area that I have represented in the national assembly of Pakistan is Haripur district, I'm shedding light on the brief geography and the water reservoir that are there. And I'll just walk you through Indus cascade there are people in this hall who have expertise in these and talked on this topic.

The constituency that I have represented there is Tarbela Dam, there is Ghazi-Barotha Dam and Khanpur Dam. These are reservoir that are the backbone of this country. Then there are large reservoir in shape of Mangla Dam and then multiple small reservoir across the country. If we study the report of the World Bank and the other expert studies done by our ministry for water resources you will see if we put in a large water reservoir today the increase in GDP will be approximately minimum 1% per year. Pakistan GDP per year is \$300 Billion, which means through these reservoirs this is approximately an increase by \$3 Billion per year that is the impact of one water reservoir coming today for that we have political unanimity across all provinces.

We have to see not just our agricultural needs, not just our water needs, we also have to think about of our food security, energy requirements, our food security requirement and another given constraint. The glaciers positions in 1929 and what we have today, is completely different. The glaciers have melted and when the glaciers melt, there will be increase in temperature across the country and even across the world. Fresh water is fast commodity and how we utilize that which is transforming it into a scarce commodity for unlimited requirements which is a classic economic problem. So that is where we have to apply our collective genius across the world. It is not just the issue of Pakistan it is the issue which effects the region, it is the issue which effect the globe today. The water requirements of Baluchistan and let's relate all these issues where technology is leading us today.

If you go up to river cascade there is a place called BUNJI right about approximately 45 minutes of South Gilgit near Jaglot, there is a hydro power potential approximately 8000 Megawatts. If we come down there is Diamer-Bhasha Dam, Dassu, Pattan so all these projects along the Indus cascade till you come to Tarbela. Tarbela and Mangla are not isolated projects. The plan was the cascade projects over there to save the water reservoir for a long period to reduce the negative impacts on these reservoirs it is the responsibility to save them. On a personal note I still have the pen which my grandfather President Gen which Ayub Khan used to sign the Indus Water treaty.

After the 60's the dams were not made so having said that ladies and gentleman there is an energy dimension to this issue. I'm going to talk about that all this but we have to create the series of dams. Today we use mix energy, we are dependent on our 65 % of energy mix, we are dependent on imported fuel thus consider what will that do to our current deficit? We are sending our dollars outside our country to bring imported fuel, bringing extra forms of energy and then, we say why our exports are not rising. It is because we made our imports uncompetitive with the imported fuel source which is tied to the international markets, which is tied to the dollar rates in the international market. Thus, our government policy right now is to flip this energy matrix on its head and make sure by the year 2030, 70% of our energy mix is from indigenous and renewable sources.

- Today we have renewable energy approximately from solar is 1006 megawatts, we are ramping it up to 8000 megawatts by the year 2025. This is not a fake news this is reality and already set into motion.
- We are going to ramp it up to approximately 20,000 megawatts and 305 of our energy mix by the end of 2030 and by that time our energy install capacity will be 55,000 megawatts. Today it is 31,000 megawatt.

Therefore, on larger base we have larger renewable energy mix. Adding to that in other countries the two variables sources are solar and wind energy. These are variable renewable energy. If we include water resources I'm just adding the Indus cascade. We are heading to more than 18,000-20,000 Megawatts of hydro resources as well to our energy mix so taking it to almost 70% add nuclear energy they are going to ramp it up to 10% add Thar coal. Overall we are looking up to 70-80% indigenous energy resources by the end of 2030 and large portion of that will also be hydel resources.

Another important factor in all this matrix when we talk about hydel resources it is not just the irrigation system that we have been used, the world has moved on we have to make sure that this resource is generously guarded and used. We have already finalized plans with WAPDA and putting floating panels on Tarbela, Mangala, Ghazi-Barotha and Khanpur dam all these great water reservoir. We already have a grid stations, and floating solar panels are going to do three things:

- Reduce Evaporation
- Reduce water wastage
- Increase cheap energy



In addition to that along the canals in Punjab, we will use these canals in coordination with the energy ministry of Punjab to put solar panels on their canals, so their lift irrigation systems can be run on these solar panels. The rate of decrease in the renewable energy we use to be talking about 12-13 Cents couple of years ago has become very low, as establish rate today is less than 2.45 cents and it keeps going down. Other than that the new renewable energy policy we have competitive bidding for new energy projects.

