



**INSTITUTE OF
STRATEGIC STUDIES**

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Report- Seminar

“The International Decade for Action: Water for Sustainable Development 2018-2028”

April 26, 2018



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Pictures of the Event



The Institute of Strategic Studies Islamabad (ISSI) held a Seminar titled, “*The International Decade for Action: Water for Sustainable Development 2018-2028*,” on April 26, 2018. The Chief Guest at the event was Dr Nizomuddin Zohidi, First Deputy Minister of Foreign Affairs, Republic of Tajikistan. Other distinguished speakers at the seminar included: H.E. Sherali Jononov, Ambassador, Republic of Tajikistan to Pakistan, Mr. Ghafurzoda Taghaimurod, Head of Department of Water Resource, Ministry of Energy & Water Resources, Republic of Tajikistan, Dr. Muhammad Ashraf, Chairman, Pakistan Council of Research in Water Resources (PCRWR) and Mr. Babur Suhail, Vice President, Centre for Global & Strategic Studies (CGSS).

Ambassador Khalid Mahmood, Chairman ISSI welcoming the distinguished speakers and the esteemed guests said that it is an occasion of great happiness for the Institute of Strategic Studies Islamabad. We have the honor of welcoming three distinguished high officials from the brotherly country of the Republic of Tajikistan.

He said that the peoples of Pakistan and Tajikistan enjoyed close relationship in the past marked by geographical proximity, common faith, culture and history. These bonds acquired a new meaning and dimension following the emergence of Tajikistan as the new Republic in 1992. Given their strategic and economic complementarities, the bilateral relations have since been growing in diverse fields: political, economic and defence. The electricity transmission CASA 1000 project and collaboration in the defense training and supplies are prime collaborative activities. Regrettably, mutual trade is not upto its potential and communication links are rather weak. The two governments are alive to these deficiencies and are striving to plug them. Tajikistan's prospective formal accession to the Quadilateral Traffic-in-Transit Agreement between Pakistan, China, Kyrgyzstan and Kazakhstan will greatly facilitate regional integration. We will hear more on the subject from His Excellency Mr. Nizomuddin Zohidi, First Deputy Minister of Foreign Affairs as also from His Excellency Ambassador Sherali Jononov and other distinguished speakers from Tajikistan and Pakistan on the theme of the seminar.

Ambassador Mahmood said that water is the source of life. Human existence depends upon the continued availability of water. Unbridled human activity and the impact of Climate Change are fast dwindling this precious asset. In fact, the world is already facing a water crisis.

According to a United Nations report, one-sixth of the world population does not have adequate access to safe water and by the year 2025, half of the countries worldwide will face water stress or outright shortages. Climate change, through melting of glaciers, varying rainfall patterns and sudden temperature changes, exacerbates the problem of water insecurity.

The reduced access to fresh water has far-reaching consequences like reduced food production, loss of livelihood, and increased economic and geopolitical tensions, especially in volatile regions like South Asia. Water security problems are particularly severe in the regions where numerous major international river basins lie and are subject to territorial disputes between various countries. The connection between environment and economic development is significant for sustainable development, and in that respect, water, energy and food are inextricably linked.

Pakistan is a water-stressed country. There is a loss of habitat that can lead to the extinction of some wildlife species due to changes in the watercourse. The reduced water flowing downstream also causes the water to be more saline, making it less suitable for certain fish nurseries.

Being a lower riparian country to India, Pakistan is dependent upon the upstream ecosystems to provide the water supply for irrigation, drinking and generating hydro-power. The extent of water diversion by the upper riparian - India - through the construction of dams on rivers allocated to Pakistan under the Indus Water Treaty adversely affects groundwater basins and downstream ecosystems. Water issues and disputes, if not timely resolved, can lead to a major conflict between Pakistan and India having a nuclear dimension. It is, therefore, important that the Indus Water Treaty which has served the two countries well is followed in letter and spirit and its Dispute Resolution mechanism does not become dysfunctional, as happens to be the case at present over the construction of Kishanganga and Rattle dams by India.

Pakistan, a semi-arid country, loses significant amounts of water due to the lack of storage facilities as it has constructed no water storage reservoir on the Indus since the Tarbela Dam was built in 1976. There is a need for adequate management of water supplies by Pakistan within its borders by starting work on the stalled water storage projects. A focus on development from an environment-development nexus perspective is the government's main priority, as envisioned in Vision 2025 plan for sustainable socio-economic development in the country.

The international community is gradually waking up to the gravity of the issue. Starting with the decision by the UN General Assembly in 1992 to observe the World Day for Water, the international community has been active in raising awareness of the growing water scarcity and formulating policies, plans and strategies to slow down, contain and possibly reverse the impending catastrophe.

The UN General Assembly and the UN Human Rights Council have affirmed a Human Right to water. The Millennium Development Goals (MDGs) had aimed by 2015 to halve the proportion of people without sustainable access to safe drinking water and basic sanitation. The following Sustainable Development Goals, specifically Goal 6, now calls for ensuring the availability and sustainable management of water and sanitation for all by 2030. Water is in fact related to several other SDGs including Goal 8 which addresses the promotion of sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. International Water Decades have been launched to implement these goals.

His Excellency Mr. Emomali Rahmon, President of the Republic of Tajikistan has been the moving spirit behind all these international initiatives. The world must acknowledge and appreciate his vision, sagacity and concern for the future of mankind. He has convened another International Conference on the International Decade for Action, "Water for Sustainable Development 2018-2028". It is scheduled to be held in Dushanbe between June 20-22, 2018. This Conference will help raise awareness about the timely implementation of the Sustainable Development Goal 6 and other water-related SDGs at the global, regional and country levels, with the participation of all stakeholders including the private sector.

