

ANNUAL REPORT 2015-16



INDIA WATER FOUNDATION

Foreword

During 2015-2016, the activities conducted by India Water Foundation (IWF) were greatly influenced by momentous international developments like adoption of Sustainable Development Goals (SDGs) in September 2015 and the conclusion of the Paris Agreement on Climate Change in December 2015 along with other developments in water and environment sectors and partially by domestic developments in the wake of new initiatives undertaken by the Government of India during the period under review. The major activities conducted by IWF during the period under review pertained to imparting training programme in Geo-morphological mapping for water prospection in 12 states, IWF presentation at World Water Week organized by SIWI at Stockholm, publication of the report entitled *SAARC Outlook for water-energy-food nexus approach in South Asia*, in collaboration with SAARC Agriculture Centre based in Bangladesh, and expression of interest in Inland Waterways etc.



The international developments, *inter alia*, included: World Water Day 2015 along with the release of 2015 World Water Development Report (WWDR) with its theme on Water and Sustainable Development, adoption of the SDGs and conclusion of the Paris Agreement on Climate Change. Interestingly, we at IWF have already been emphasizing on some of these themes of the SDGs and Climate Change agreement for past couple of years and we are committed to accord priority to these themes.

Another notable international development having relevance for the IWF was the release of the Global Sustainable Development Report (GSDR) 2015, the only comprehensive, global report on sustainable development, which brings together a broad range of existing scientific assessments and reviews global progress and future sustainable development pathways in an integrated way, taking into account the perspectives of scientific communities across the globe. The report examines the SDGs as an interlinked system, analyzing how the goals are interrelated through their targets, and how progress towards one goal may depend on and contribute to progress towards others. Such an integrated assessment of the SDGs and the post-2015 agenda will be a standard feature of future GSDRs.

Of the various new missions launched by Government of India in 2015, three missions viz., Small Cities Mission, Accessible India Mission and LED-lighting Mission, have been of great significance because these directly bear relevance to the prominent SDGs and for that matter India Water Foundation, while supporting these initiatives, has also recurrently expressed its eagerness to cooperate with the concerned ministries/departments of the Government of India as Development Partner in implementing these initiatives.

In the aftermath of the adoption of the SDGs and conclusion of the Paris Agreement on Climate Change, IWF's priority is on getting the major components of these two momentous international agreements integrated into the national policies of the country and build capacities of the people in this regard, with specific emphasis on SDG-1 on about Ending Poverty, SDG-2 about Food Security, SDG-6 about Water & Sanitation, SDG-7 about Energy and SDG-13 about combating Climate Change.

While welcoming the various initiatives launched by Government of India, especially six missions viz., Beti Bachao-Beti Padhao, Skill Development Scheme, Digital India, Small Cities Mission, Accessible India Mission and LED-lighting Mission, the IWF has expressed its willingness and cooperation to cooperate effectively, especially in capacity building. The other activities carried out by IWF have been enumerated in this report.

It gives me tremendous pleasure to inform through this report that India Water Foundation (IWF) has been granted Special Consultative Status with the Economic and Social Council of the United Nations (UN-ECOSOC) since April 2016. This has enabled us to get actively engaged with ECOSOC and its subsidiary bodies, as well as with the United Nations Secretariat, programmes, funds and agencies in a number of ways. Undoubtedly, grant of the Special Consultative Status to the IWF is a matter of pride for us at IWF because it is recognition of our yeoman contribution to the society for about a decade now; nevertheless, it bequeaths on us greater responsibility to perform our task with more diligence and dedication.

It gives us enormous pleasure in presenting this annual report to our patrons, well-wishers, colleagues and the general public. We wish to convey our gratitude to all those who stood with us in accomplishing our tasks despite all odds and hope to continue to enjoy their trust and affection.



(Dr Arvind Kumar)
Chairman, India water Foundation



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Overview In the wake of paradigm shift in the international arena, from geopolitics to geo-economics and geo-environment, judicious management of climate change and natural resources, especially water and energy resources, has come to have salience in international relations. Civil society is a constitutive segment of the public sphere and serves as basis for the civic community, while focusing emphasis on the socio-political role of civil associations that neither belongs to the state's sphere nor the market's one. It rather serves as a link between the government and the public by assimilating policies and programmes of the government in a democratic polity and disseminating that assimilated knowledge in the public at the grassroots level. The civil society also serves as the focal point of conveying public feedback on official policies and programmes along with remedial suggestions.

India Water Foundation (IWF), a non-profit civil society organization, Key Resource Centre with the Ministry of Drinking Water & Sanitation, Government of India since March 2015, which has been accorded Special Consultative Status by the UN Economic and Social Council (UN-ECOSOC), has been engaged in assimilation and dissemination of traditional wisdom, best practices and knowledge along with innovative techniques in water and environment sectors since its establishment in 2008. Like in the past, the activities of the IWF in 2015-2016 were greatly influenced by international as well as national developments in water and environment sectors to which it responded accordingly within meagre resources at its disposal, as described below.



International Developments

Global negotiations, especially in the realms of water, climate change and sustainable development goals (SDGs), wield tremendous impact on a nation's domestic policies and resultant activities, both at the government and civil society levels. India Water Foundation (IWF), being no exception to this praxis, has accordingly responded to these international developments and carried out its mandated activities.

2015 has been a year of high expectations and hopes, as the deadline for the Millennium Development Goals, and when States were getting ready to define a new global sustainable development agenda to follow. It proved to be a historic and a watershed year for sustainable development. Major international conferences – on financing for development, the post-2015 development agenda, and climate change –took momentous decisions that could, if effectively implemented, have profound implications for the future of our societies, our economies and of our planet.

International developments like theme of World Water Day 2015, World Water Development Report (WWDR) for 2015, Global Sustainable Development Report 2015 (GSDR), adoption of Sustainable Development Goals (SDGs) by the UN General Assembly in September 2015 and Paris Climate Change agreement concluded in December 2015 etc, wielded significant influence on the thought and action of the India Water Foundation during 2015-2016.

World Water Day Themes

In 2015, the theme for World Water Day was 'Water and Sustainable Development'. With emphasis on water being at the core of sustainable development, it was stressed that water resources, and the range of services they provide, underpin poverty reduction, economic growth and environmental sustainability. From food and energy security to human and environmental health, water contributes to improvements in social well-being and inclusive growth, affecting the livelihoods of billions.

Inter-linkages between water and health were emphasized by pointing out that despite impressive gains made over the last decade, 748 million people still didn't have access to an improved source of drinking water and 2.5 billion did not use an improved sanitation facility. Thus stress was made on the need to work on solutions to address this problem with the development of the toilets and keep water resources free from pollution.

