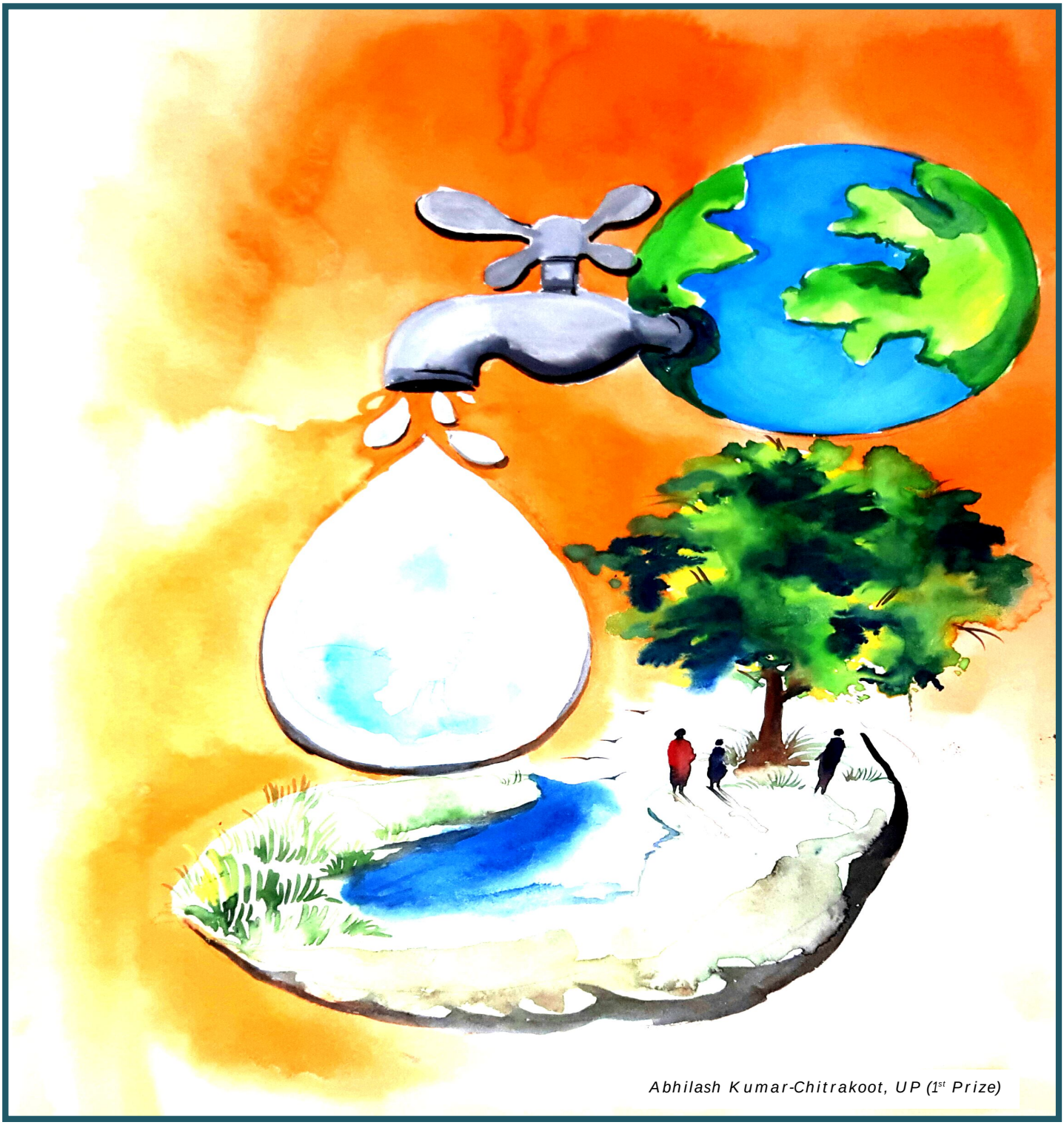
ANNUAL REPORT
2018-19



Abhilash Kumar-Chitrakoot, UP (1st Prize)

INDIA WATER FOUNDATION

Foreword

With the changing times, priorities also undergo change. Nevertheless, when targets are delineated with the objective of realizing those targets within a stipulated period, priorities are bound to veer round those targets owing to their universal application. In the aftermath of the adoption of Paris Agreement on Climate Change (PACC) in 2015 along with 2030 Agenda of 17 Sustainable Development Goals (SDGs) and their related targets, also adopted in 2015, the priorities at global, regional and local levels have been veering around the SDGs with climate change and water at the core. It goes with saying that momentous developments taking place at global, regional and national levels in the fields of environment, water and sustainable development are prone to wield their impact on the activities of India Water Foundation, directly or indirectly.

During the period under review in this report, global warming, a prime driver of climate change, remained the focal point of global attention, especially in the aftermath of the release of IPCC's release of Special Report on Global Warming in early October 2018 along with equal emphasis on pledges made by the countries in PACC. India Water Foundation could not afford to remain aloof from it as well.

World community is running out of time to stop climate change and more than half of a year has passed since the Intergovernmental Panel on Climate Change (IPCC) issued a warning signal that limiting global warming to the 1.5-degree Celsius (2.6 degrees Fahrenheit) mark by the close of the present century — a target set to stave off the worst impacts of climate change — "would require rapid, far-reaching and unprecedented changes in all aspects of society." Even prior to the IPCC's warning, 184 countries had made carbon emission reduction pledges under the Paris Agreement on Climate Change (PACC) in 2015 to keep global warming well below 2 degrees Celsius; and unfortunately majority of the countries have not done enough in that direction and the Trump Administration in the United States has been threatening to withdraw from the PACC, a very unfortunate development.

Given the fact that some of the countries won't be able to achieve their pledges; lamentably some of the world's largest emitters continue to increase their emissions in violation of the Paris Agreement. Failure to reduce emissions by 2030 will cost humankind enormous economic losses, affecting human health, livelihood, food, water, biodiversity and infrastructure. Countries signatories to the PACC are called upon to double or even triple their 2030 reduction commitments to be synchronized with the PACC targets. Many experts and eminent scientists are worried about the slow pace of progress towards emission reduction which is currently on a pathway to between 3 and 4 degrees Celsius by the end of the present century, especially when the world is well-equipped with the technology and knowledge to make emission cuts; nevertheless, according to them what's missing are strong enough policies and regulations to help achieve the PACC targets.

Occurrences like massive thawing of permafrost and rampant forest die-offs could trigger additional uncontrollable warming, which the scientists call the Hothouse Earth scenario, could lead sea levels to rise 30 to 300 feet or 10 to 60 meters, thereby rendering bulk parts of the planet uninhabitable. Thus, averting such a catastrophic change in the future, it is imperative to Act now for reaching the PACC target of well below 2 degrees Celsius. One scientist has opined that global emissions need to be halved by

next decade and net-zero by mid-century. However, the slow pace of progress towards PACC pledges by a large number of countries is worrisome at a time when these countries are already witnessing and experiencing big impacts from climate change waiting to act entails the likelihood of just locking them into higher temperatures and drastic impacts.

IPCC's Special Report on Global Warming provides ample scientific evidence to justify call by the citizens for more effective action by governments and businesses. This is the right time for all the countries to step up, accept that global emissions must reach net-zero by 2050 and undertake concrete steps to make it happen. Climate change is everybody's problem and there is need to take everyone on board to tackle it.