We will certainly be benefiting from the distinguished speakers on their perception and views regarding the existential threat of water insecurity looming over the horizon.

H.E Mr. Sherali Jononov: I would like to express my sincere gratitude to the Institute of Strategic Studies for the organization of this seminar and warm hospitality.

We also have a great honor to have with us today First Deputy of Minister for Foreign Affairs of the Republic of Tajikistan H.E. Nizomuddin Zohidi and the head of the department of the water resources of the Ministry of Energy and Water Resources Mr. Tagoymurodzoda.

I am confident the seminar will consolidate the results achieved so far in this direction and put forward the new ideas and initiatives that will allow us to move forward significantly in solving water problems at all levels focusing on our common and secure future.

No doubt, global trends have a direct impact on regional and national levels. In this context, Central Asia is one of the most vulnerable regions in the world. According to the experts, climate change contributes to the rapid shrinking of the glaciers of Central Asia, which are the main source of the region's rivers. As a result, the indicator of water availability per capita decreases year by year: if in the 1960s this indicator was 8,4 thousand m³/year, today it has decreased 4 times (400%) - to 2.1 thousand m³/year.

Another important aspect of the water problem in Central Asia is the distribution of water resources. Under these circumstances, the interstate water cooperation is key for addressing not only water problems and socio-economic development, but also peace, stability and security.

Tajikistan contains about 60% of the water resources of the rivers of the region. At the same time, having limited natural resources, the Government of the Republic of Tajikistan is compelled to use its abundant water resources to address the country's socio-economic issues. Based on this, our development policy is aimed at using water resources in a way that meet the national needs taking into account the regional balance.

Integration of national and regional interests is a very difficult process and it is impossible to succeed without an integrated approach. In this context, the introduction of integrated water resources management at both regional and national levels is very important. In this regard, the Government of the Republic of Tajikistan adopted, in 2015, the Water Sector Reform Program for the period 2016-2025 aimed at improving the legal framework and institutional mechanisms, developing infrastructure and creating an appropriate database of implementation tools.

The Republic of Tajikistan is one of the leaders in advancing the water agenda at the global level. At the initiative of Tajikistan, the United Nations General Assembly has declared the International Year of Freshwater (2003), the International Decade for Action "Water for Life" (2005-2015), the International Year of Water Cooperation (2013), and the International Decade for Action "Water for Sustainable Development" (2018-2028).

All these initiatives were based on the understanding that water is a key element not only for social and economic development, but also for ensuring peace, stability, and development.

Tajikistan Initiative - The International Decade for Action "Water for Sustainable Development", 2018-2028 is one of the important initiatives that serves as a timely basis for the further promotion of water issues, and the Panel recommends using it as a platform for political discussions, sharing best practices and developing partnerships and cooperation.

The Republic of Tajikistan, as the initiator of the International Decade for Action "Water for Sustainable Development" (2018-2028), together with the United Nations and other partners, organizes the High-Level International Conference to discuss and make recommendations for the successful implementation of the goals and objectives of this Decade.

I would like to take this opportunity to invite on behalf of the Government of the Republic of Tajikistan all interested parties to participate in this international event and contribute to its success and also for this seminar.

Dr. Nizomuddin Zohidi: It is a great pleasure for me to address today's important gathering.

At the outset, I would extend my sincere thanks to The Institute of Strategic Studies and the Embassy of the Republic of Tajikistan in Islamabad for organizing this seminar *on International Decade for Action "Water for Sustainable Development, 2018-2028"*.

As the distinguished participant of today's event might be aware, on March 22 this year, the United Nations has launched the International Decade for Action "Water for Sustainable Development, 2018-2028". The Decade's launch event has attracted attention of leaders, policy makers and water experts from many regions of the world. Especially, I would like to mention an address delivered by His Excellency the President of Tajikistan during the opening ceremony. In his speech the President of Tajikistan expressed hope that:

I quote *"I do strongly believe that this Decade will open a new chapter in the United Nations' engagement aiming at seeking for and finding solutions to the most crucial global challenges related to the effective use and preservation of water resources."* End of quote.

In this connection, I believe that today's event will serve to increase awareness towards achieving sustainable water resources management.

Today, it is difficult to imagine a region of the world, where water resources and their role in achieving sustainable development are not particularly important. Almost all branches and spheres of human activities are tightly connected to water resources. It is well-known, that water resources are essential for sustaining human life, activities, nutrition and health, and are important for environment and conservation of ecosystems. In general, it can be said that water resources are not only an indispensable component of sustainable development, but also a bonding medium of sustainable development, which requires an integrated approach to their use and conservation for the benefit of future generations.

Awareness of the key role of water resources in sustainable development did not come immediately. This process began about forty-one years ago at the first UN Water Conference in Mar del Plata (1977). Since then, a number of initiatives and recommendations have been approved within the framework of the UN General Assembly and other UN bodies, which have not only helped to expand and deepen knowledge in the field of water resources, but also to take practical steps and actions towards achieving sustainable use of water resources. Thanks to consolidated efforts of Member States, water issues were included in the agenda of the UN Conference on Sustainable Development (Rio + 20), which laid the foundation for the development of a standalone sustainable development goal for water resources, as well as a number of water-related targets.

In 2015, within the UN, a number of bold and mutually reinforcing initiatives aimed at promotion of timely achievement of the water-related SDGs and targets were proposed. At the initiative of the UN Secretary-General and the President of the World Bank a High-level Panel on Water (HLPW) was established, with the aim to enhance efforts at improving access to water and sanitation and their sustainable management. Among its members, the High-level Panel has Heads of State/Government of ten UN member states, who for two years (*March 2016-March 2018*) were actively advancing efforts at financing and implementing the sustainable development goals and targets related to water and sanitation.