Undoubtedly, ecosystems – including, for example, forests, wetlands and grassland – lie at the heart of the global water cycle; nevertheless, all freshwater ultimately depends on the continued healthy functioning of ecosystems, and recognizing the water cycle is essential to achieving sustainable water management. Hence emphasis was laid on the need for actively working on improving the quality of ecosystems and livelihoods by focusing on ecological and hydrological processes within natural wetlands and rivers, as well as large scale catchment management, interaction with livelihoods and links with water governance.

The need of water in the growing process of urbanization was also the focal point of serious attention on this occasion. Recognizing that the world's cities were growing at an exceptional rate and 93% of the urbanization was taking place in poor or developing countries, and nearly 40% of the world's urban expansion was growing slums, emphasis was laid on working on creating livable cities and improving the urban environment in cities.

Keeping in view the significant role of industry and energy in sustainable development, it was suggested that technology and smart planning could reduce the use of water, especially in water-intensive industries and could also help in recycling of industrial wastewater for reuse. In order to mitigate the impact of greenhouse gases, emphasis was laid on developing hydropower and generating renewable energy from resources which are naturally replenished such as sunlight, wind, rain, tides, waves and geothermal heat.

While emphasizing on increasing efficiency in the use of water in agriculture to reduce water losses and, most importantly, increase crop productivity with respect to water, attention was also drawn towards promoting gender equality in water sector.

It goes without saying that we at India Water Foundation have been emphasizing on water's key role in promoting sustainable development. The sub-themes of World Water Day 2015 have continuously been emphasized upon and articulated by us through our presentations and write-ups from time to time during 2015-2016. These sub-themes further reinforced our conviction that water is the key to sustainable development.

Undoubtedly, India Water Foundation has been emphasizing on the important role of water in sustainable development for the past half decade; nevertheless, adoption of water as the key factor in sustainable development by the World Water day 2015 has further reinforced the initiatives and campaigns being launched by the IWF in water sector.

World Water Development Report 2015

The World Water Development Report (WWDR) 2015 was released on the World Water Day on 22 March 2015 and its release came at a critical moment, when freshwater resources were faced with rising pressure to provide for the social, economic and environmental needs of a growing world population. Water is inextricably linked to the development of all societies and cultures. At the same time, this development also places considerable pressure on water resources — agriculture, energy and industry all have impacts on the use and governance of water.

More than two decades after the first summit on sustainable development, many countries still face the challenges of eliminating poverty and promoting economic growth, ensuring health and sanitation, preventing land degradation and pollution, and advancing rural and urban development. Around 748 million people today still do not have access to an improved source of drinking water, and water demand for manufacturing is expected to increase by 400 per cent between 2000 and 2050 globally.

The 2015 WWDR sets both an aspirational and a realistic vision for the future of water towards 2050. Water is essential for promoting inclusive sustainable development, as it supports human communities, maintains the functions of ecosystems and ensures economic development. Translating this vision into reality requires efforts by all, through concrete and interrelated actions that go from establishing the legal and institutional framework to ensure sustainable water management and increasing investments and financial support for water development to enhancing and improving access to water supply, sanitation and hygiene services.

The report begins by describing a world in the not-so-distant future in which water resources and water-related services are managed in such a way that the benefits derived from water are maximized and shared equitably throughout the world. This vision is not merely a fictional utopian outlook; it is a future that is widely believed is entirely achievable – a future in which water is recognized and managed as the fundamental resource that supports all aspects of sustainable development. This vision represents a new and innovative approach to the WWDR which is hoped to spur all stakeholders to reflect on how our world *could* be, provided we make appropriate changes to the ways we do things.

Although the concept of sustainable development may be straightforward, different stakeholders tend to see the challenges and potential solutions from their particular – and often varying – perspectives. The WWDR attempts to present a fact-based, balanced and neutral account of the current state of knowledge, covering the most recent developments pertaining to water and sustainable development. As the world moves towards a new paradigm of sustainable development, whether *via* a new set of development goals, the decoupling of water and economic growth, or the ‘greening’ of economies, this report it is our sincere hope that this factual Report is received as a useful, informative and credible tool that will support and strengthen proactive discussions pertaining to our common future, and ultimately help to identify and adopt appropriate responses.

The 2015 WWDR assumes added significance in view of the fact that the sustainable use and management of water is vital for welfare of all humanity today, and it is essential for building the sustainable future for all.

Viewed in a broad perspective, the recommendations, goals and suggestions envisaged in the theme papers of the 2015 World Water Development Report were apparently those with which India Water Foundation has already been dealing with. Nevertheless, keeping in view the added emphasis on water as a key component of sustainable development, the suggestions and recommendations envisaged in the 2015 WWDR; hence, the IWF also accorded priority to these in its water-related activities.

Global Sustainable Development Report (GSDR) 2015

The GSDR 2015, the only comprehensive, global report on sustainable development, brings together a broad range of existing scientific assessments and reviews global progress and future sustainable development pathways in an integrated way, taking into account the perspectives of scientific communities across the globe. Extensive inputs were sought for the 2015 report from the UN system, scientists, government officials and stakeholders. More than 500 independent

scientists and experts from many UN entities and affiliated organizations located in all regions of the globe have contributed to the report.

The report endeavours to present a range of scientific perspectives and to be policy-relevant but not policy-prescriptive. It offers suggestions on how to strengthen scientists' engagement with policy makers at national and international levels, in the latter case notably through the High Level Political Forum (HLPF). The report examines the SDGs as an interlinked system, analyzing how the goals are interrelated through their targets, and how progress towards one goal may depend on and contribute to progress towards others. Such an integrated assessment of the SDGs and the post-2015 agenda will be a standard feature of future GSDRs.

Expressing the hope that the world was set to adopt an ambitious agenda – UN Development Agenda 2030 – that would move the world towards a sustainable future for people and planet, the Report lamented that adopting the agenda was only the first step and making it a reality would require work and dedication from all of stakeholders. Asserting that the scientific community has a crucial role to play by sharing its advice and evidence in a compelling manner with policy-makers and conducting a dialogue with them, and that the Global Sustainable Development Report serves as a tool to facilitate this exchange, it calls upon the people to make use of it on their path towards the future they want.

The GSDR 2015 responds to the Rio+20 mandate to contribute to strengthening the science-policy interface (SPI) for sustainable development, particularly in the context of the High-level political forum (HLPF) on sustainable development. Given the anticipated adoption in September of the post-2015 development agenda with its sustainable development goals, the report asks how well prepared the scientific community is to inform the sort of integrated and multidimensional problem solving and policy making that will be needed for implementing this agenda.