We have downward stopping curve of energy projects coming in. For water resources when we talk about Baluchistan over there 29,000 tube wells that are been run this was an old ancient bank scheme with the Bank of Pakistan and the government of Baluchistan and the Asian Development Bank. Unfortunately, what is happening is that the rate of pumping is precious resource of this weak water. They have now shifted to water mining so we are switching this resource and turning all 29,000 tube wells mapping it out and converting it to solar. But with one other additional caveat putting in that once they are converted to solar it is going to be a catch 22 situation, we have more cheaper energy resources to pump out the resource and do flood irrigation NO there has to be mitigation of risk of depleting this resource how?

By creating reservoir system that if this resource is taken out we can still promote agricultural techniques that are environment friendly. In terms of water efficiency, experts are working on that so that has to be paradigm shift towards our food security. I'm not talking about our four major crops. Even today in the ECC meetings we look at the erratic increase and decrease of crops pattern of all the eatables because our storage capacity is not there.

Cold chains have to be built up for the buffering of these products. So newer techniques, newer chains all linked to water. So the availability of water is so essential and the distribution system of our 132, 11KVM network and you can search on Google earth. All our 2 million population is living aside all the 5 rivers and the population is increasing in those specific areas and our lighting pattern, distribution system suggest that why it is not in the middle of the desert because water is life essential same is the case with River Nile, Delta same is the case with Tigris and many more examples are there

So basically now we look at the cultivating in deserts. These deserts are our future, we have to make sure that this precious resource is used economically. It's used efficiently with investment in science and technology not just by creating large reservoirs or doing flood irrigation. We have to make sure that we use it diligently, very studiously and only then at the end of the day we come up with the plan we just integrated the ministry of resources, the ministry of energy, the ministry of food, the ministry of national food security and most of all after the 18th amendment the provinces the Omas comes onto the provinces itself.

We have to salvage recycle look at every ounce of water that we are using, so whatever goes out into the Arabian just enough to check the Arabian sea from encroaching up from Kotri upward the flow of the water is just enough to check the saline water coming upstream. More than that we need to harness our resources because today our water reservoirs are fast depleting and we don't have reserve parachute. You look at some countries and experts will give examples. The United States with more than 2-3 water resources storage over there we are moving close so keeping this thing is mind our water economy at the end of the day is going to drive our energy, economy, food security it will drive the prosperity of our nation. This resource is paramount importance.

So at the end of this brief talk I would just like to also mention India, I must say if India tries to meddle in any way with the Indus Basin Treaty or using water as a weapon the answer from Pakistan will be swift. Also, these treaties were signed within international legal framework, and Pakistan will defend its sovereignty at every level. Any misadventure by India may lead to confrontation, and India would be treated in similar fashion as was done in the post-Pulwama incident. Pakistan Air Force (PAF) responded India's aggression by shooting down two Indian fighter jets. The message is loud and clear that violating Pakistan's the territorial integrity would cost India heavily. Our armed forces and the people of Pakistan have proved Time again there would be no unjust settlement of IOK, and until a Pakistani is alive we would defend Pakistan's legitimate stance over Kashmir. India has been committing grave atrocities against innocent Kashmiris, the world has to wake up before its too late. A conflict between nuclear rivals can destabilize the entire sub-continent. The world has to rise up and denounce human rights violations in India. Pakistan Zindabad!



## Noteworthy Snippets



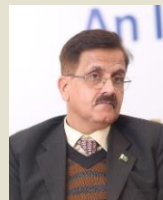
*By the year 2030, 70% of our energy needs will be fulfilled by indigenously made energy and we will have a larger fuel energy mix.*

*H.E Omar Ayub Khan*



*Climate Change has a severe impact on Pakistan especially with regard to agriculture and rising water crisis.*

*Mr. Muhammad Riaz Ahmed*



*Water scarcity has threatened food, energy, and environment altogether.*

*Mr. Ahmed Kamal*



*Water conservation, reduction in irrigation losses and use of efficient irrigation techniques can help in preventing the water scarcity.*

*Dr. Qamar Uz Zaman Chaudhry*



*We need to have more robust mechanisms to store the water. We have to move towards carryover methods and store water during wet years for dry years.*

*Mr. Syed Mehr Ali Shah*



*Indus Delta is an integral part of the system and holds an important position in the water system of country, which is why it shouldn't be ignored.*

*Dr. M. Zia Ur Rehman Hashmi*

## First Session Speeches

### **Mr Ahmed Kamal Chairman, Federal Flood Commission**



I will be analysing the prevailing meteorological situation with specific reference to floods and water shortage. So I would like to be focused on these areas.