At the 7th World Water Forum (*Republic of Korea, April 2015*) the President of the Republic of Tajikistan proposed a new initiative to proclaim an International Decade for Action "Water for Sustainable Development".

Later, in December 2016 the UNGA endorsed this initiative by adoption of the relevant resolution. According to this resolution, the International Decade for Action "Water for Sustainable Development, 2018-2028" will be aimed at implementing water related goals and targets, creating a broad platform for capacity development, building up experience and partnership in this field. The new Decade will also contribute to a smooth transition to the implementation of the Sustainable Development Goals.

We do hope that the Decade and its implementation and monitoring mechanisms will significantly help to improve coordination and to increase effectiveness of measures and actions towards achieving integrated water resources management.

It is obvious that path towards an implementation of new tasks and objectives in the field of water resources is not going to be easy and smooth.

Many consider the sustainable development goals and targets related to water resources as overly ambitious. Now and then, we hear some skeptics say that we will not be able to achieve the water-related goals and targets. In our opinion, achieving these goals is not an easy task. Timely achievement of these goals will require concentration and mobilization of efforts at all levels, securing commitments with the necessary resources, both financial and technological.

In this context, we should not stand aside and proceed to deeds right now, to determine scopes and possibilities for our further strong and wide-ranging cooperation in the field of water resources. At the same time, we should take into account the following factors:

The first is climate change, which adversely affects the quality and quantity of water resources. It undermines our efforts to achieve sustainable development goals. Over the last few decades of the past century, more than 1,000 glaciers in Tajikistan have completely vanished. Over this period, icecap called "Fedchenko" – largest continental glacier is retreated by almost one kilometer and its area is decreased by 11 square kilometers, having lost approximately two cubic kilometers of ice.

Due to an adverse impact of climate change in recent years in Tajikistan, where 93% of the territory is mountainous, there is an increase in the intensity water-related disasters, which cause enormous material and moral damage. Natural disasters also jeopardize our efforts to achieve sustainable development goals and cause added challenges in reducing poverty.

The second: population growth and increase in needs of water resources. Demand for water resources all over the world is growing at a rapid pace, which, in turn, causes serious tensions between different sectors. Tough competition for water resources in terms of increasing desperate water shortages can lead to negative repercussions even within individual country. We do believe that an introduction of integrated and nexus approaches in water management creates new opportunities for the improvement of the existing mechanisms of inter-sectoral and inter-governmental water cooperation.

The third: means of implementation. In particular, we mean human and financial resources, investments and environmentally sound technologies. Cooperation in the field of education and culture of sustainable water management and water consumption could be a critical element of our joint efforts. Expansion of public-private partnerships provides new opportunities for achieving goals in ensuring access to water and sanitation for all.

The fourth: trans-boundary component of water cooperation, which plays a central role in ensuring peace, stability and development. Today, there are more than 276 international river basins in the world, which cover 148 countries, where over 40% of the world's population live. Strong and productive water cooperation can be a catalyst for development. However, the lack of such cooperation can cause serious risks and heavy costs, negatively affecting economic and social situation in riparian countries.

Strengthening the institutional capacity of cross-border water cooperation in many regions contributes to the harmonious development of all riparian countries. The Central Asian countries today are actively promoting a process of regional integration, which, in our view, shall facilitate regional cooperation in water and energy issues.

In conclusion, I would like to emphasize that the achievement of sustainable development, prosperity and security will be possible only through building up effective and rational water

cooperation based on mutual trust, fair consideration of needs and consumption, involvement of all stakeholders, as well as the continuous efforts to improve water dialogue and genuine partnership.

To make visible progress in these areas we need to have strong political will, firm resolve, sufficient resources and clear enduring decisions. We should find the underlying causes of problems, and the right and balanced solutions.

The International High-Level Conference on the International Decade for Action "Water for Sustainable Development 2018-2028" to be hosted by the Government of the Republic of Tajikistan in cooperation with the United Nations and other partners in Dushanbe on June 20-22 this year will focus on the discussion of these and other topical issues of water cooperation.

Furthermore, Dushanbe Water Conference would be a timely platform for the elaboration of specific recommendations how to strengthen efforts in achieving water-related goals and objectives in a run-up to the forthcoming UN High-Level Political Forum on Sustainable Development, which is set to review, inter alia, SDG 6.

I take this opportunity to invite all of you to attend the upcoming Dushanbe Water Conference.

Mr. Ghafurzoda Taghaimurod made a PowerPoint presentation which is given below:

MINISTRY OF ENERGY AND WATER RESOURCES

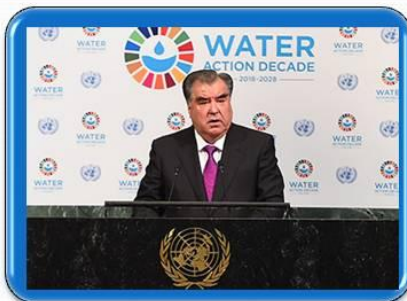


Scientific Conference: "The President of the Republic of Tajikistan in the Field of Water Diplomacy and the International Decade for Action "Water for Sustainable Development", 2018-2028

Ghafurzoda Taghoimurod

*Head of Water Resources Department
Ministry of Energy and Water Resources
of the Republic of Tajikistan*

Islamabad, April 26, 2018

INTERNATIONAL DECADE FOR ACTION "WATER FOR SUSTAINABLE DEVELOPMENT", 2018-2028


- World Water Day - 25th Anniversary
- The beginning of the International Decade for Action "Water for Sustainable Development", 2018-2028
- International Day of Navruz Holiday

- High level action on the start of the International Decade for Action "Water for Sustainable Development, 2018-2028"
- At the 72nd session of the UN General Assembly, on the occasion of the International Decade of Action "Water for Sustainable Development", 2018-2028, the President of the Republic of Tajikistan Emomali Rahmon was recognized the main initiator of the International Decade for Action
- The President of the Country Emomali Rahmon officially launched the Decade at a High Level Launch at the United Nations. So from this day the implementation of another initiative of Tajikistan has started in the whole world.