True to its mandate, the report is designed as an assessment of assessments rather than seeking to pioneer new knowledge. It endeavors to present a range of scientific perspectives and to be policy-relevant but not policy-prescriptive. One distinctive feature of the report is its illustration of different vantage points from which to examine the science-policy interface and to view integration and inter-linkages across goals, sectors, and issues. Its preparation involved an inclusive, multi-stakeholder process drawing upon scientific and technical expertise from within and outside the United Nations System.

We at India Water Foundation have been broadly in agreement with the recommendations and suggestions enumerated and strongly feel that interface between science and policy-making is vital for sustainable development.

Adoption of Sustainable Development Goals (SDGs)

With the adoption of Sustainable Development Goals (SDGs) by the leaders of over 190 countries who gathered at the United Nations in September 2015, a framework of restructured and greatly expanded set of global development targets has been envisaged, which is designed to supplant the previous Millennium Development Goals. These SDGs also aim at providing the people around the globe with a future and vision that they can work towards.

The Sustainable Development Goals (SDGs), also officially known as ‘Transforming our world: the 2030 Agenda for Sustainable Development’, are an intergovernmental set of aspiration Goals with 169 targets. The Goals are contained in paragraph 54 United Nations Resolution A/RES/70/1 of 25 September 2015 and the Resolution is a broader intergovernmental agreement that, while acting as the Post-2015 Development Agenda, successor to the Millennium Development Goals (MDGs), builds on the Principles agreed upon under Resolution A/RES/66/288, popularly known as The Future We Want

The 17 SDGs along with 169 sub-targets represent a formidable challenge to developing countries, including India. Some experts had identified three most contentious and recurring issues – the financing and funding of the SDGs, the climate talks scheduled to be held later in 2015 in Paris, and implementation of the SDGs on a country or national level – with which developing countries had to grapple with in the near future.

While welcoming the SDGs and reaffirming its commitment to generate heightened awareness among the people of India about the SDGs and work for the integration of these SDGs into the national policy of India, the IWF also focused on the financial aspects of implementing these ambitious goals. According to broad estimates, about \$2.5 trillion was needed each year to fund the SDGs and the question arose as to where from such a huge amount would come. The Addis Ababa Action Agenda – a meeting of countries that was convened earlier 2015 as a means of finding the source of the SDGs – was expected to tell the way as to how the developing countries were supposed to fund the SDGs and it failed.

The developing countries, including India, are at the horn of dilemma as to what to do in 2016 to implement the SDGs. In the wake of ongoing economic slowdown, developing countries cannot knock the doors of OECD countries for more aid. One expert opines that the SDGs and the United Nations must look to take advantage of the post-Bretton Woods global financial architecture. However, it is not made clear as to how to proceed in this direction.

India’s Prime Minister Narendra Modi in his address to the UN General Assembly stated that many of the SDGs were already being implemented through flagship programmes of his government. On the other hand, Dr Arvind Panagariya, vice-chairman of NITI Aayog, has argued: “We simply cannot overstate the importance of robust economic growth, which in turn depends on well-functioning infrastructure and policies that enhance productivity. Without it, none of our objectives, be it eradication of poverty, empowerment of women, provision of basic services or even protection of environment and reversing climate change, would be possible by 2030.”

Guided by these Sustainable Development Goals (SDGs), IWF is focusing on the integration of these goals along with their targets into national and local policies, with specific emphasis on SDG-1 on about Ending Poverty, SDG-2 about Food Security, SDG-6 about Water & Sanitation, SDG-7 about Energy and SDG-13 about combating Climate Change. It has been making efforts to get the major components of the SDGs integrated into national policies in the Asia-Pacific region in general and India in particular.

The U.N. Climate Change Agreement (COP-21)

The 2015 United Nations Climate Change Conference, COP 21 or CMP 11 was held in Paris, France, from 30 November to 12 December 2015. It was the 21st yearly session of the Conference of the Parties (COP) to the 1992 United Nations Framework Convention on Climate Change (UNFCCC).

The conference reached its objective, for the first time, to achieve a global agreement on reduction of climate change in the Paris Agreement, which was adopted with acclamation by nearly all states. The agreement was to become legally binding if at least 55 countries that represent at least 55 percent of global greenhouse emissions became a party to it through signature followed by ratification, acceptance, approval or through accession in New York between 22 April 2016 and 21 April 2017. It is expected to take effect in 2020. The expected key result was to limit the global warming, by 2100, compared to pre-industrial to below 2 degrees Celsius.

India's Prime Minister Narendra Modi, who addressed the COP-21 summit in Paris on 1 December 2015, also launched the International Solar Alliance (ISA) with French President Francois Hollande. He also spoke at the Innovation Summit with other world leaders. While



cautioning against any unilateral steps that will lead to an economic barrier in the battle against climate change, in his address to the COP 21 summit, PM Modi hoped that the developed countries would mobilise \$100 billion annually by 2020 for mitigation and adaptation. Asserting that the principles of equity and common but differentiated responsibilities must remain the bedrock of our collective enterprise, he added that there should be aggressive mitigating action by developed countries by 2020. He also underlined the need for a national will and genuine global partnership while taking steps to hammer out a climate change deal.

PM Modi speaking at the launch of the International Solar Alliance. (Photo Courtesy: PTI)

While calling on the developed nations to fulfill their commitment in a credible, transparent and meaningful manner and to mobilise 100 billion US Dollars annually by 2020 for mitigation and adaptation, Prime Minister Modi further noted that conventional energy was still needed, he said it should be made clean and an end to its use should not be imposed. Urging the developed nations, which have a larger carbon footprint, to take the lead in addressing the climate change issues, Modi said: "It is not just a question of historical responsibility. We hope advanced nations will assume ambitious targets and pursue them as they have the most room for impact." Prime Minister Modi also mentioned India's ambitious target of producing 175 GW of renewable energy.

While listing India's ambitious targets to tackle climate change and by 2030, reducing India's emissions by 35 per cent of 2005 levels, and 40 per cent of its installed capacity would be from non-fossil fuels, Modi said: "We do so when the consequences of the industrial age powered by fossil fuel are evident, especially on the lives of the poor."

While welcoming the Agreement on Climate Change reached at Paris in December 2015, the IWF has been emphasizing on the need for eco-system based adaptation to climate change and judicious management of natural resources, especially water, energy and land resources. It has been making efforts to get the major components of the Paris Agreement integrated into national policies in the Asia-Pacific region in general and India in particular.



National Developments

Domestic or nation-wide developments in the form of policies and programmes of the government entail tremendous potential in impacting the activities of the civil society, especially in water, energy and environment sectors. Adoption of the Sustainable Development Goals (SDGs) and the Paris Agreement on Climate Change, both momentous taking place in the last quarter of 2015, and India being a signatory to both these international agreements, the Indian government's policies and programmes *vis-à-vis* these agreements are worth watching for a civil society like India Water Foundation.