The significant developments that greatly influenced us at India Water Foundation and in a similar way the activities conducted by India Water Foundation (IWF) during 2018-2019 were greatly affected and influenced by important developments like the identical themes of the 2018 World Water Day as well as 2018 World Water Development Report, which emphasized on improvements in water management and access to water supply and sanitation services, release of 2018 Global Outlook of the Water Industry by a private company in May 2018,Release of SDG 6 Synthesis Report 2018 on Water and Sanitation in early July 2018, release of IPCC Report on Global Warming of 1.5^0C in early October 2018, release of the report on Global Material Resources Outlook to 2060 by the closing part of November 2018, Convening of CoP-24 in December 2018 and release of the report on Global Environment Outlook 2019 or GEO-6.

At the domestic national level, major development that influenced the perspective and activities of India Water Foundation, inter alia included: Release of report on India's Composite Water Management Index (CWMI) 2018 by NITI Aayog in June 2018, conferment of Champions of Earth award for Prime Minister of India, Shri Narendra Modi on 3 October 2018 in recognition of his leadership in the fight against plastic pollution in India, and his unwavering commitment to tackling climate change around the world; and release of the report on Strategy for New India @ 75 by the NITI Aayog in November 2018 containing specific emphasis on water and environment. Major activities undertaken by India Water Foundation during 2018-2019 veered round major themes of water, climate change and SDGs, which inter alia, included: submission of abstract for the SIWI 2018, IWF's membership of World Water Council (WWC), IWF initiatives in Wetlands, participation in UNEA-4, focus on SDGs and generating awareness among school children etc., along with other activities.

I feel immense pleasure in presenting this annual report to our patrons, well-wishers, colleagues and the general public. We, at India Water Foundation, 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. I avail this occasion to reaffirm steadfast commitment of IWF to continue to render its yeoman services in the fields of water, climate change and sustainable development with renewed enthusiasm.

(Dr Arvind Kumar)
President
India Water Foundation

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Overview

With global warming garnering reckoning in the international community as the prime driver of climate change in the wake of the pledged made by the signatories to the Paris Agreement on Climate Change (PACC) supplemented by the release of IPCC's Special report on Global Warming in early October 2018, serious concerns are being expressed over the steps being undertaken in reducing emissions as agreed to in the PACC and the progress made thereto. Global warming along with water-induced calamities has started receiving increasing attention of the scientific community and decision-makers along with policy-makers are being called upon to pay serious attention to these emergent issues to help realize the goals of 2030 Agenda along with the realization of the objectives of the PACC. Accordingly, we at India Water Foundation have focused our attention as well as efforts on these issues in our activities undertaken during the period under review.

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), as well as Observer Status with the United Nations Environment Assembly (UNEA),and the UNFCCC, 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 2018-2019 were greatly influenced by developments occurring in international and national arenas in water and environment sectors to which it responded accordingly within meagre resources at its disposal, as described below.

Momentous Developments

The year 2018 witnessed international community engaged water and environment sectors with added enthusiasm along with adhering to measures entailing concerted efforts towards evolving a steady vision with projects and frameworks to manage water sector and facilitate reduction in emissions in accordance with Paris Agreement on Climate Change (PACC). Unfolding of the fact that world is still off-track to meet the targets of SDG-6, as demonstrated by the release of *The Sustainable Development Goal 6 Synthesis Report 2018 on Water and Sanitation*; and the serious concerns expressed over the global warming by the IPCC *Special Report on Global Warming of 1.5 °C*, proved instrumental in making water and climate change as focal points of the contemporary narrative and decision-making process in almost all the countries.

In view of the growing scarcity of water along with mounting problem of contamination of water resources, and the adverse impacts of global warming, the international community was spurred to focus on water and global warming as the prime driver of climate change. Accordingly, 'Leaving no one behind' constituted the common theme of the World Water Day 2019 as well as that of *World Water Development Report (WWDR*) for 2019. Besides, release of the reports like*2018 Global Outlook of the Water Industry, SDG 6 Synthesis Report 2018 on Water and*

Sanitation, IPCC Report on Global Warming of 1.5^0 C released in October 2018*, Global Material Resources Outlook to 2060* released in 2018*,* Climate Change Conference held in Katowice, known as COP-24 and release of *Global Environment Outlook 2019* etc., proved instrumental in wielding significant impact on the thought and activities of India Water Foundation during 2018-2019.

World Water Day 2019 Theme

The World Water Day 2019, observed on 22 March 2019, throughout the world, had the theme of "leaving no one behind", which is the central promise of the 2030 Agenda for Sustainable Development. This theme envisages a crystal-clear message that everyone must participate in, and benefit from, the progress of development. In other words, it means achieving SDG 6 regarding clean water and sanitation, which has as its first target universal and equitable access to safe and affordable drinking water for all by 2030. When one talks of "water for all", that also implies 'LEAVING NO ONE BEHIND'.

Undoubtedly, much progress can be said to have been made in water sector in recent decades; nonetheless, around 2.1 billion people are still bereft of clean water. It has been amply demonstrated by The Sustainable Development Goal 6 Synthesis Report 2018 on Water and Sanitation that we are still off-track to meet SDG-6. Water sector is already afflicted with perennial problems of yawning gap between demand and supply of water, accelerated pace of pollution of water resources, lack of funding and enfeebled governance to manage water effectively and efficiently. The worsening situation of water availability rules out the hackneyed approach of **'business-as-usual'** because the 2030 Agenda enjoins upon us "to reach the furthest behind the first" by asking ourselves as to who amongst the 2.1 billion people presently without safe water, are the marginalized groups and it is our bounden duty to reach them. Concurrently, efforts ought to be made to let these people enjoy their right to clean water and sanitation.

Celebrating World Water Day 2019

Facts about Water

- 2.1 billion people live without safe water at home.
- One in four primary schools have no drinking water service, with pupils using unprotected sources or going thirsty.
- More than 700 children under five years of age die every day from diarrhoea linked to unsafe water and poor sanitation.

- Globally, 80% of the people who have to use unsafe and unprotected water sources live in rural areas.
- Women and girls are responsible for water collection in eight out of ten households with water off-premises.
- For the 68.5 million people who have been forced to flee their homes, accessing safe water services is highly problematic.
- Around 159 million people collect their drinking water from surface water, such as ponds and streams.
- Around 4 billion people – nearly two-thirds of the world's population – experience severe water scarcity during at least one month of the year.
- Over 800 women die every day from complications in pregnancy and childbirth.
- 700 million people worldwide could be displaced by intense water scarcity by 2030.

(Source: unwater.org)

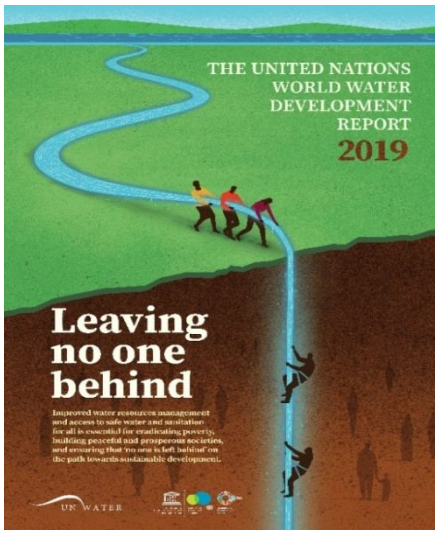
India Water Foundation & WWD 2019

"World Water Day" on March 19, 2019 was organized under the aegis of "Amity Institute of Water Technology & Management" and "Amity Institute of Environmental Science" at Amity University Campus, Noida. The guest of honor Dr Arvind Kumar signifying the importance of '**Fresh Water and sustainable development - Leaving no one behind'** remarked that **"Leave no one behind"** is a core principle of the 2030 SDG Agenda. To ensure the same, we must imbibe **Circular Economy** keeping water as the significant Socio-Economic connector by embracing the need to **Recover, Recycle, Repurpose, Refurbish, Repair, Refuse, Rethink, Reduce, Reuse and Remanufacture".**

World Water Development Report 2019

Launching of the World Water Development Report (WWDR) 2019 was facilitated on 19 March 2019 at the Human Rights Council, at the Palais des Nations in Geneva (Switzerland). The 2019 WWDR is designed to seek to inform policy and decision-makers, inside and outside the water community, how improvements in water resources management and access to water supply and sanitation services are essential to overcoming poverty and addressing various other social and economic inequities. Broadly speaking, the impacts of water-related decisions often transcend geographic boundaries and affect everyone in this increasingly globalized world. Many experts have argued that in the current era of the ongoing process of climate

change, extreme weather events, environmental degradation, population growth, rapid urbanization, unsustainable and inequitable consumption patterns, conflicts and social unrest, and unprecedented migratory flows are among the interconnected pressures faced by humanity, often hitting those in vulnerable situations the hardest through their impacts on water.