GLOBAL WATER INITIATIVES OF TAJIKISTAN



Water Year 2003

International Year of Freshwater, 2003



WATER FOR LIFE
2005 - 2015

International Decade for Action "Water for Life", 2005-2015



International Year of
Water Cooperation

International Year of Water Cooperation, 2013



WATER
ACTION DECADE
2018-2028

International Decade for Action "Water for Sustainable
Development", 2018-2028

3

MAJOR INITIATIVES



- Tajikistan has great water resources and hydropower potential. Water is a strategic resource of Tajikistan and is the basis of social and economic development and even national security.
- Share with the world community information about the opportunities in Tajikistan in the field of water and hydropower, as well as the country's policies and practices in addressing water issues.
- Regardless of large water resources, Tajikistan is faced with a wide range of issues related to, irrigation, water supply, natural disasters, due to economic imbalances.
- Attracting the attention of the international community and investors in addressing this problem, including through attracting foreign investment into the water sector.
- Find a good position on the international scene in addressing one of the key issues of Global Warming.



WATER: GLOBAL SITUATION

About 900 million people do not have access to safe drinking water

Nearly three billion people do not have access to modern sewerage systems

About 1.4 billion people continue to live in extreme poverty

One sixth of the world's population does not receive enough nutrients

By 2030, about 47% of the world's population will live in regions with a severe water deficit

By 2050, the world's population will reach 9 billion people

WATER RESOURCES: GLOBAL SITUATION

Population, total

World population in 2015: 7.347 Billion

World population in 1985: 5.453 Billion

Global water scarcity - 2030

62%* of world population

Data from Fischer and Heilig (1997)

Urban population (% of total)

World urban population in 2015: 53.857%

World urban population in 1985: 43.625%

GLOBAL WATER INITIATIVES



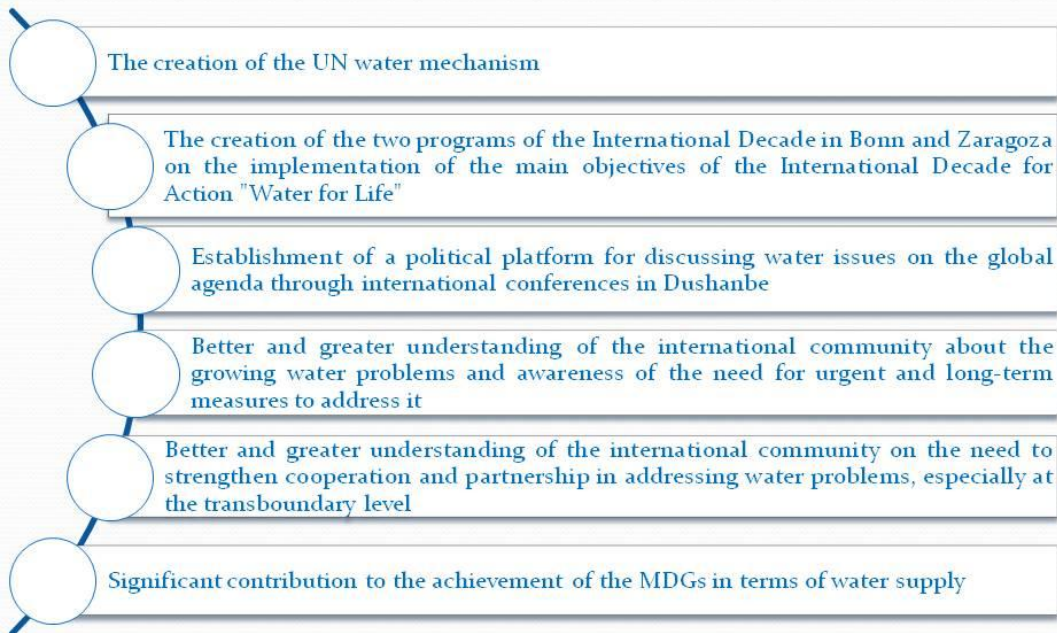

- United Nations Conference on Environment and Development, Rio de Janeiro, 1992
- UN General Assembly "Rio + 5", 1997
- Millennium Summit, 2000
- World Summit on Sustainable Development "Rio + 10", Johannesburg, 2002
- UN Conference on Sustainable Development "Rio + 20", Rio de Janeiro, 2012
- UN Summit for the adoption of the new global development agenda for the period until 2030, New York, September 2015
- Conference on Climate Change, Paris, 2015
- Third Conference of the World Conference on Disaster Risk, Sendai, 2015

INTERNATIONAL FORUMS AND REGIONAL SUMMITS




- First World Water Forum, Morocco, 1997
- Second World Water Forum, The Hague, 2000
- Third World Water Forum, Kyoto, 2003
- Fourth World Water Forum, Mexico City, 2006
- Fifth World Water Forum, Istanbul, 2009
- Sixth World Water Forum, Marseille, 2012
- Seventh World Water Forum, Korea, 2015
- Eighth World Water Forum, Brasilia, 2018
- Ninth World Water Forum, Dakar, 2021
- Tenth World Water Forum, _____, 2024
- First Asia-Pacific Water Summit, Beppu, 2007
- Second Asia-Pacific Water Summit, Chiang Mai, 2013
- Third Asia-Pacific Water Summit, Yangon, 2017

RESULTS OF THE INTERNATIONAL DECADE FOR ACTION "WATER FOR LIFE", 2005-2015



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HOW DID IT DEVELOP?