The Government of India undertook various initiatives during 2015 and amongst them the measures like Small Cities Mission, Accessible India Mission and LED-lighting Mission, have been of some significance for IWF because these directly bear relevance to the prominent SDGs and for that matter India Water Foundation, while supporting these initiatives, has also recurrently expressed its eagerness to cooperate with the concerned ministries/departments of the Government of India as Development Partner in implementing these initiatives.

Smart Cities' Mission



IWF continued to support, like previous year, Government of India's Smart Cities Mission, which was launched for providing core infrastructure needed for decent living in urban areas and to set in motion the process of urban transformation to enable better living and drive economic growth. With the aim to achieve "inclusive growth", the mission promotes integrated city planning. It focuses on area development through retrofitting, redevelopment and green field development or a combination of these with pan-city solutions as a mandatory component. The government has selected 98 cities which together have a population of about 13 crore, accounting for over 35 per cent of the country's urban population. Along with the Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Smart Cities Mission will benefit 80 per cent of total urban population with enhanced quality of life. While supporting the mission, IWF also has emphasized on adoption of eco-based system for urban areas, especially in managing water and energy resources and it also offered its cooperation in these areas.

Accessible India Campaign

The Government of India launched on 5 December 2015 Accessible India Campaign or *Sugamya Bharat Abhiyan* as a nation-wide flagship campaign for achieving universal accessibility that will enable persons with disabilities to gain access for equal opportunity, live independently and participate fully in all aspects of life in an inclusive society. The campaign is aimed at achieving accessibility of built environment, transport, and an information and communication eco-system. It seeks to make at least 50 per cent of all government buildings in the national capital and state capitals “fully accessible” for the differently-abled by July 2018. Deadlines have also been fixed to make airports and railway stations accessible for the differently-abled, which the Prime Minister described as "Divyang" (people with extraordinary abilities) instead of "viklang" (handicapped). While welcoming the campaign, IWF has also expressed its willingness to cooperate with the government in capacity building of the people to reciprocate to the needs of the differently-abled persons with a positive attitude.

LED-lighting programme

On January 5, 2016, the Government of India launched a scheme for LED bulb distribution under the domestic efficient lighting programme in Delhi; and the National Programme for LED-based Home and Street Lighting. Describing the LED bulb as a “Prakash Path” (way to light), with a view to promote energy conservation through its spread and make it a people’s movement. The government's efforts started bearing some fruit within a couple of months of the launching of the programme. The initiative is part of the government’s efforts to spread the message of energy efficiency in the country. LED bulbs have a very long life, almost 50 times more than ordinary bulbs, and 8-10 times that of CFLs, and, therefore, provide both energy and cost savings in the medium term. The prime minister had launched a web-based system to enable consumers in Delhi to register requests for procuring LED bulbs under Domestic Efficient Lighting Programme (DELP).



IWF has welcomed this programme and it supplements IWF’s campaign for energy conservation. It has also expressed its readiness to cooperate with the concerned agencies in engendering a general awareness among the people, especially in rural areas about energy conservation and replace CFL and general bulbs and tube-lights with LED bulbs.

Major Activities

Major activities undertaken by India Water Foundation during 2015-2016, *inter alia*, included: conducting training programme for application of hydro-geomorphological mapping for groundwater prospection in 12 states of the country, espousal of the cause of smart agriculture, added emphasis on ecosystem-based adaptation to climate change at SIWI conference, IWF publication on Water-Energy-Food Nexus in South Asia, expression of interest for cooperation with Inland Waterways Authority of India (IWAI) and proposal for generating awareness among school children about, water conservation, sanitation and climate change.

Espousal of EbA Approach at SIWI Conference

In view of the growing recognition of the principle of Ecosystem-based Adaptation (EbA) to mitigate the adverse impact of the vagaries of climate change, a presentation made by IWF at SIWI's World Water Week held at Stockholm on 23-28 August 2015 focused on Ecosystem-Based Adaptation for Sustainable Water Use in Urban Area with specific reference to Meghalaya's Green Mission in Urban/Peri-Urban Areas. While focusing on the scope of EbA in urban areas, the presentation also dealt with major challenges to be confronted in adopting EbA in urban areas as well as its prospective outcomes. While focusing on the inter-linkages between EbA and Human well-being and water and human development, the presentation briefly examined the scope of EbA in the context of Meghalaya, with specific focus on as to how EbA can transform the state and the spotlight on making Shillong and Cherapunjee as climate resistant cities.

Concomitantly, the presentation also dealt briefly with Mission Green of Meghalaya where emphasis is laid on adoption of green technologies and the salutary outcomes of the Environment-plus Water-Energy-Food nexus approach pioneered by IWF. In its final analysis, the presentation emphasized that successful application of EbA strategy in some urban and peri-urban areas of Meghalaya can be replicated in the neighbouring states as well as in neighbouring countries like Bangladesh, Bhutan, Myanmar and Nepal. While asserting that cooperation in EbA can enhance regional cooperation in South and Southeast Asia, the presentation also highlighted Meghalaya's potential, owing to its precise geographic and strategic assets, for playing a vital role in promoting EbA in water and climate change adaptation sectors in neighbouring countries of Bangladesh, Bhutan, Myanmar, Nepal and Thailand.

The presentation was made by IWF chairman, Dr Arvind Kumar, which was received well by the audience and Dr Kumar has received an offer from the internationally reputed publisher Elsevier to develop this presentation into a book. Dr Kumar has accepted the offer and working on it.

Pioneering the Case for Climate Smart Agriculture

In the wake of adverse impact of the vagaries of climate change and shrinking water resources, and emphasis of SDG-1 on ending poverty and SDG-2 on ending hunger, the necessity for climate smart agriculture assumes tremendous significance to ensure food security to realize the twin objectives of ending hunger and alleviating poverty. Accordingly, an IWF presentation, made by

its president Dr Arvind Kumar, on climate smart agriculture was presented at the conference on Meeting Water and Food Security Challenges for Sustainable Development held on the occasion of 66th ICID Foundation Day CWC Auditorium, New Delhi on June 24, 2015. While defining climate smart agriculture (CSA) along with its linkages with policy-making and climate change related mitigation and adaptation, the presentation deals with the achievements of the first Green Revolution in India along with its negative impacts. It further proceeds to briefly appraise effects of climate change on agriculture in India and examines as to why there is need for climate smart agriculture.

The presentation, while appraising the prospects of implementing CSA to spur an environment-friendly Second Green Revolution in India, also focuses on as to how India can lead on the science and practice of climate smart agriculture. While evoking enthusiastic response from the audience present at the conference, IWF presentation has elicited encouraging comments as well.