- Climate change and its impact
- Flood Risk Management Mechanism
- Integrated water resource (IWR) Framework
- Pakistan Water Sector Challenges
- National Water Policy
- Present Water Scenario
- Key Actions for Future

Let me just start by Quoting of Ayyat from Holy Quran it says “And We made every living thing of water” this identifies the very importance of water. Pakistan is among the top ten celibately affected countries of climate change and water shortage. According to the reports, Pakistan falls at number 8 which tells the risky situation of the country. According to the reports issued by Pakistan Meteorological Department, Pakistan is facing prominent climate changes. Research carried out by scholars of different universities of Tokyo also indicates that Pakistan is facing twice more impacts of climate change as compared to rest of the world. From 1990 to 2005 the situation is changing. The glaciers are melting and the global change is about 1.7-degree centigrade, while Pakistan is facing an increase of 3 degrees in temperature and similar predictions have been made about future when the rise in temperature is like to be 1-degree after every few years.

There are very pronounced impacts about deposition and emission of carbon and the effect on glaciers and by virtue there is rapid melting of glaciers. The glaciers are more prominently facing all these challenges and absorbing carbon dioxide. The melting rate of glaciers is increasing ever year. A new phenomena is glacier lake outburst flooding. Similarly 2007 cyclone in the Arabian Sea that is Jamyang cyclone which had impact on Pakistan specifically on Baluchistan and Sindh. We have been facing quite rapidly the incursion of more cyclone activity like FaTe Cyclone, Nelo Ashoba one after another. This shows that the sea temperature is rising as compared to the sea surface temperature of Bay of Bengal and this in resulted much more cyclonic progression towards the sea coast

of Pakistan. So this talks prominently about the impact of climate change over the region and on Pakistan.

After the 2010 flood when the monsoon was moved towards North East now the monsoon has shifted towards North West to about 100 km's and that has brought 25 additional districts both in the province of KP and the province of Punjab under its impacts. By the virtue of all this we made an effort to bifurcate or divide the country into three different categories in view of the changing north west position of the monsoon pattern the top most region as extremely vulnerable to the climate change followed by the centre change which is highly vulnerable and then the South East position of the country which is unguarded. The intensity of rainfall in the areas of Pakistan has been increased and that has put them in the state of high vulnerability or to the vulnerability classification. In 2010 flood around 20 million population moved from their areas and about 1.6 million houses were damaged and \$10.6 Billion loss was estimated.



Then after 2011-2015 we got another loss of about \$9.04 Billion. Due to this we have lost more than \$20 Billion in last 4-5 Years due to the climate change in Pakistan. These losses can never be forgotten this money is enough to build Diamer Bhasha Dam, so this shows the severity and sensitivity of these floods to the economy of the country. From 1950-2010 we lost \$19.13 Billion in 60 years and in the next 6 years we have lost more than \$20 Billion. This prominently indicates that the country is under the threat of climate change.

In 2050 when the population of Pakistan will be reached to 400 million there will be water shortage and Pakistan will only have 501 Cubic meter per capita of water. We have to make some serious steps and construct Diamer Bhasha Dam to save the water that will raise the water level from 501 cubic meter of water per capita to 611 cubic meter of water per capita, but the situation will be same there will be water shortage in few areas. According to a report published by WAPDA, for our agricultural needs 135 million Acre feet water is required, for domestic needs 14.5 million Acre feet water is required and for industrial needs 6.7 million Acre feet water. To meet this demand the institutions and the public have to be serious about this or else we all will see the consequences. Under the National Flood Protection Program we have given 332 billion rupees. However, there is still financing gap in the budget but we are managing this issue as well. Hopefully, by the end of December, new planning will began. In the end I would like to say that, we need reforms in water sectors and the awareness among the people from all levels we don't have to waste this natural resource water is essential for life.



## Dr. Qamar Uz Zaman Chaudhry

### Ex- official of Pakistan Meteorological Department



I am grateful to Pakistan House administration, especially Mr Athar Javed, Director General to provide us with such opportunity. Water crisis is a subject on which abundance of data is available because the issue is very broad. Earlier climate change was considered as one of the environmental problem but now it has been recognized as a developmental, economic and social challenge. Everybody agrees that it is now a top priority global agenda. The ground water exploitation is a serious matter besides misuse of water resources in agriculture sector. Monsoon rains and ice melting from glaciers are most important factors in providing 70% of the water resources to the country

but these are also the areas that are effected the most because of global warming and climate change. Over the course of past 50 years water per person has reduced from 5000 cubic meters to less than 1000 cubic meters. If the population growth rate remains the same, the availability of fresh water per person will further decrease to 850 cubic meters. Since Pakistan is an agriculture country and about 70% of the water is used by agriculture sector. If we want to improve our water management policy and strategy and put hold to water wastage, we need to focus upon the water consumption in agriculture sector