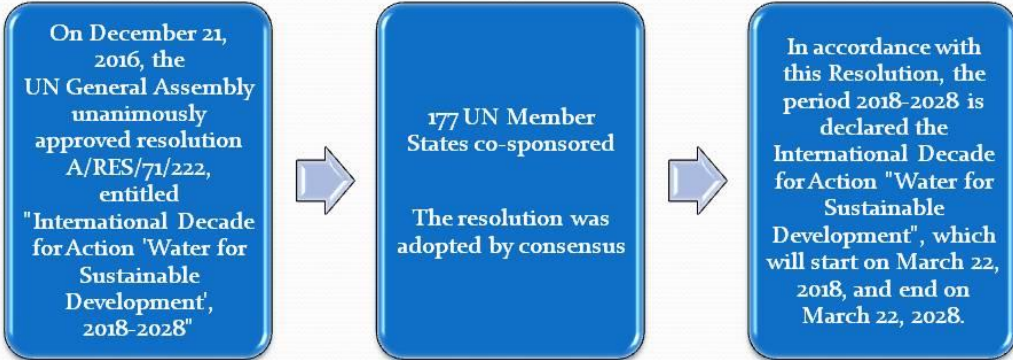


Considering the importance of water supply for the population of the planet, in the course of the 7th World Water Forum, which was held in the Republic of Korea, the President of the Republic of Tajikistan Emomali Rahmon expressed the issue of announcing the International Decade for Action "Water for Sustainable Development". This initiative was fully supported by the participants in the High Level International Conference on the implementation of the International Decade for Action "Water for Life", 2005-2015, in Dushanbe.

The President of the Country during the talk said in his speech that: "...facing the challenges and threats of the modern world, including the financial and economic crisis, population growth, climate change, the frequency of the extreme weather, water shortages and the rise of poverty, infectious diseases, maternal and infant mortality, is still required to mobilize our efforts and adopt appropriate measures in this area".

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INTERNATIONAL DECADE FOR ACTION «WATER FOR SUSTAINABLE DEVELOPMENT» 2018-2028

11

TARGETS OF THE NEW INTERNATIONAL DECADE




TARGETS OF THE INTERNATIONAL DECADE



Improvement of knowledge, exchange of information and best practices



Establishment of networks and support in forming partnerships and activities of other stakeholders



Strengthening of communication activities at various levels

INTERNATIONAL WATER EVENTS IN DUSHANBE



- International Forum on Freshwater, 29 August - 1 September 2003
- International Conference on Regional Cooperation in Transboundary River Basins, 30 May - 1 June 2005
- International Conference on Water-Related Disaster Reduction, 27-29 June 2008
- High-Level International Conference on the Mid-term Comprehensive Review of the Implementation of the International Decade for Action "Water for Life", 2005-2015, 8-10 June 2010
- Preparatory Conference "Towards the United Nations Conference on Sustainable Development (Rio + 20): Issues of Cooperation on Water Resources", 19-20 October 2011
- High-Level International Conference on Water Cooperation, 27-29 August 2013
- High-Level International Conference on the Implementation of the International Decade for Action "Water for Life", 2005-2015, 9-11 June 2015
- High Level Symposium on Sustainable Development Goal 6: Access to Water and Sanitation for all, 9-11 August 2016



SUCCESSFUL POLICY OF THE PRESIDENT OF THE REPUBLIC OF TAJIKISTAN IN PROMOTING A GLOBAL INITIATIVE IN THE WATER SECTOR



The Founder of Peace and National Unity, Leader of the Nation, President of the Republic of Tajikistan, His Excellency Emomali Rahmon, acts as World Leader for the dialogue and diversity of multinational and multinational states to contribute to the solution of one of the common problems: water supply to every person in the world today.



In this context, the status and perspectives of the Tajik people appreciate and join the efforts of the international community to create a better life for the people of the planet and this will be recorded in the books of history.



In this regard, the Founder of Peace and National Unity, Leader of the Nation, President of the Republic of Tajikistan, His Excellency Emomali Rahmon, was the first to be invited to join the High Level Panel on Water.

HIGH-LEVEL PANEL ON WATER ISSUES

Co-chairs

- Mark Rutte
Prime Minister, Netherlands
- Macky Sall
President, Senegal
- Enrique Peña Nieto
President, Mexico
- Ameenah Gurib-Fakim
President, Mauritius
- Pedro Pablo Kuczynski Godard
President, Peru

- János Áder
President, Hungary
- Emomali Rahmon
President, Tajikistan

Special Advisors to the Panel

- Dr. Han Seung-soo
Former prime Minister, South Korea
- Hani Al-Mulki
Prime Minister, Jordan
- Sheikh Hasina
Prime Minister, Bangladesh
- Malcolm Turnbull
Prime Minister, Australia
- Jacob Zuma
President, South Africa

Co-convended by:

UNITED NATIONS
Ban Ki-moon
Secretary General, United Nations

WORLD BANK GROUP
Jim Yong Kim
President, World Bank Group

HIGH-LEVEL PANEL ON WATER

April 2016 - Establishment of the High Level Panel on Water

September 2016 - Adoption of an Action Plan for Water Problems

14 March 2018 - The Outcome Document entitled "Every Drop Matters: An Agenda for Water Action" consists of three main components:

- Background for actions
- A joint statement for actions at local, national and regional levels
- Accelerate change, develop partnership and interagency cooperation at the global level

The Call for Action as a Platform for Political Dialogue, Experience Sharing, Extending Cooperation and Increasing Partnership for Further Discussion of Water Problems at the International Level

HIGH-LEVEL PANEL ON WATER
OUTCOME DOCUMENT
14 March 2018

A NEW DECADE: PREPARATION FOR IMPLEMENTATION



Decision of the GRT on the preparation and implementation of activities for the new decade



- Establishment of the Organizing Committee under the leadership of the Prime Minister of the Republic of Tajikistan
- Adoption of the Action Plan for the preparation and implementation of activities for the International Decade for Water for Sustainable Development, 2018-2028, including the holding of a high-level conference in the early decades

High-level international conference on the beginning of the decade



- Creation of the conference secretariat
- Establishment of the International Intelligence Committee
- Join the largest number of conference participants
- Conference held on June 20-21, 2018



Our Head

says this:

«The source of life is water!».