Cover page of the 2019 edition of the World Water Development Report (WWDR 2019) entitled 'Leaving No One Behind'.

Finding appropriate solutions to the inequalities confronting the marginalized and disadvantaged groups call for tailored solutions that take account of the day-to-day realities of people and communities in vulnerable situations. Some experts are of the view that suitably designed and effectively implemented policies, efficient and appropriate use of financial resources, as well as evidence-based knowledge on water resources and water-related issues are also vital to eliminating inequalities in access to safe drinking water and sanitation.

The theme of the 2019 World Water Development Report on "no one is left behind" reiterates the commitments made by the UN member states in adopting the 2030 Agenda for Sustainable Development and in recognizing the human rights to safe drinking water and sanitation, both of which are essential for eradicating poverty and for building prosperous, peaceful societies. It is widely acknowledged now that improved water resources management and access to safe water and sanitation for all is a *sine qua non* for eradicating poverty, building peaceful and prosperous societies, and ensuring that 'no one is left behind' on the road towards sustainable development.

Worldwide increase in usage of water by about 1% per year since the 1980s has been reported. This increase is driven by a combination of factors like population growth, socio-economic development and changing consumption patterns. Broad estimates show that global water demand is expected to continue increasing at a similar rate until 2050, accounting for an increase of 20 to 30% above the current level of water use, mainly due to rising demand in the industrial and domestic sectors. Lamentably, over 2 billion people live in countries experiencing high water stress, and about 4 billion people experience severe water scarcity during at least one month of the year. Increasing growth in demand for water coupled with the fact of the vagaries of climate change, stress levels of water are bound to grow.

Launching of the 2019 WWDR took place on 19 March 2019 during the 40th session of the United Nations Human Rights Council (UNHRC), and in conjunction to the World Water Day, which amply demonstrates as to how improvements in water resources management and access to water supply and sanitation services are necessary for addressing various social and economic inequities, such that 'no one is left behind' when it comes to enjoying the multiple benefits and opportunities that water provides. Safe drinking water and sanitation are recognized as basic human rights, as they are indispensable to sustaining healthy livelihoods and fundamental in maintaining the dignity of all human beings.

All member states of the United Nations are obligated under international human rights law to work towards attaining universal access to water and sanitation for all, without discrimination, while prioritizing those most in need. Fulfillment of the human rights to water and sanitation requires that the services be available, physically accessible, equitably affordable, safe and culturally acceptable. It is with this motive that 2019 WWDR has chosen the theme of 'Leaving no one behind' because this theme is at the heart of the commitment of the 2030 Agenda for Sustainable Development, which aims to allow all people in all countries to benefit from socio-economic development and to achieve the full realization of human rights.

Nevertheless, keeping in view the added emphasis on harnessing wastewater after treatment as a key component of meeting growing water demands in industry and agriculture in sustainable manner, IWF also accorded priority to these in its water-related activities during the period under review.

Global Outlook of the Water Industry in 2018

Release of report on Global Outlook for Water Industry in 2018 by Frost & Sullivan, a business consulting firm dealing in market research and analysis& growth strategy took place on 18 May 2018. The report has emphasized that smart-IT enabled and digitalized sustainable solutions constitute the key growth factors in the water industry that is characterized by an increasing stress of water resources across the globe. Focusing primarily on the municipal water market, the report noted that this segment of the market was set to extensively adopt new communication technologies like LPWAN, which is suited to support IoT, and explore AI and robotic solutions for process control and management, along with transitioning to sustainable business models. Whereas, there is a growing demand for decentralized/mobile treatment systems in the industrial water market. Besides, it also pointed out that smart sensors with self-calibration/cleaning ability and artificial intelligence (AI) for operation and maintenance of the treatment systems are being explored.

While asserting that revenues for the global water market were estimated to reach $ 695.9 billion in 2018, the report also informed that membrane-based treatment technologies are set to dominate due to their improved efficiency and easy availability. While projecting the growth of the municipal segment at a rate of 6.4%, the report estimated that industrial segment should grow at 7.6%, in 2018. The predictions for 2018 in this report are done with 2016 as the base year. The study highlighted key market predictions for 2018 for both the industrial and municipal segments. The municipal and industrial water market covers the Total Expenditure (TOTEX) of the following across treatment plants and networks – Design and Engineering, Operation & Maintenance, Water and Wastewater Technology, Process Control Management, and Chemicals. The study also lists key regional hotspots in every region, along with the growth outlook for key technologies for water, wastewater, and sludge treatment. The study also provides the total municipal and industrial water market expenditure forecast for the regions – APAC (Asia-Pacific), North America, Europe, Middle East & Africa; and Latin America.

Key market predictions for the municipal and industrial segments in each of these regions along with revenues are also presented. Further, the study encompasses municipal and industrial technology outlook for various regions along with revenues for the technology employed in water treatment, wastewater treatment, sludge management, and smart water management. Key issues addressed in this report inter alia include: Key market predictions for the global water industry in 2018; prospects of the revenue of global water industry in 2018 and how it has grown since 2017, ups and downs in water technology in 2018; and the prospects for advanced treatment technologies and it could replace conventional systems etc.

We at India Water Foundation have been keenly keeping a tab on these reports, especially about water industry, water related technologies and upcoming problems in managing municipal water. The insights gained through the study of such reports in tandem with in-practice experience gained on the ground helps us in according priority to recycling wastewater after treatment for reuse in industry and agriculture especially, because bulk of municipal and industrial wastewater is generated in urban areas.

SDG 6 Synthesis Report 2018 on Water and Sanitation

The first week of July 2018 witnessed the release of the report titled, *SDG 6 Synthesis Report 2018 on Water and Sanitation,* by the UN Water. It offers a "joint position from the UN family on the global status on SDG 6 and other water-related targets." As per the report, the world is not on track to reach the Sustainable Development Goal on clean water and sanitation (SDG 6), and this surmise is based on based on the latest data available for the 11 SDG 6 global indicators. SDG 6 has eight targets, addressing: drinking water; sanitation and hygiene; water quality; water-use efficiency; integrated water resources management; water-related ecosystems; and means of implementation.

The Synthesis Report has outlined the challenges faced under each of these targets, provides charts depicting country and regional performance, discusses accelerating progress on the Goal, and provides summaries of 'key messages' on each target. The report concludes with general recommendations, including adopting **"smart technologies"** and engaging in multi-stakeholder partnerships, among other measures.