## Second Session Speeches

### **Mr. Syed Mehr Ali Shah Pakistani Indus Water Commissioner**



The problem of water crisis has far reaching consequences for Pakistan. There is a dire need to find a solution for this problem, as it needs to be tackled properly before it's too late. Pakistan has made great sacrifices, when it comes to the issue of water. President Ayub took a great decision back in the days, which proved to be the best option available at that time. Pakistan made a trade-off, although the country had to surrender her three eastern rivers, which was a huge sacrifice from Pakistan's side. The history shows that Pakistan lacked the capacity to build even a single dam at that point of time, yet Tarbela was completed in the year 1976. Whatever water structure was constructed in this country was due to Indus Water Treaty and Indus Basin Fund. Through the funds under Indus Water Treaty, Pakistan was able to construct a huge water infrastructure in the form of two large reservoirs, the 12 link canals, five new barrages. The construction of this water infrastructure would not have been possible without the Indus Water Treaty. On the other hand there would have been a continuous rift and quest between India and Pakistan, if the Indus Water Treaty hadn't been signed. There is a need to understand what threat perception is, otherwise as nation there is a possibility to end up in a situation where Pakistan will be bogged down with India on the water issue. Therefore, basic concentration should be protecting Pakistan's water. Two areas need to be focused in order to ensure water security in country. First is to be vigilant that whatever rights have been enshrined in the Treaty, which protects and safeguards Pakistan's interests, are ensured. Secondly, as a nation which could not construct a single large dam in the country after 1976, there is need to construct smaller dams to increase the water storage capacity. Fifty percent of water that is provided for the purpose of farming gets seeped. This reveals the level of water efficiency in the country and the weak management. There is no time to waste if the problem of water is to be managed effectively, thus steps must be taken to develop policies that can be implemented immediately, which must be multi-disciplinary and multilevel.

**Dr. M. Zia Ur Rehman Hashmi**  
**Head of Water Resources and Glaciology Section, Global Change  
Impact Studies Centre**



I would like to thank DG Pakistan House and other members of management committee of this conference to provide me this opportunity to speak in front of this gathering.

Pakistan is a Himalayan country, which gets most of her water from the melting of snow and glaciers from Karakoram region. The water the melts from glaciers flows into rivers and enters into the sea. There is mechanism shared by other speakers for storage of this water and for its usage in future for different purpose. Another important component is the usage of water. The river joins the sea and forms a delta. The high mountain region in Pakistan is dominated by the Karakoram

Mountains and Karakoram glaciers. This region provides water to Pakistan's downstream. Indus Delta is an integral part of the system and holds an important position in the water system of country, which is why it shouldn't be ignored. A huge challenge lies in the high elevation region, where Pakistan has sparse network of climate monitoring and glacier monitoring. Pakistan has almost no single station above the elevation of 5000 meters. Hence, the management is ignorant of what is going above this elevation. This poses a big challenge to the researchers in country because every strategy or policy starts with reliable research. Pakistan has low storage capacity, while are water usage system is very low in its efficiency. Moreover, Pakistan has trans-boundary issues, which exacerbate her water crisis. None of our rivers originate in Pakistan and flowing in the country. All of the rivers are actually originating outside the country, thus Pakistan lacks complete control on her rivers. This poses a great challenge. Sea water is intruding into land, which is effecting the quality of ground water and agricultural practices. Moving on to climate change, which has become a reality rather than a fiction or something that might happen in future. Climate change is here and it is real. Now most of the researchers and scientists around the globe agree that it is happening and the bad news about it is that climate change will stay. The concerning factor here is that humans are causing climate change to happens. Human race is the culprit and cause of the climate change.



## **Mr. Syed Naseer Ahmed Gillani**

### **Chief, Water Section, Planning Commission**



Pakistan House is a mature think tank for taking water issue as a national security issue. UN and diverse economic forums have accepted that the global security, which is a military security also, has high risks involved with water security. There are many types of definitions of water security around the world. When we talk about India we will need to talk to Afghanistan and China also on terms of trans-border waters regarding what national security expects. Water is important because it is scarce. Water crisis definitions needs to have aspects of water flow distribution in summer and winter seasons, differential between years to years and disaster factor of the climate change.

Indus Water Treat, either good or bad, but we have a treaty at least and the Indian strategy is to renegotiate the treaty. According to Pakistan's view the renegotiation of treaty will only be causing damage to it and none will be done at any cost. Glaciers are shrinking at very rapid rate due to climate change which means there is a lot more water coming but Pakistan is getting the same percentage, which means some portion of water is lost in between. Pakistan needs China to be a part of water development because water scarcity has dimension of finance also. Water infrastructure requires a new dimension due to increasing water poverty and water scarcity. If you have the water in river but lack the power to build a dam because of less finances, human resources and unstructured institutions then you are a water poor nation which fits well in case of Pakistan.

## Photo Gallery