Dr Muhammad Ashraf in his presentation said that water, food and energy are three important components for development. On the topic of water scarcity, he said that Pakistan is only storing 10 per cent of its waters and with the increase in population and as a result of agricultural activities, there is huge pressure on the ground water. The way forward includes increasing storage through construction of dams, introducing a ground water regulatory framework and controlling population. Hence, Pakistan needs to change its priorities and coupled with political will, water crisis can be avoided altogether. His PowerPoint presentation is given below:



Water Scarcity in Pakistan: Issues and Options

Dr. Muhammad Ashraf

Pakistan Council of Research in Water Resources (PCRWR)

April 26, 2017

Water Scarcity in Pakistan

- What is water scarcity?
- Is there a real water scarcity?
- If yes to what extent?
- What are the major reasons for water scarcity?
- What are the options to overcome water scarcity?

What is water scarcity?

- When an individual does not have access to safe and affordable water to satisfy her or his needs for drinking, washing or their livelihoods we call that person water insecure
- When a large number of people in an area are water insecure for a significant period of time, that area is water scarce
- Water quality (both for drinking and agricultural purposes) also leads to water scarcity

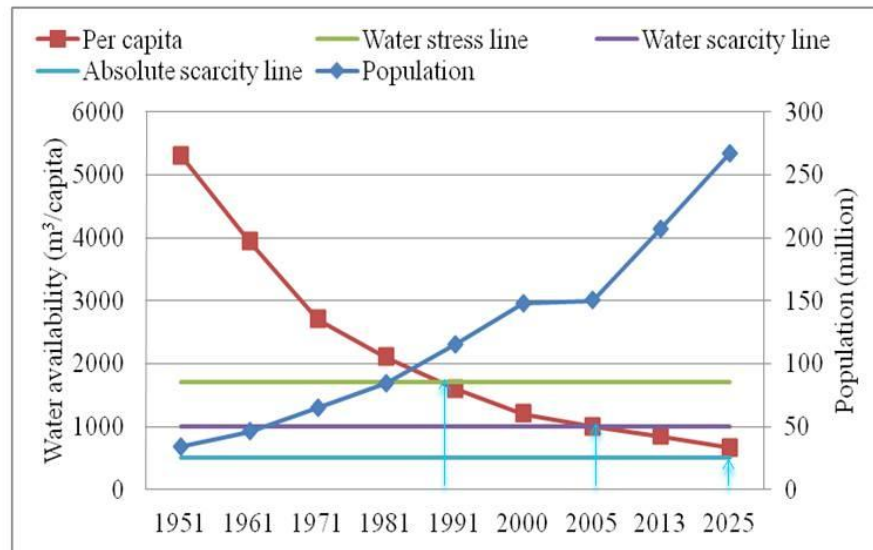
Water Scarcity Indicators

- **Falkenmark Indicator (Falkenmark et al., 1989)**
- **The Water Resources Vulnerability Index (WRVI) (Raskin et al., 1997)**
- **IWMI's Physical and Economic Water Scarcity Indicators (Seckler et al., 1998)**
- **Water Poverty Index (Sullivan et al., 2003)**

Falkenmark Indicator

- Relationship between the available water and the human population
- Threshold limit: water availability of over 1700 m³/person/year - water abundance
- Country with water availability of less than 1700 m³/person/year - water stress
- When per capita water availability falls below 1000 m³, the country becomes water scarce
- Below 500 m³/person/year - absolute water scarcity

Water Availability in Pakistan



The Water Resources Vulnerability Index (WRVI)

- It compares national annual water availability with the total annual withdrawals (in percent)
- If annual withdrawals are between 20-40% of the annual water supply, the country is said to be water scarce
- If it exceeds 40%, the country is said to be severely water scarce

Total Water Availability and Uses in Pakistan

- Surface water available in the system: 142 MAF
- Groundwater available: 54 MAF
- Total water available: 196 MAF
- Surface water diversion (uses): 104 MAF
- Groundwater abstraction: 46 MAF
- Total water used: 150 MAF

$$WRVI = 150/196 = 77\%$$

IWMI's Physical and Economic Water Scarcity Indicators

- The countries that will not be able to meet the estimated water demands in 2025, even after accounting for the future adaptive capacity are called “physically water scarce”
- The countries that have sufficient renewable resources but would have to make very significant investment in water infrastructure to make these resources available to the people are called “economically water scarce”

Surface Water Availability Vs. Requirement (MAF)

Year	2004	2025
Availability	104	104
Requirement (including drinking water)	115 (3.5)	135 (4.0)
Overall Shortfall (%)	11	31