Training Programme

As a Key-Resource Centre of the Union Ministry of Drinking Water & Sanitation, Government of India, the IWF was tasked to conduct training programme on “Application and Uses of Hydro-Geomorphological Maps (HGMs) for Groundwater Prospection” in 12 states, within the financial year 2015-16. Undoubtedly, the task was challenging especially in view of the very short span of time within which it was to be accomplished; nevertheless, it conducted the training program successfully within the stipulated period.

The training programme was conducted by the experts of IWF in 12 states as per following schedule: on 27-28 November 2015 at Shimla (Himachal Pradesh), on 4-5 December 2015 at Jammu (J&K), on 11-12 December 2015 at Jaipur (Rajasthan), on 18-19 December 2015 at Bhopal (Madhya Pradesh), on 8-9 January 2016 at Meerut (Uttar Pradesh), on 15-16 January 2016 at Raipur (Chhattisgarh), on 29-30 January 2016 at Patna (Bihar), on 1-2 February at Ranchi (Jharkhand), on 19-20 February 2016 at Shillong (Meghalaya), on 22-23 February 2016 at Guwhati (Assam), on 26-27 February at Agartala (Tripura), and on 28 February- 01 March at Kolkatta (West Bengal).





In the aftermath of the completion of the training program in 12 states, IWF conducted a two-day national Training workshop on “Application and Uses of Hydro-Geo-morphological Maps (HGMs) for Groundwater Prospection” at New Delhi on 28-29 March 2016, with participation from six Central Ministries, GOI, State Governments and National and Regional agencies.



Many participants who made their presentations focused attention on the necessity of harnessing latest scientific and technological means to tackle the growing water crisis in the country, especially in view of water’s growing demand in various sectors. The Workshop afforded an opportunity to focus attention on the current status of the application and utility of HGMs for groundwater prospection in different states and explore new possibilities to augment its usage during the course of interaction and exchange of views with other participants. Presence and participation of Central ministries like Ministry of Drinking Water and Sanitation, Ministry of Science and Technology and Ministry of Earth Sciences in this National Workshop also seemingly afforded an opportunity to discern the nature of problems faced by different states in water sector and seek solutions accordingly to tackle them. This also afforded an opportunity for forging synergy between the states and the respective Central ministries in water sector.

The overall outcome of this training programme was very salutary in terms from enthusiastic response from the participants from the states and their keen interest in harnessing satellite imagery for water prospection. It also proved instrumental in fostering synergy between the states, where this training program was conducted, and Central agencies in water sector and state authorities insisted on conducting such programs with increased frequency. After having successfully conducted this training program in 12 states, India Water Foundation plans to cover remaining states as well by the end of 2017.

Expression of Interest in Inland Waterways

In view of IWF's experience and interest in various aspects of water sector, especially developing Inland Waterways for an efficient, economic and eco-friendly logistic solution, the Inland Waterways Authority of India (IWAI) invited IWF President Dr Arvind Kumar to a one-day workshop on "Mitigating Environment and Social Impact of the Jal Marg Vikas Project" on 22 February 2016 which was held at New Delhi.

The Workshop deliberated on policy and regulatory framework, environmental and social safeguard framework of the World Bank, emerging challenges, mitigating risk strategies and opportunities to provide the stakeholders a comprehensive update on environmental and social parameters of the project. The IWF president attended the workshop and also took active part in the interactive sessions.

Again on 15 March 2016, the Inland Waterways Authority of India (IWAI) invited Dr Arvind Kumar for a one-day workshop on "International Best Practices and Innovation in Inland Waterway Transport and Logistics", jointly organized by World Bank and IWAI at New Delhi. Participants in this workshop, *inter alia*, included: policy planners, senior government officials, domestic and international experts in IWT sector, shippers, shipyard and experts in LNG fuel and green energy for transportation etc. Participating domain experts presented the international experience and best practices on policy, environment, dredging, vessel operation and green technology in Inland Water Transport sector in this workshop.

Encouraged by the enthusiastic response of this workshop and the reported move of the Inland Waterways Authority of India (IWAI), Ministry of Shipping, Government of India, to develop 106 national waterways to facilitate an efficient, economic and environment-friendly logistics solution for the promotion of inland transportation, tourism, upkeep of the waterways and other related activities, India Water Foundation, which has been emphasizing on developing inland waterways since 2009, has expressed its eagerness to cooperate with IWAI in the National Waterway-1, comprising Ganga-Bhagirathi-Hooghly river system (Allahabad-Haldia), which is already operational for the upkeep of this waterway in accordance of the instructions/guidelines of the IWAI in the state of Uttar Pradesh/Bihar. Negotiations are in progress.

Generating Awareness among School Children

In the last week of March 2016, India Water Foundation in a general letter addressed to the principals of the schools of Delhi called upon each school to adopt a nearby village where students can spend a part of their summer vacation to interact with the village residents, spread literacy, impart them training in personal hygiene, avoid open defecation, conservation and preservation of natural resources, especially water resources, from contamination and encouraging the rural folks in judicious use of water.

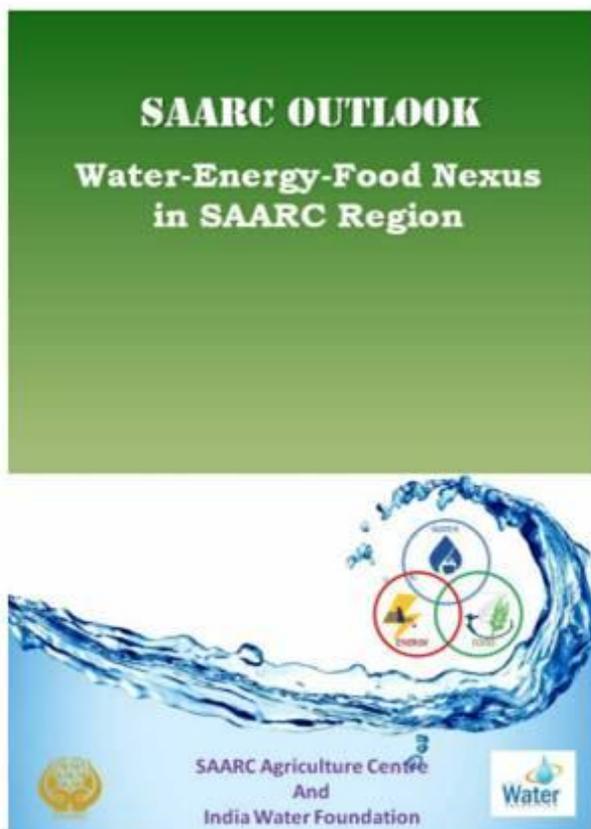
Asserting that capacity building of the students was essential with the help of a civil society to carry forward such a mission, IWF expressed its willingness to cooperate with the schools in capacity building programmes of the students in the management of natural resources, especially water, energy and environment. It was also emphasized that the students thus trained with the

help of capacity building programs could become agents of change in transforming the face of rural India. Such a program can have serious positive outcomes for the entire nation because thousands of villages will be adopted by school children every year and improved rural life in terms of good health and hygiene, potable drinking water and spread of literacy will help in the emergence of prosperous rural India. Besides, an awakened villager will be able to get full benefits of government-sponsored schemes.