It can be discerned from this report that on drinking water (SDG target 6.1), coverage increased from 81% to 89% between 2000 and 2015, but progress among the lowest-performing countries has been insufficient to achieve universal coverage by 2030. On sanitation (SDG target 6.2), access to basic sanitation services increased from 59% to 68% over that same time period, but rural areas lag behind, and managing fecal sludge has become a challenge. The report highlights that substantial investment will be required, particularly in rapidly growing urban areas, to install sewerage networks and sanitation systems, as well as strengthen the capacity of local and national authorities to manage them.

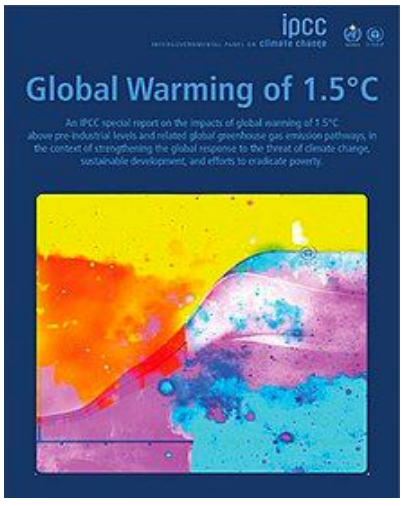
While progress monitoring on water and sanitation drew on data from at least the year 2000, when the Millennium Development Goals (MDGs) were adopted, Synthesis Report authors

observe that there has been a shorter history of collecting data on the other SDG 6 targets. On water quality and wastewater treatment (SDG target 6.3), the report notes challenges for both developed and developing countries, especially with regard to monitoring industrial pollution. Preliminary estimates suggest that, in high to middle-income countries, 59% of household wastewater flows are safely treated, while the extent of industrial pollution is unknown.

With regard to water-use efficiency (SDG target 6.4), the report finds a wide range of efficiency levels across the globe, and calls for additional indicators and data that can reflect improvements in agricultural use of water, and reduced losses in municipal distribution networks. Concurrently, on integrated water resources management (IWRM) (SDG target 6.5), the report finds that most progress towards implementation has been in the areas of cross-sectoral coordination and public participation at the national level, but levels of financing, action on gender issues and aquifer management still remain low. While reporting on water-related ecosystems (SDG target 6.6), the authors of the report note that the world lost 70% of its natural wetlands over the last 100 years. Artificial water bodies such as reservoirs and rice paddies have increased; however, data collection systems do not differentiate between artificial and natural wetlands. They call for further detailed data on water-related ecosystems and their benefits, and for complementing local data with earth observation data.

The report cites research findings with regard to implementation (SDG targets 6 a. and b.), that the capital investments necessary to reach SDG targets 6.1 and 6.2 are around three times the current levels of investment, and that investments in achieving other targets will also require a significant increase. Arguing that achieving SDG 6 is crucial for achieving the rest of the 2030 Agenda, the authors of the report also emphasize the interdependence among SDG 6 targets, noting, for example, the energy sector's role in water withdrawals, and the possibility of reducing water pollution to increase access to freshwater.

IPCC Report on Global Warming of 1.5^0 C



The closing part of the first week of October 2018 witnessed the release of the latest report of the UN's Intergovernmental Panel on Climate Change (IPCC), which formally sounded a warning signal that global warming is occurring at a faster pace than anticipated and that it could have devastating impacts if steps are not taken to cut down emissions. Even prior to the release of IPCC's report, strict warnings have been issued by the scientists from time to time that failure to halt or significantly reduce greenhouse gas emissions (GHGs) could cause irreparable loss to the Earth, society and human civilization. Critical thresholds for change are imminent owing to time lapses between the issuance of warning and the deadlines coupled with acceleration in the pace of change.

Cover of the IPCC Special Report on Global Warming of 1.5 °C

According to the IPCC report, keeping global warming below a critical limit warrants “rapid, far-reaching and unprecedented changes in all aspects of society.” Therefore, immediate action is called for. Warning by the report that global temperatures have already risen by about 1 degree could also mean that the world is already two-thirds of the way to the 1.5 C threshold set as a target by the Paris Agreement on Climate Change (PACC) accord. If the world continues its current trajectory, that level will be reached in 2030. Adverse impact of rising global warming is already discernible in terms of rising sea levels, more extreme weather, Arctic melt etc. The report also laments that even if countries honored their pledges as part of the PACC, rise in temperatures world-wide could be about 3 degrees on average by the end of the century.

The earlier belief that 1.5 C was a good target and 2 C was **“the limit,”** holds no water now, as one expert has opined that at the current juncture 2 degrees is intolerable for some parts of the world, and 1.5 degrees is the new mantra. Many experts believe that global net emissions of carbon dioxide need to fall 45 percent from 2010 levels by 2030 and reach “net zero” by mid-century if the 1.5-degree target is to be attained. However, attainment of this “possibility” would require a virtual transformation of modern societies, forcing change in energy policy, urban policy, construction and transportation; for which the IPCC reports points out the absence of any “documented historic precedent” for such a shift.

In the wake of the fact that current global carbon dioxide emissions total 40 billion tons a year, attaining the 1.5-degree target entails reductions in emissions in the ensuing decade of more than 1 billion tons per year, which according to some experts, exceeds the emissions of virtually all emitting countries. Attainment of “net zero” is not a technical problem, rather its solution requires social, economic and political considerations, which according to some experts, are well beyond the world’s current capacity. In other words, attaining the goal of net zero emissions in just four decades is seemingly a huge challenge; nevertheless, as many experts agree, it is technically possible, and at an acceptably low cost to the global economy.

Some experts are of the view that a massive increase in the role of electricity can envisage a feasible path for a low carbon economy and, eventually, net zero carbon dioxide emissions. It is argued that the share of electricity in final energy demand will have to grow from around 20 percent at current level to around 60 percent by middle to latter half of the century, and total global electricity generation will have to rise dramatically, from around 25,000 terawatt-hours at current level to as much as 100,000 TWh. It is equally significant that bulk of this energy should come from low-carbon sources, especially from renewable sources.

India is not immune to the adverse impacts of global warming, as pointed in the IPCC’s report on global warming. The report notes that in terms of impacts of global warming, the world is already witnessing the consequences of 1-degree global warming in the form of extreme weather events, rising sea levels and diminishing Arctic sea ice. Further rise in temperature entail the possibility of resulting in long-lasting or irreversible changes culminating in loss of some ecosystems. Inadequate measures in addressing the global warming cam push India among the worst hit countries that may face wrath of calamities like floods and heat waves, and reduced GDP.

According to one climate scientist, South Asia, particularly India, Pakistan and China are hotspots in a warming world. All climate projections point out that these regions will be vulnerable to multiple and overlapping hazards at even 1.5-degree rise and the consequential impacts would include intensified droughts and water stress, heat waves, habitat degradation, and reduced crop yields. It is further argued by the same scientists that, as indicated by the IPCC report, increase in global temperature up to 2-degree C instead of 1.5-degree C, entails the likelihood of impacting on economic growth or reduced GDP growth on countries like India, and those in south east Asia and Africa. There is also possibility of increasing frequency of floods of all kinds - riverine floods, those due to snow melt and coastal flooding due to sea level rise - are increasing, and are projected to increase further. Appropriate policy changes in sectors like land, energy, industry, buildings, transport and urban development are called for to limit global warming.

We at India Water Foundation have continued our efforts to disseminate the message of this IPCC report among the local communities and people throughout the period under review and have also pledged to continue such efforts in the near future as well.