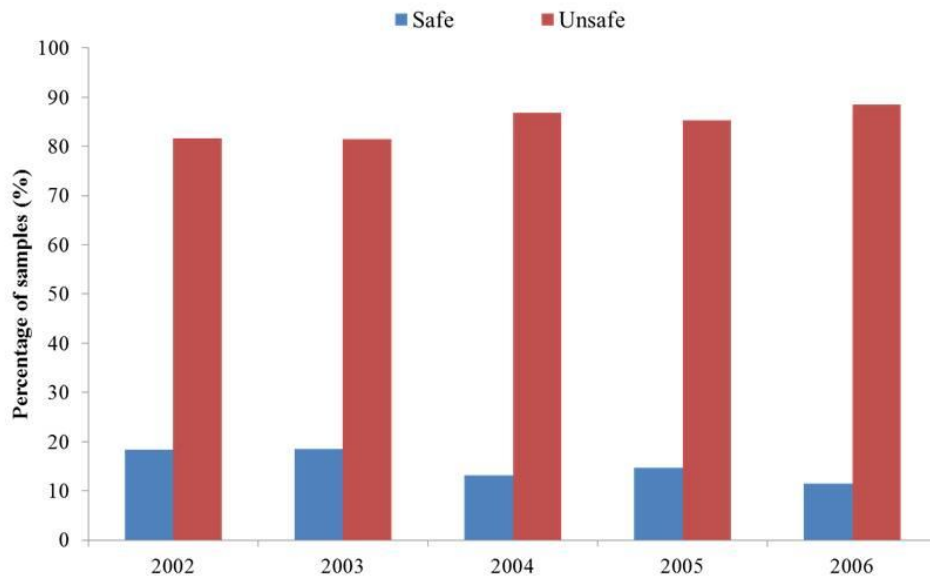
*Source: Ten Year Perspective Development Plan 2001-11,
Planning Commission of Pakistan*

Water Poverty Index

It has five components:

1. Access to water
2. Water quantity, **quality** and variability
3. Water uses for domestic, food and productive purposes
4. Capacity for water management
5. Environmental aspects-ecosystem

Drinking Water Quality Monitoring Program (2002-2006)



Drinking Water Quality Profile of Rural Areas (2004-2011)

Sr. No.	Province	Districts	Tehsils	Union Councils	Villages	Samples Collected	No. of Water Samples			
							Safe		Unsafe	
							No.	%age	No.	%age
1	Punjab	12	49	1227	2090	10440	2183	21	8257	79
2	Sindh	3	12	54	149	745	212	28	533	72
3	KP	4	6	211	240	1200	89	7	1111	93
4	Balochistan	4	12	54	298	1465	05	0.3	1460	99
5	Federal Capital Area	1	1	21	30	150	61	41	89	59
Total		24	80	1567	2807	14000	2550	18	11450	82

Water Quality Assessment of Water Supply Schemes (2006-2012)

Province	Districts surveyed	Water supply schemes	Surveyed water supply schemes			Functional	Samples safe for drinking (%)	
			Total	Urban	Rural		Urban	Rural
Punjab	33	4100	3883	746	3137	2725	17	23
Sindh	22	1300	1247	123	1124	529	5	5
KP	16	3000	2203	474	1729	1710	63	26
Balochistan	14	1600	1034	480	554	968	20	13
GB/AJK/FATA	10	2000	1794	18	1776	1379	8	2
Total	95	12000	10161	1841	8320	7311	23	14



Major Causes of Water Scarcity

- Increased in population, urbanization, industrialization and agricultural activities
- Recurring floods (2010, 2011, 2014) \approx 90 MAF
- Inadequate water harvesting and storage facilities (only 10% of the average annual flow)
- Reduction in storages capacities of the existing reservoirs due to sedimentation (0.2 MAF)
- Unutilized potentials – hill torrents, Sailaba – 18 MAF
- Low system efficiency (less than 40%)
- Conventional methods of irrigation: unlevelled basins, improper size of furrows
- Low land and water productivity
- Mining of groundwater

Water Losses in the Irrigation System

Location	Delivery at Head (MAF)	Losses (MAF)	Losses (%)
Canals	106	16	15
Distributary & minor	90	6	7
Watercourses	84	26	31
Fields	58	17	29
Crop Use	41		
Total		65	61



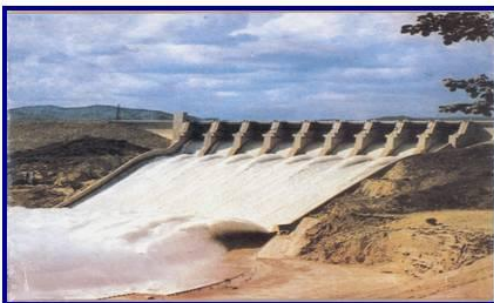
Impacts of Water Scarcity

- **Groundwater Depletion**
- **Water Quality Deterioration**
- **Desertification**
- **Food Insecurity**
- **Increase in Poverty**

Possible Options to Overcome Water Scarcity

Increase Storage and Improve Water Governance

- Construct small and large dams where possible
- Improve the surface water governance with proper pricing
- Legislate and restrict indiscriminate groundwater abstraction
- Control increase in population



Improve Water Productivity

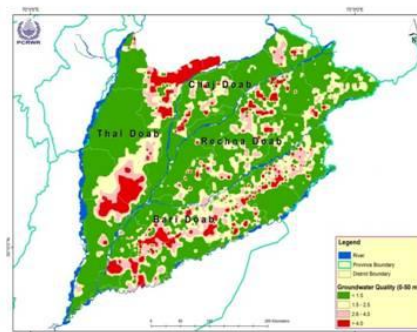
- Improving conveyance and application efficiencies
 - Canal and watercourse improvement/maintenance
 - Improving farm layout
 - Leveling of fields
- Using high efficiency irrigation systems:
 - Bed and furrow methods of irrigation
 - Sprinkler/drip irrigation system
- Changing the existing cropping patterns i.e. by adopting low delta crops
- Adopting proper irrigation scheduling
 - When to apply and how much to apply water?
- Using saline groundwater, in conjunction with canal water, or independently with salt tolerant crops.
- Use of improved agronomic practices