Special Consultative Status with UN-ECOSOC

India Water Foundation (IWF) has been granted Special Consultative Status with the Economic and Social Council of the United Nations (UN-ECOSOC) since April 2016. The Consultative Status by the UN-ECOSOC enables an organization to get actively engaged with ECOSOC and its subsidiary bodies, as well as with the United Nations Secretariat, programmes, funds and agencies in a number of ways. Undoubtedly, grant of the Special Consultative Status to the IWF is a matter of pride for us at IWF because it is a recognition of our yeoman contribution to the society for about a decade now; nevertheless, it bequeaths on us greater responsibility to perform our task with more diligence and dedication.

IWF Publication on Water-Energy-Food Nexus Approach in South Asia



In December 2015, India Water Foundation in collaboration with SAARC Agriculture Centre, based in Bangladesh, brought out a publication entitled, *SAARC outlook on water-energy-food security nexus in SAARC region*. Dr Arvind Kumar, president, India Water Foundation, is the lead author of this publication. This publication is divided into seven chapters and the first chapter in the form of introduction provides a brief overview of geography, demography and natural resources with specific reference to water, energy and food in South Asia. Conceptual framework of the water-energy-food nexus approach is facilitated in the second chapter. An appraisal of water security in South Asia in terms of survey of availability of water and its resources in South Asia, water scarcity, impact of climate change, country-specific appraisal; long-term water security planning etc has been facilitated in third chapter.

While appraising energy security in South Asia, the fourth chapter takes a brief overview of the survey of availability of energy and its resources in South Asia, energy deficit and its impact on economic growth, impact of climate change *vis-à-vis* energy consumption, country-specific appraisal of hydropower, nuclear energy, and renewable energy resources; long-term energy security planning etc. A brief overview of food security in South Asia is presented in fifth chapter in terms of briefly surveying country-specific availability of food and state of agriculture in South Asia, appraisal of food security policies and agriculture policies along with level of poverty and malnutrition etc.

A brief analysis of constraints and options in implementing water-energy-food nexus approach is presented in sixth chapter along with an appraisal of water, energy and food security policies of South Asian countries, efforts towards regional cooperation in WEF at bilateral and regional levels, appraisal of constraints and way ahead. The final chapter in the form of conclusion takes into account the emerging shift in global thinking towards sustainable futures and resilient ecosystems, which is a harbinger of change in direction that has seemingly begun based on holistic systems thinking, which has engendered a new understanding of the complex interconnected links in human and environmental interactions, leading to the development of the idea of Sustainable Development Goals, in which the WEF nexus can be a useful tool in pursuit of this new way of framing development goals. This reinforces the fact that WEF nexus is imperative for South Asia to ensure all-round growth and speedy realization of the SDGs

International Cooperation

India Water Foundation continued its endeavours during 2015 to foster close rapport and cooperation with UN Specialized Agencies, international agencies, organizations and institutions in SDGs and Climate Change with specific reference to Paris Agreement on Climate Change, especially in water, energy and environment sectors. IWF has been in synergy with UNEP, ESCAP-SSWA office, WHO, UNICEF, FAO, UN-Habitat etc. While keeping a tab on the process of implementation of the SDGS and the provisions of the Paris Agreement on Climate Change in different parts of the globe, IWF has been monitoring the progress and other developments in this regard and has been reflecting on them in the Indian context through the social media and other media write-ups.

Miscellaneous Activities

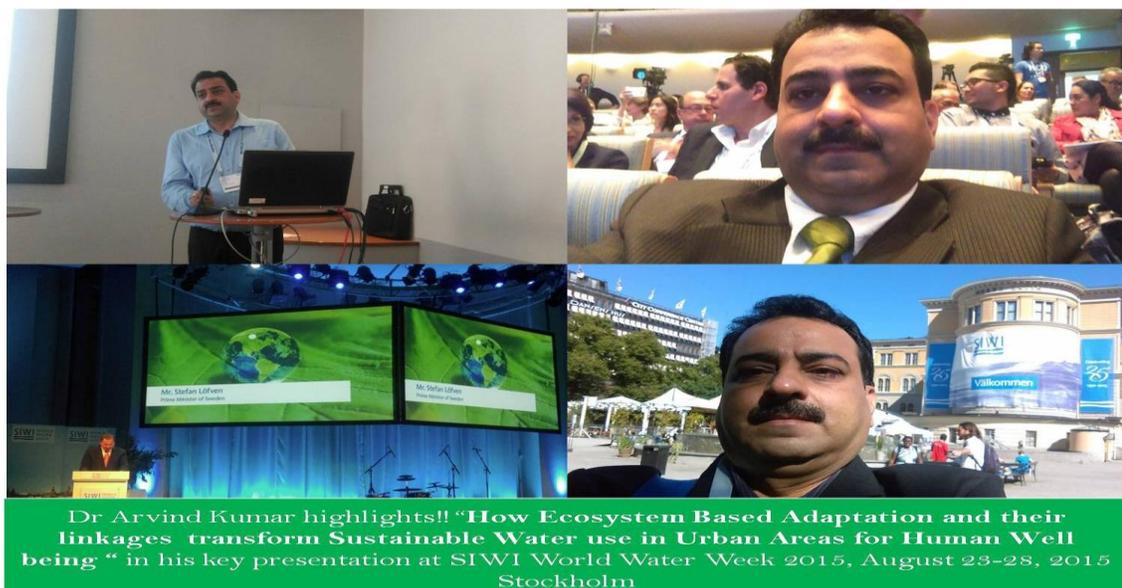
- In an article entitled, “Climate Change Effect on Health: Has India Highest Burden of Malnutrition?”, published in the March 2015 issue of SME World, a prominent English monthly published from New Delhi, Dr Arvind Kumar dealt with the problem of the adverse impact of the ongoing process of climate change on different sectors of economy in general and human health in particular. While dwelling upon interconnectedness between water and health hazards, especially the water-borne diseases, and malnutrition and looming healthcare, with pathetic plight of the malnourished children, he also provided a brief graphic overview of the impact of climate change on human health. While calling upon convergence in health, water and sanitation sectors, Dr Kumar emphasized on the need for involvement of communities and civil society in the formulation and implementation of policies for these sectors.