Global Material Resources Outlook to 2060

The closing part of the month of November 2018 was marked by the launch of full report titled, '*Global Material Resources Outlook to 2060: Economic Drivers and Environmental Consequences*' by the OECD (Organization for Economic Co-operation and Development). Prior to that a small document containing highlights of this report was presented at the World Circular Economy Forum, held on 22-24 October 2018 in Yokohama, Japan. As per highlights of this report, the OECD expects global consumption of raw materials to nearly double in the next four decades along with projections of augmentation of demand for 61 materials and their environmental consequences at global, sector and regional levels. According to an OECD press release, non-metallic minerals such as sand and gravel currently account for more than half of the total materials consumed today by gigatonnage. Nevertheless, viewed in a broad perspective, complete decoupling of materials' use and environmental degradation from GDP growth, as targeted in SDG 8.4, reflects that only little progress has been achieved in this regard.

While taking into account the drivers of growth and demand, the report considers both primary and secondary materials, as well as the report also acknowledges the growing importance and role of the recycling sector and simultaneously also expects the sector to remain a significantly smaller industry than mining for primary materials. As per this report, population and per capita income growth will be the key drivers of increased materials use, although technology holds promise to **"partially dampen"** the increase. A notable feature of this report is the focus on environmental and social impacts emanating from primary material extraction – especially around metals such as iron, aluminum, copper, nickel, lead, zinc and manganese – including air and water pollution, climate change, energy demand, human health and toxicity of water and land. While copper and nickel have the largest environmental impact per unit, the larger

volumes of iron, steel and concrete produced lead to these three materials having the most significant absolute impact.

On linkages to the 2030 Agenda for Sustainable Development, the preview report notes that the economic and environmental variables modeled **"have a mixed effect"** on achieving the SDGs and associated targets. For example, targets on doubling agricultural productivity under SDG 2 (zero hunger) can be reached without new policies. However, absolute decoupling of materials use and environmental degradation from gross domestic product (GDP) growth, as targeted in SDG 8.4, shows only limited progress and a need for more ambitious policies. The impacts span the breadth of the SDGs, with particular significance for climate change (SDG 13), responsible consumption and production (SDG 12) and life on land (SDG 15).

Katowice Climate Change Conference (COP-24)

The 24th meeting of the Conference of the Parties (CoP-24) to the UN Framework Convention on Climate Change (UNFCCC) was convened from 2-15 December 2018 at Katowice (Poland) bringing together over 22,000 participants, including nearly 14,000 government officials, over 7,000 representatives from UN bodies and agencies, intergovernmental organizations, and civil society organizations, and 1,500 members of the media.

COP24 President Michal Kurtyka and Executive Secretary of the UN Framework Convention on Climate Change Patricia Espinosa pose with the heads of delegations after adopting the final agreement during a closing session of the COP24 UN Climate Change Conference 2018, Katowice, Poland, December 15, 2018 **(Photo Courtesy: REUTERS)**

Convening of the CoP-24 took place at such a pivotal moment when the world is faced with the increasingly devastating impacts of climate change. The participating countries to the CoP-24 were called upon to overcome long-standing disagreements and hammer out the technical details of a robust and ambitious post-2020 climate regime in the wake of the fact of the deadline of finalizing the Paris Agreement "rulebook" looming. In the wake of a vast array of changes having taken place since the conclusion of the Paris Agreement three years ago that inter alia included warnings of science on extreme weather events worldwide, mounting level of global emissions, political context shifting from multilateralism to populism and in some cases, even opposition to scientific evidence, it had started becoming evident that the transition to a zero-emissions economy is not yet fully underway. Many experts are of the opinion that despite heavy odds like political headwinds, the long-standing disagreements among countries, and the technical complexity of the task, the CoP-24 seemed delivering desired results.

Plenary meeting at COP24. *(Photo Courtesy & © Unclimatechange/Flickr [CC BY-NC-SA 2.0])*

Undoubtedly, the **'Katowice Climate Package'** adopted on 15 December 2018, has put in place a set of implementation guidelines that were considered by many to be sufficiently robust; nevertheless, some question still bother many experts: Does the Katowice Package establish the strong and stable institutional framework required to implement the Paris Agreement? And, given the signals of increasing urgency, what does this framework mean for ambition in the post-2020 era? Answers to these and other related queries can be ascertained by examining the Paris Rulebook in some detail by focusing on key parameters of success, namely: resolution of contentious political issues; delivering effective guidelines for a dynamic architecture; and building the basis for increased ambition.

The CoP-24 at Katowice accomplished its task of delivering a **'Rulebook'** for the Paris Agreement, and amid calls for greater ambition to address the climate crisis, the conference largely delivered, by producing a package that facilitate countries' efforts to implement the Paris Agreement. This While focusing on completing work on the Paris Agreement Work Programme (PAWP), this meeting also adopted the Katowice Climate Package, which includes decisions on nearly all of the issues mandated as part of the PAWP, including:

- On mitigation: further guidance in relation to nationally determined contributions (NDCs), common time frames, and modalities, work programme, and functions under the Paris Agreement of the forum on the impact of the implementation of response measures;
- On adaptation: further guidance on adaptation communication;
- On finance: identification of the information to be provided by parties in accordance with Agreement Article 9.5 (ex-ante finance transparency), matters relating to the Adaptation Fund, and setting a new collective quantified goal on finance;
- On technology: scope of and modalities for the periodic assessment of the Technology Mechanism, and the technology framework
- The modalities, procedures, and guidelines for the transparency framework for action and support;
- The global stock-take; and
- Modalities and procedures for the effective operation of the committee to facilitate implementation and promote compliance.

While welcoming the Pairs Rulebook for providing the countries with a common framework for reporting and reviewing progress towards their climate targets, some critics are critical of the new rules that fall short in one crucial area of compelling countries to up their game to the level required. Lamenting that the national pledges adopted in Paris were still sadly inadequate to meet the 1.5 degree or 2 degree global warming goals of the Paris Agreement, some critics

have drawn attention to the IPCC's special report released in early October 2018 that emphasizes on the urgent need to accelerate climate policy. Bemoaning the inability of the Katowice summit to directly asking for national climate targets to be increased, these experts aver that the final text of the summit simply reiterates the existing request in the Paris Agreement for countries to communicate and update their contributions by 2020. They pin their hopes on the forthcoming UN General Assembly summit scheduled to be held in September 2019, to bring the much-needed political momentum towards a new raft of pledges in 2020 that are actually in line with the scientific reality.

The countries represented at CoP-24, a test on climate multilateralism, did affirm their decision to submit national climate commitment by 2020 and it is now the bounden duty of these countries to begin the serious work of domestic processes to enhance ambition by 2020. Only a determined action will enable these countries to bring their commitments to the UN Secretary General's Summit in 2019 and pave way for setting a clear direction for 2020 that will contribute effectively to tackle climate change.

Undoubtedly, conclusion of the Paris Agreement on Climate Change (PACC) in 2015 has proved its resilience to global geopolitics; nonetheless, the spirit of solidarity that was manifest at the time of its signing has become discernible only sporadically since then. Some experts have pointed out that longstanding disputes over finances and technology transfer have come in the way of countries raising their GHG reduction ambition, which according to these experts, is a grave failure because the individual NDCs do not add up to the PACC's goal of keeping the global temperature below 2 degrees Celsius above pre-industrial levels. The failure becomes more pronounced in the wake of the IPCC's latest report which demonstrates that the PACC's targets are too conservative to avert 'catastrophic' climate change. Lamentably, the Paris Rulebook also fails to provide a roadmap to tackle this challenge.