An integrated approach is required to optimally use the available water resources

Some Initiatives by PCRWR

- Developed National Water Research Agenda (2016-2025)
- Determined crop water requirement of major crops grown in Punjab and Sindh through lysimetric studies
- Researched and introduced high efficiency irrigation systems such as growing rice on beds
- Completed the investigation and mapping of groundwater zones in the Upper Indus Basin – 4 Doabs (Thal, Bari, Rechna and Chaj)
- Introduced cost-effective techniques for groundwater recharge in Balochistan and in urban areas
- Developed/demonstrated desertification control technologies in Cholistan, Thar and DI Khan through rainwater harvesting, saline agriculture, rangeland management, etc.
- Satellite Based Water Resources Management through GRACE (Gravity Recovery and Climate Experiment) and altimeter
- Initiated Farmers' Irrigation Advisory Service using text messages (<https://eos.org/project-updates/growing-more-with-less-using-cell-phones-and-satellite-data>)



Mr Babur Suhail said that water is the bloodline of life. Unfortunately, we as humans have not been kind with this extremely precious treasure. To preserve life on the planet, we need to preserve fresh water. For that matter, at individual and institutional levels, we need to put our best in different dimensions. If water is our present, then its conservation is the future.

Including but not limited to political, financial, ecological and social aspects, water has unique dimensions. But foremost is setting policy guidelines at the national level and its implementation without any further delay.

Synchronized National Policy Setting and its Effective Implementation

Under article 153 of the Constitution of 1973 of Islamic Republic of Pakistan (the “Constitution”), Council of Common Interests is formulated. In compliance with its duties under Article 154 of the Constitution, 4 members agreed upon “National Water Policy” after 25,834 Days (70 years, 8 month and 23 days) of independence. There has been the announcement of a Water Council under the chairmanship of Prime Minister, which will run the affairs encompassed in the recent national water policy.

There is a great hope that National Water Policy is being made with close coordination among all the stakeholders, therefore, it *will* be implemented without more hurdles. To achieve the maximum from this Water Policy, the government should announce other policies and frameworks for the agriculture sector and ground water usage in accordance with the best international conservatory practices. In addition, already framed enactments such as pertaining to industrial waste be accurately and vigilantly implemented.

Political and Legal Dimensions

The Constitution guarantees equal rights and equal opportunities in each and every sphere of life. And to make this come true, a lot many things are required from the public sector. Whatever legislation is there, it needs to be implemented.

Before the legislation, those who are major stakeholders, they should be engaged objectively so that with the transparent and more informed decision-making process, the new laws and policies are implemented. Taking this route will enhance conflict resolution and we would be able to

avoid the examples such as Kalabagh Dam. A properly documented water data at interprovincial level should be exchanged with the spirit of cooperation in a transparent manner with fair play.

Water flow from Western Rivers of Indus Basin is contingent upon the Indus Water Treaty of 1960 and it should be watched very closely. Being a lower riparian nation, we need to introduce more effective, efficient and out-of-box water utility, storage and conservation policies and those should be implemented at all levels.

Social Dimension

Social cohesion is based on the willingness of members of a society to cooperate with each other in order to prosper in every field of life. Without cooperation and living and let live policy, no society can sustain for long. As per UN Water Cooperation Day of 2013, ensuring equitable access to water resources among all social and economic groups are a must. This can be materialized if all-natural resources such as water is evenly distributed in time and space for that matter. Comprehensive water policy, effective legal framework and across the board implementation will play a pivotal role. In addition, efforts need to be made to create awareness for the significance of this resource of life, water rights, as well as responsibilities attached to it. Out-of-proportion-growth of population is a matter of great concern and society should pay a vital role keeping in mind shortage of fresh water.

Economic

We need to have a realistic policy for the economic value of this precious element of life. For that matter, in the field of agriculture, its commercial and industrial use should be properly charged and revenue generation from this exercise be reinvested in creating water storage capacity or any other field related thereto. Equitable sharing of fresh water for common economic, social and environmental benefits is extremely necessary. Provisioning of safe drinking water and satisfactory sanitation services can form the basis for reducing poverty by improving livelihoods, creating jobs for local communities in developing countries, eradicating the cycle of diseases that reduce productivity of the people who are living in reduced circumstances and have very limited access to health services and by re-directing the savings in

the health sector to other imperatives (UNDP, 2006). Therefore, water plays a vital role in the economic growth and sustainable development of a nation. As the world's freshwater supply is finite, demand for water is growing every year due to out of proportion and growing population every moment.

Environmental

Most part of fresh water we are getting from melting of glaciers. An ecological imbalance is the greatest threat to mankind. With the rise of temperature around the globe, growing sources of pollution, cutting of trees beyond imagination, and waste of industrial units are a few added factors of the current environmental scenario. Unfortunately, even water quality is deteriorating in many areas due to insufficient safeguards in the way it is used by conservative agriculture methodologies and in large urban and industrial swelling without proper spatial planning and integrated development.

It is so strange that only one province is working on spatial planning and rest of homeland is silent about it. The sixth largest country as far as population is concerned, has no national spatial planning and it is suggested 'that the concerned quarters should take appropriate measures without delay.

Conclusion

Concluding the seminar, the Chairman ISSI, Ambassador Khalid Mahmood said that existing water threat is a dire threat to all human activity, which is why it is imperative that this issue be addressed as soon as possible. The best way is to raise awareness and find ways and means to find better ways to conserve water as soon as possible. Hence, we should all make every effort to mitigate the impact of water scarcity, and in fact, to reverse this trend with participation at all levels.