- In the first week of July 2015, India water Foundation facilitated training programme for the engineers of different departments in advance course on Water Scarcity: Pollution and Need for Harvesting and Conserving Water at Agartala in Tripura. This programme was sponsored by DoPT, Government of India, and conducted by SIPARD in cooperation with IWF.

- An article entitled, "Food Safety, Nutrition and Food Security", by Dr Arvind Kumar and published in the July 2015 issue of the *SAR Economist*, an English monthly magazine published from New Delhi, lamented at the problem of malnutrition in India and urged for improvement in the supply of nutrient food to the people to save them from falling an easy prey to various diseases. While emphasizing on the role of nutrition in food security, he also stressed on the need for convergence in different sectors like agriculture, food processing, food supply and health etc to pool their synergies for supplying quality food.



- IWF was represented by its president Dr Arvind Kumar at the Special Session on Wetlands for Food Security: Solution or Illusion, which was held on 23 August 2015 on the sidelines of the World Water Week 2015 at Stockholm, Sweden. The objective of this Special Session was to build bridges between often disconnected communities promoting livelihoods in wetlands, ecosystem protection and economic development.



Dr Arvind Kumar highlights!! "How Ecosystem Based Adaptation and their linkages transform Sustainable Water use in Urban Areas for Human Well being " in his key presentation at SIWI World Water Week 2015, August 23-28, 2015 Stockholm

- IWF took part as outreach partner of IUKAN in a conference, organized under IUKAN aegis, on 8 September 2015 at Le Meridien, New Delhi, on Towards Building Smarter Utilities through Improved Utility Performance and Enhanced Customer Experience. The IWF presentation was highly appreciated.



- India Water Foundation suggested to the Union Ministry of Rural Development, Panchayati Raj and Drinking Water & Sanitation, in September 2015 regarding the upgrading of skills and knowledge, making all stakeholders aware of the latest technology with emphasis on the need for sharing knowledge between Central and State Governments, and with various other agencies in order to bring all stakeholders on a common knowledge platform and forward linkage with SDG-6, which envisages achieving universal and equitable access to safe and affordable drinking water and to achieve access to adequate and equitable sanitation and hygiene for all and to end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations by 2030. This suggestion was conveyed by the IWF president in his meeting with the Union Minister of Rural Development, Panchayati Raj and Drinking Water & Sanitation.
- IWF president, Dr Arvind Kumar, published an article in *Dainik Jagran* dated 14 February 2016, a leading Hindi daily of North India, under the title “Our Future without Water”, wherein he focused on the growing water crisis in the wake of fast shrinking ground and surface water resources coupled with the mounting menace of pollution of ground and surface water resources. While emphasizing on the urgency for water conservation, he also stressed on the need for judicious use of water and keeping water resources free from pollution along with rainwater harvesting and reuse of wastewater as effective means tackle the problem of water scarcity in a sustainable manner.

About India Water Foundation

India Water Foundation (IWF), a non-profit civil society and think tank, is engaged in enhancing public awareness about Sustainable Development Goals (SDGs) and major components of the Paris Agreement on Climate Change, with specific emphasis on SDG-1 on About Ending Poverty, SDG-2 about Food Security, SDG-6 about Water & Sanitation, SDG-7 about Energy and SDG-13 about combating Climate Change, in Asia-Pacific region in general and India in particular. It also emphasizes on familiarizing the people regarding the vital role water, energy and environment play in human lives, their impact on health, economic growth, livelihoods of the people and calamities that wreak havoc due to non-judicious harnessing of these natural resources. Generation of this awareness is facilitated through seminars, conferences, symposia, outreach and personal contact programs etc. As water is an essential component of power generation and food production, therefore, IWF is also engaged in ensuring environmental security, water security, energy security and food security which are essential for sustainable development.

Vision

IWF envisions attainment of the 17 SDGs along with targets and the objectives of the Paris Agreement on Climate Change within the stipulated period. It also nurtures its vision to visualize Asia-Pacific region as a water-surplus region sans environmental hazards by 2050 by integrating IWRM, Nexus and EbA approaches as key components of sustainable development goals into national policy at local, provincial, national and regional levels by harnessing water-energy-climate-food nexus approach, assimilation and dissemination of wit and wisdom from local to global level and *vice versa*, promotion of inter-sectoral convergence in water, energy and environment sectors, capacity-building of all stakeholders in water, energy and environment sectors, equal emphasis on Soft and Hard Solutions to water and environment related problems and to change the mind-set of the stakeholders by sensitizing, incentivizing and galvanizing the people about water-energy-environment related issues.

Mission

The IWF works amongst the people at the grassroots level, especially amongst the marginalized and weaker sections, women, tribal's and the poorest communities in India and the Asia-Pacific region, in cooperation with local, state and national governments, and with other like-minded civil society organizations (CSOs), to help them develop water, sanitation, hygiene and climate change adaptation services that are not temporary, but lasting forever. The IWF identifies the roadblocks to sustainable development and helps overcome them. It helps the people to make the change from short-term gains to long-lasting services that could transform their lives and their futures.

Partnership, Accreditation and Rapport of IWF

India Water Foundation has been empanelled as Key Resource Centre (KRC) under Ministry of Drinking Water & Sanitation GOI, and has Direct Membership with ICID, New Delhi. It has partnership, rapport and accreditation with many national and internationally reputed organisations, NGOs and CSOs etc., especially rapport with UNEP, UN-ESCAP and other UN/International Organisations. It is also a knowledge partner of Meghalaya Basin Development Authority (MBDA) Government of Meghalaya, and Meghalaya Water Foundation and President of the IWF has been appointed as member of Meghalaya State Water Resources Council.

The IWF has worked as a Civil Society Organization (CSO) to provide its services to carry out social development and Public Awareness and Public Participation (PAPP) activities under the JICA- assisted Ganga Action Plan project for a period of three years in Varanasi.

IWF's Thought Leadership

India Water Foundation has amassed a plethora of knowledge wealth through its exposure and participation in leading national and international deliberations in water, energy and environment sectors and on the basis of this accumulated knowledge it has pioneered non-engineering and non-technical solutions which are of equal significance in tackling water and environment related problems by encompassing PPT (People – Process – Technology). This gives the IWF advantage of thought leadership in many areas like policy formulation, facilitating conferences, seminars, symposia, workshops etc., capacity-building and sustenance, eco-sustainability, facilitating technology intervention, nexus approach, assimilation & dissemination of Water, Environment and Sanitation related knowledge, Inter-Sectoral Convergence, emphasis on Soft Approach, collective approach on Water and other related sectors etc. These are briefly described below:--

Catalyst for Policy Formulation

India Water Foundation has highly qualified, experienced and dedicated experts in the field of water management and governance, climate change mitigation and adaptation. These experts have immense exposure to national and international leading practices and innovative techniques and as such their expertise can be utilized in the formulation of critical policies. This expertise can be extremely effective in policies creation that will support inter-sectoral 3Cs – Cooperation, Coordination & Convergence - enabling effective impact as a result of optimized implementation of the policies. The IWF is capable of contributing to a great extent in designing, planning and monitoring of highly specialized programmes which can be helpful in improving the water management system in a sustainable manner, especially at the grassroots level.