India actively participated in the CoP-24 negotiations. On December 4, 2018, India circulated a paper titled "3 Essential "S" s of Climate Finance — Scope, Scale and Speed: A Reflection" on the sidelines of CoP 24, which questioned climate finance values being reported by the developed countries as having been transferred by them to developing countries. The paper also said definitions of climate change finance used in various reports by developed countries were not consistent with the provisions of United Nations Framework Convention on Climate Change (UNFCCC).

AK Mehta at a side event organised by NCSM Chennai at India Pavilion UNFCCC COP24. (Courtesy Photo: Image: Twitter/MoEF&CC)

During the critical phase of negotiations on December 12, India asserted that the PACC was 'non-negotiable' and there could be no compromise on the basic principles such as equity and Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC). India's

statement was made by AK Mehta, Additional Secretary, Ministry of Environment, Forests and Climate Change, on behalf of Environment Minister Harsh Vardhan late December 12 night.

India's statement came in the wake of a move by the developed countries, led by the US and the EU, to dilute CBDR-RC, a principle within the UNFCCC that acknowledges the different capabilities and differing responsibilities of individual countries in addressing climate change. The developed countries' move was strongly resisted by India and other developing countries, citing the historical responsibility of the developed nations in emitting carbon dioxide, contributing to global warming.

While agreeing that the PACC is non-negotiable and that the delicate balance reached between developed and developing countries must be retained, India also insisted that the outcome of the Katowice COP-24 should be inclusive, consensus based and an integrated package, including all the components of the Paris Agreement Work Programme, to reflect the global consensus reached at Paris in 2015. India's statement further added: "Most importantly, we must stand with the poor, marginalized and vulnerable communities who would be most impacted by climate change to show that 'WE CARE'". While emphasizing that it was time to focus on finding common grounds and supporting each other, based on the principles of equity and climate justice, so that "no one is left behind", India's statement also noted: "It is important to ensure equitable access to global commons for all. The Paris Agreement signifies progress towards enhanced implementation of the Convention. While we do so, we have to maintain continuity in action by fulfilling pre-2020 commitments."

Reiterating India's stand to continue to take stock of pre-2020 action and ambition next year as well, the statement said:"We expect that developed countries shall honour their pre-2020 commitments so that no undue burden is shifted to the post-2020 period. We also look forward to see the Doha Amendment coming into force as soon as possible," Taking note of the fact that the vulnerable populations are the worst hit by extreme weather events due to a lack of resources to cope with them, India's statement added that the IPCC's latest report on global warming "enjoins upon us to collectively address the issues of climate change with the urgency that it deserves."

While taking part at the crucial stage of negotiations on the Rulebook for Paris Agreement on December 12, India's lead negotiator Ravi Shankar Prasad said: "India wishes to express its strong reservation regarding the treatment of equity in the global stock-take decision. Equity is specifically mentioned in Article 14 of the Paris Agreement. It is the basic principle of the UN Framework Convention on Climate Change and the Paris Agreement along with the common but differentiated responsibilities." Cautioning that the entire global stock-take exercise would be lopsided if the process, input, the technical assessment and output of the global stock-take did not fully address equity.

At this juncture of the Conference, India mooted following major points in reiteration of its commitment to the Paris Agreement on Climate Change (PACC):

1. "We all agree that the Paris Agreement is non-negotiable. Therefore, the delicate balance reached between developed and developing countries must be retained, and the principles such as equity and Common but Differentiated Responsibility and Respective Capabilities must be given its due," India said at the ministerial session of the conference.

2. It said the outcome at Katowice should be inclusive, consensus based and an integrated package, including all the components of the Paris Agreement Work Programme, to reflect the global consensus reached three years ago on this very day while adopting the Paris Agreement.

3. "Most importantly, we must stand with the poor, marginalized and vulnerable communities who would be most impacted by climate change to show that 'WE CARE'," India said in its statement.

4. It added that it was time we focused on finding common grounds and supporting each other, based on the principles of equity and climate justice, so that "no one is left behind".

5. "It is important to ensure equitable access to global commons for all. The Paris Agreement signifies progress towards enhanced implementation of the Convention. While we do so, we have to maintain continuity in action by fulfilling pre-2020 commitments."

6. "While we continue to take stock of pre-2020 action and ambition next year as well, we expect that developed countries shall honour their pre-2020 commitments so that no undue burden is shifted to the post-2020 period. We also look forward to see the Doha Amendment coming into force as soon as possible," said the statement.

7. "The vulnerable populations are the worst hit by extreme weather events due to a lack of resources to cope with them. The report enjoins upon us to collectively address the issues of climate change with the urgency that it deserves," India said, days after the UN scientific report was blocked by countries, including the US, Saudi Arabia, Russia and Kuwait, at the ongoing climate conference.

While supporting the adoption of the Paris Rulebook at the CoP-24, India had expressed its reservations over the lack of equity in the rules pertaining to global stock-taking in implementing the PACC. Alluding to the specific mention of equity in Article 14 of the PACC, which is the basic principle of the UNFCCC and the PACC, along with the common but differentiated responsibilities, India cautioned that the entire global stock-taking exercise would be lopsided if the process, input the technical assessment and output of the global stock-take didn't fully address the principle of equity which envisages that the vulnerabilities, problems and challenges of the poor and marginalized were not prioritized to ensure climate justice.

Global Environment Outlook 2019 (GEO-6)

The United Nation Environment Program has released the sixth edition of the Global Environment Outlook titled 'Healthy Planet, Healthy People'. The report comes at a critical time for global development and it will build on the knowledge and experience gained from previous GEOs. The United Nation Environment Program (UNEP) has released the sixth edition of the Global Environment Outlook (2019) titled 'Healthy Planet, Healthy People'.

The report calls on the decision makers to take immediate action to address pressing environmental issues to achieve the Sustainable Development Goals as well as other internationally agreed environment goals, such as the Paris Agreement.

The report comes at a critical time for global development and it will build on the knowledge and experience gained from previous GEOs. The GEO-6 builds on previous GEO reports and continues to provide an analysis of the state of the global environment, the global, regional and national policy response as well as the outlook for the foreseeable future.

It differs from previous GEO reports in its emphasis on Sustainable Development Goals and in providing possible means of accelerating achievement of these goals.

The salient messages emerging from this report are as follow:

1. A healthy planet supports healthy people: The report emphasises on how a healthy planet is important for the health and well-being of all people. It directly supports the lives and livelihoods of 70 per cent of the Earth's population living in poverty and provides the basis for the production of the goods and services that are necessary for the global formal economy, which had a global GDP value of $US 75 trillion in 2017.

2. Unhealthy planet leads to unhealthy people: The report revealed how the planet is becoming increasingly unhealthy through the negative impacts of biodiversity loss including pollinators, coral reefs and mangroves, climate change and other air pollution, water pollution, ocean pollution and depletion, and land use change. An unhealthy planet has huge social costs in terms of human health and well-being as well as on the formal economy and livelihoods worldwide. In 2016, 24.2 million people were internally displaced in 118 countries as a result of sudden-onset disasters. Such disasters affected not just the poor countries, but also rich countries like the USA and Japan. Between 1995 and 2015, around 700,000 people have reportedly died and 1.7 billion people were affected by extreme weather events.

3. Drivers, pressures leading to unhealthy planet need to be addressed: The drivers and pressures result from a continuing failure to intern alise environmental and health impacts into economic growth processes, technologies and city design. The pressures arise from massive use of chemicals, huge waste streams committed and intensifying climate change impacts and inequality which contributes to demographic changes and other drivers and pressures. The environmental footprint of rich people is significantly higher than that of poorer people. For example, the monthly emissions per capita in rich

countries are mostly higher than the yearly emissions per capita in poorer countries. The wealthiest countries were reported to consume 10 times the materials per person compared to the poorest countries.

4. More detailed knowledge required for refined and preemptive policy: The report states that the existing knowledge is sufficient to mobilise action now. However, new knowledge including disaggregated data from earth observation, in-situ data, citizen science, ground truthing and indigenous and local knowledge is necessary in national policy and accounting more broadly.

5. Environmental policy is necessary but inadequate by itself: The report reveals that the current national policies are not on track to address the key environmental challenges effectively and equitably, in line with the aspirations of the SDGs. It further states that climate mitigation needs to be accompanied by policy for the equitable adaptation to committed climate change. Policies will only be effective if they are well designed, involving clear goals and flexible mixes of policy, including monitoring, instruments aimed at achieving them.

6. Healthy people, a healthy planet and a healthy economy can be mutually supportive: The report states that healthy diets and lifestyles, healthy cities with good waste management and the use of green infrastructure in built-up areas, and healthy mobility can increase labour productivity, reduce the need for land for agriculture and reduce the costs associated with urban congestion and transport-related pollution.

It states that the technological and social innovation that supports environmentally sound economic development provides a viable and attractive alternative to the 'grow now, clean up later' practices of the past. In addition, a healthy people approach requires the implementation of the rights of access to clean water and food, tenure rights, and gender equality. The report recommends that securing tenure rights for poor and indigenous people would enhance their ability to protect biodiversity and the different ecosystems that sustain them. It further states that if gender equality is promoted, including the right to inherit and own land, then food security and many health issues relating especially to women and children could be better addressed.

What is the Outlook for humanity? This sixth Global Environment Outlook (GEO-6) shows clearly that our species now stand at a crossroads. It can choose a challenging but navigable path towards a new golden age of sustainable development as envisaged by the United Nations' Agenda 2030 in which human hunger and poverty are consigned to history through the sustainable use of Earth's resources and the natural environment that leaves no-one behind. Or it can continue with current trends and practices, which will lead to a losing struggle against environmental disruptions, which threaten to overwhelm large parts of the world.

GEO-6 clearly identifies the problems that have to be addressed if this latter outcome is to be avoided. But it also points to the solutions to these problems, to ways in which the aspirations of the Sustainable Development Goals (SDGs) can be realised and Earth's air, biodiversity,

oceans, land and freshwater restored to health, to the incalculable benefit of Earth's people: Healthy Planet, Healthy People, the title of GEO-6.

GEO-6 makes clear that achieving the SDGs will require a transformation in human lifestyles and productive activities: our industry, agriculture, buildings, transport and the energy system which powers them. This necessary transformation over the coming decades represents an enormous economic opportunity to those countries, policy makers and businesses who show the enterprise and innovative spirit to put in place the technologies, social practices and institutions that can make sustainable development a reality.

Developments in India

India's stature as the second most populated nation along with the fifth largest economy makes it not only a leading player in the international comity of nations but also a huge market as well. The growing population, industrial and economic activity along with increasing urbanization impact water and climate sectors in a big way and as such India is domestically also confronted with a vast array of issues being impacted by the vagaries originating from water-related and environment-induced activities. Therefore, it is imperative that global and regional negotiations on water and climate sectors cannot afford to ignore India as well as India can ill-afford to neglect such negotiations. This makes inevitable for India not only to adhere to appropriate measures at the domestic level; nevertheless, also actively participate in international negotiations pertaining to water and climate change. During the period under review, some momentous developments took place in India – release of the report on India's Composite Water management Index 2018 (CWMI), Observance of World Environment Day (5 June 2018), Conferring of Champions of Earth award on Prime Minister of India (3 October 2018), release of the report on Strategy for New India @ 75 in November 2018, and launching of the National Clean Air Programme (NCAP) on 10 January 2019 etc., which had directly or indirectly impacted the policy-making and decision-making processes during 2018-19.

India's Composite Water Management Index (CWMI) 2018

The Composite Water Management Index (CWMI) released by Niti Aayog in June 2018, projects that water-stressed population is likely to double by 2030 from the current 600 million, when 40 per cent population will have no access to drinking water, eventually contributing to a cumulative loss of 6 per cent to the country's GDP by 2050. The report projects the water demand to be 1,498 billion cubic meter (BCM) in 2030 against an expected supply of only 744 BCM — a little less than 50 per cent. In presenting a scary future, the CWMI inadvertently indicts both the Central and state governments for their failure to meet the growing inter-sectoral water demand.

The indictment is justified, given the fact that the total water endowment of 4,000 BCM in the country far exceeds the maximum utilisable potential of 1,137 BCM. While agreeing that there is a hydrological limit to tapping natural endowment, as rainfall has other essential ecosystem functions to perform, how is it that the projected supply of 744 BCM in 2030 remains short of the

maximum utilisable potential of 1,137 BCM? Clearly, this is a serious gap in the narrative that can turn the story differently.

The CWMI, however, has acknowledged that 'data drought' plagues the sector as data on water exists in silos; is seriously limited by coverage, robustness and reliability; and that there is very little inter-state or Centre-state data-sharing. One can only marvel at the wisdom of the Niti Aayog to still create a framework for tracking state-wise progress on programme implementation and achievement in water supply and distribution for encouraging competitive and cooperative federalism without tackling 'data drought' head on!

The CWMI is designed to measure state-wise progress on water supply and distribution against nine programmatic indicators, seven of which are supply driven. That 75 per cent of the households do not have drinking water; 84 per cent do not have piped water access; and 70 per cent of our water is contaminated are a clear manifestation of distribution and management failure. It must, however, be clear that infrastructure failure to distribute water while avoiding losses to the systems has been erroneously equated with water stress, sending the alarm bells ringing.

The Index was developed in close collaboration with multiple national and state stakeholders and involved a robust data validation process. The Index uses water data from both central and state sources. The data was collected for two years—the base year of FY 15-16, and FY 16-17—thereby enabling not only a benchmarking of the current water performance of states, but also the study of the evolution of this performance across the last two years. States were required to fill out the necessary data on a public NITI Aayog portal. This data provision involved a massive data compilation exercise across 24 states in the country, including a complex process of liaising between multiple agencies and departments within a state itself. Data for several indicators—covering groundwater restoration, irrigation management, on-farm water use, rural and urban drinking water supply, water policy frameworks, and other areas—was triangulated and compiled for the first time in the country's history and involved contributions across all levels—from union and state water ministers to department engineers and local authorities.

The coordination exercise was led by NITI Aayog, Water Resource Vertical. The collected data was then reviewed and verified by an Independent Validation Agency (IVA)—IPE Global. The IVA liaised with relevant state departments to verify and update the data included in the CWMI. They also requested and received supporting documents against each indicator included in the Index from State Nodal Officers (SNOs). The IVA also conducted field visits across six states to ensure a robust validation process. Finally, the observations and results were shared with the states' nodal officers post the review exercise. Additionally, the Senior Officers at NITI Aayog also facilitated a disclosure conference covering all 29 states and 7 UTs. During these conferences, the IVA presented the validation results, data gaps and discrepancies, validation decisions, and indicator-wise comparative analysis of initial results.

Our water experts and volunteer Jalmitras at India Water Foundation have kept the thematic substance of this report of water index and suggestions thereof in view while imparting training programmes in capacity enhancement and outreach programmes in water sector from time to time.

World Environment Day

For the 43rd edition of the World Environment Day — an event observed by the United Nations on 5 June every year to encourage worldwide awareness for protection of the environment — India is the global host for official celebrations to take place. The United Nations has set this year's theme as “Beat Plastic Pollution”, which, as mentioned on its official website, is a "call to action for all of us to come together to combat one of the great environmental challenges of our time".