Facilitating Conference/Workshop/Seminars

Prolonged vast exposure to national and international conferences, seminars, symposia, workshops and round-tables has enabled India Water Foundation to amass a very rich experience in organizing conferences/seminars/workshops etc at regional, national and international levels. Owing to its close partnership and rapport with various leading national and international organizations /agencies/institutes, the IWF can elicit the cooperation and participation of

technical experts. The IWF is equally well placed to interact with private sector companies engaged in water, energy and environment sectors. Thus, the IWF is privileged to extend wide variety of facilities which are essential for making conferences/seminars/symposia a gala success.

Key speakers constitute the spine of the conference/seminar/workshop and their pronouncements cast a wide-ranging impact on the audience and provide news material for the media. Owing to its good relations with the leading national and international agencies, the IWF can facilitate the availability of senior advisors/experts for the designated conference/seminar. Besides, it can also elicit the cooperation of experts from leading academic and technological institutions for the same purpose.

Concomitantly, the IWF maintains very cordial relationship with media, both print as well as electronic. Media wields tremendous impact on global politics and society owing to its vast reach. Media coverage provides opportunity to disseminate the message and helps in boosting the image. The IWF can facilitate interaction with print and electronic media.

The IWF can be instrumental in providing a platform for the regional and international stakeholders to encourage greater coordination and collaboration among policy makers, authorities, professionals, researchers, civil society representatives, private sector as well as operators of water, energy and environmental facilities. It can be helpful in bringing together the public and private sector players, and central and local authorities, thus offering most up-to-date solutions.

Capacity Building and Sustenance

Capacity building enables the stakeholders to efficiently deploy their resources for the sustainable development of natural resources, especially water and energy. Capacity building programs for resources at ground level and especially Engineers and Hydrogeologists of all the water-user state agencies as well as for ULBs and community are essential for the better management of water resources.

In Capacity building exercises, India Water Foundation involves all stakeholders and includes local traditional knowledge and wisdom to ensure better adaptability and acceptance. The Capacity Building programs organized by IWF in water sector generally include areas like Groundwater and Hydro-geology, Water Harvesting including Urban Storm Water harvesting, Drinking Water Quality Monitoring and surveillance including establishing Brackish Ground Water (BGW) Desalination plants to reducing pressure on fresh water resources, sustainability activities - Designing and implementation, improving community participation involvement in management of Urban Drinking Water, supply schemes - establishing water project groups made up of community leaders who are trained by experts on how to monitor, maintain and repair water systems and training of trainers for District and Subdivision level trainers for the states on technical capacity building of the community etc.

Nexus Approach

India Water Foundation envisions integrating sustainable development into national policy at national, regional and global level. Sustainable development is a new paradigm for economic growth, social equality and environmental sustainability. Water is a key component of sustainable development and all ecosystems are inextricably linked with water. Keeping in view the close nexus between water, environment, energy and food, solution to water related problems can better be facilitated through this ‘nexus approach’, which seeks to find solutions based on convergence between various sectors or disciplines and is being widely regarded along with resilience to attain sustainable development. The nexus approach can serve as a bridge that could engulf the gap between the social, economic and environmental pillars of sustainable development. In pursuance of this ‘nexus approach’, the IWF focuses on Environmental Security, Water Security, Energy Security and Food Security.

Assimilation and Dissemination of Water Knowledge

India Water Foundation is engaged in assimilation and dissemination of plethora of wit and wisdom generated locally, regionally and globally in water sector and making it accessible to all stakeholders in water sector in their vernacular language so that the concerned stakeholders are benefited by it. Water related knowledge is generated through innovation experimentation and techniques, seminars, conferences and workshops etc. However, the knowledge thus generated remains confined to printed reports in different languages that adorn the shelves of the archives and it seldom reaches the masses which are main stakeholders of water sector. The IWF plans to make efforts in this regard to assimilate such knowledge and get it translated into local languages for further dissemination amongst the people. However, it is gigantic task requiring collective support of national, regional and international agencies.

Inter-Sectoral Convergence

There are about eleven ministries of the Government of India which deal with water related issues in one way or the other. These ministries inter alia include Ministry of Water Resources, Ministry of Urban Development, Ministry of Rural Development, Ministry of Health, Ministry of Drinking Water and Sanitation, Ministry of Environment & Forests, Ministry of Agriculture etc. Besides, water being a state subject is being looked after by each state according to its requirements. Thus, there exists a sectoral approach to water related issues and there is lack of coordination, cooperation and convergence in water sector between and amongst various Central ministries on the one hand and between the Central Government and states on the other. This results in duplication of work and extra expenditure without achieving tangible outcome of significance.

It is in this backdrop that the IWF has been making efforts to promote inter-sectoral and intergovernmental convergence in water sector and it has succeeded to some extent as well. India Water Foundation has been espousing the case for establishing **India Water Hub** as an apex body where all stakeholders in water sector share their knowledge and get their water-related grievances redressed at national and local levels.

Emphasis on Soft Approach

India Water Foundation has taken up the initiative of laying equal emphasis on ‘Soft Approach’ along with ‘Hard Approach’ to tackle water related problems. Thus far the major emphasis has been on finding engineering and technological solutions to water related issues and policy making, its implementation and feedback process from the stakeholders has generally not received due emphasis which it deserves. The Soft Approach entails capacity building of the people and as such India Water Foundation is affirmative about the need for capacity-building of the people and institutions in water sector. This task of **capacity-building** of the people can be accomplished by sensitizing, incentivizing and galvanizing the people about water-related issues.

Sectoral to Collective Approach

Adverse impact of the ongoing process of climate change, fast depletion of global surface and ground water resources and rapid melting of glaciers coupled with mounting problem of pollution of water resources cumulatively add to the already grim problem of acute shortage of drinking water in almost all parts of the globe. Various UN agencies like UNEP, UN Habitat, UN ESCAP, UNESCO, WHO, FAO, UNICEF etc and international water organizations look upon water from their regional or problem-centric perspective. Nevertheless, water governance is a global issue that calls for collective approach and not sectoral approach. India Water Foundation lays emphasis on international and inter and intra-organizational synergy in water sector to tackle the problems pertaining to water and thereby ensuring sustainable supply of safe drinking water globally.





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