According to the United Nations, the theme is an invitation to all to consider the changes that can be made in everyday lives to reduce the "heavy burden of plastic pollution". In his message, United Nations Secretary-General Antonio Guterres said that the message is simple: "Reject single-use plastic. Refuse what you can’t re-use."

In his latest edition of ‘Mann Ki Baat' radio programme, Modi had underlined that India being named the official host of the World Environment Day celebrations was a recognition of the country's growing leadership in tackling climate change issues. He had also urged people to shun plastic to protect environment.

The Union environment minister Harsh Vardhan unveiled the first non-plastic bound copy of the *National Geographic* magazine. To go with 2018's theme, the plastic wrapping of the magazine in India, UK and the US editions has been eliminated from June onwards."There are diverse environmental hazards associated with the plastic waste and there are growing concerns about its effects on entire ecosystem. Therefore, how to reduce the use of plastic and its by-products is one area which needs to be addressed," Harsh Vardhan had said. India produces about 25,000 tonnes of plastic waste every year. According to the Vardhan, only 60 percent of this gets recycled.

Ahead of the official unveiling of the magazine, a senior editor at the National Geographic had shared the June 2018 cover featuring a plastic bag resembling an iceberg floating in an ocean. The cover was widely praised on social media, with many describing it as "genius" and "powerful".

World Environment Day is marked every year on 5 June as by the United Nations General Assembly to commemorate the opening of the Stockholm Conference on Human Development. Annual celebrations of World Environment Day began in 1974. As part of the celebrations, several workshops and thematic sessions on various issues had begun in New Delhi days ahead of the World Environment Day. The environment ministry had said the pan-India events include cleanliness campaigns by state governments, cleaning of 24 beaches and 24 rivers in 19 states, making national parks and sanctuaries plastic free, media as well as social media campaigns and organising **"Envithon"** mini-marathons in five other cities, besides Delhi.

India hosted this year's World Environment Day on the theme, "Beat Plastic Pollution" on June 5, which is a day marked by the United Nations to celebrate and create awareness about the global environment. Globally, the event marked the confluence of all member nations coming together to pledge for a plastic bag, and combat single-use plastic pollution, with India setting an example by leading plastic clean-up drives on a national scale. To that end, the Indian Railways Catering and Tourism Corporation (IRCTC) announced that it will join hands with the agrarian sector and introduce biodegradable cutlery on trains. The idea is to recycle bagasse, the fibrous by-product after extracting the juice from sugarcane, into disposable cutlery and containers to serve meals to commuters, replacing the plastic packaging which was in use until now. As a small gesture to commemorate World Environment Day, the IRCTC initiated the service on eight Shatabdi and Rajdhani trains from June 5, 2018.

From the perspective of India Water Foundation, comprehensive steps such as this reaffirm India's commitment to creating a cleaner and more sustainable planet. India which is regularly ranked as one of the most polluted countries in the world has a collective responsibility to combat the issue especially at a time when tonnes of plastic waste is being dumped every minute into the oceans. Plastic which is non-biodegradable, not only proves to be hazardous for human health but adversely affects wildlife and ecology to an irreparable extent. Indian Railways' eco-friendly initiative ought to be implemented across all sectors which use plastic extensively, with proper measures in place to replace it with eco-friendly alternatives.

Champions of Earth award for Prime Minister of India

Shri Narendra Modi, Hon'ble Prime Minister of India was conferred upon Champions of Earth award by the United Nations Environment (UNEP) on 3 October 2018 at New Delhi in recognition of his leadership in the fight against plastic pollution in India, and his unwavering commitment to tackling climate change around the world. Joining the celebrations along with the rest of the nation, India Water Foundation sent a communication of felicitations to the Hon'ble Prime Minister for this award. On 8 October 2018, IWF in a communication addressed to the UN Secretary General, expressed gratitude of the

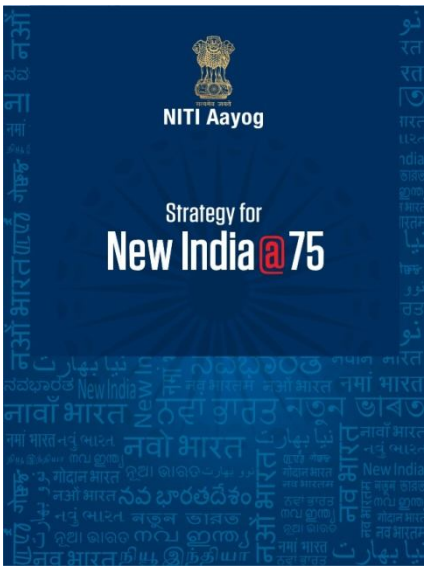
IWF for conferring this award on the Prime Minister of India. While endorsing UN Secretary-General's laudatory observations about Prime Minister Modi, IWF communication reiterated its determination to do utmost to help attain the SDGs and the salient objectives of the Paris Agreement on Climate Change.

In another communication addressed to the then Executive-Director of the UNEP on 8 October 2018, IWF conveyed its gratitude to the UNEP for conferring Champion of Earth award for 2018 on Prime Minister Shri Narendra Modi in recognition of his leadership in the fight against plastic pollution in India, and his unwavering commitment to tackling climate change around the world. The communication also reiterated commitment of the IWF in straining every nerve to help attain the SDGs and the salient objectives of the Paris Agreement on Climate Change.

Dr Arvind Kumar present at the function where Prime Minister Sh. Narendra Modi was conferred the Champions of the Earth Award 2018 by the UN Secretary General Antonio Guterres at the Pravasi Bharatiya Kendra, New Delhi, on 3 October 2018.

Strategy for New India @ 75

In November 2018, Niti Aayog, released document entitled *Strategy for New India @ 75,* envisaging the ambitious goal of transforming India to a $4-trillion economy by 2022-23 when India would celebrate the 75th year of its independence. The objectives to be pursued to attain that goal inter alia include: GDP growth rate of 8 per cent during 2018-23, doubling the current growth rate in the manufacturing sector, doubling farmers' income, raising government spending on education to 6 per cent of GDP (against the current about 3 per cent), enhancing public funding on health to at least 2.5 per cent of GDP (currently just over 1 per cent) and augmenting expenditure in R&D to 2 per cent of GDP (with equal participation from private and public sectors). All these are laudable objectives.



While appreciating all these objectives as designed to catapult India on the trajectory of growth, we at India Water Foundation, are more concerned with the goals in water and environment sectors because these are very akin to the mandate of IWF. With regard to water resources, the document envisages that by 2022-23, India's water resources management strategy should facilitate water security to ensure adequate availability of water for life, agriculture, economic

development, ecology and environment. It suggests some sectoral goals to achieve this broader vision. As per document, the available utilizable water resource potential is 1137 bcm, comprising 690 bcm of surface water and 447 bcm of ground water, it laments at the availability of per capita annual water availability in the country that has decreased from 1816 cubic metres (cu m) in 2001 to 1544 cu m in 2011. And this indicates that India is currently a water-stressed country as per Falkenmark Index.

Niti Aayog document alludes to constraints confronting water sector in India that include: huge gap between irrigation potential created and the irrigation potential utilized; inefficient use of water, particularly in agriculture; depletion of groundwater resources due to inappropriate extraction; inadequate arrangements for piped water supply in rural and urban households, and increasing contamination of groundwater sources etc. Sectoral goals with regard to water, as envisaged in this document, inter alia include:

Providing adequate piped water supply in rural and urban households and water for sanitation for citizens and livestock; providing irrigation to all farms; providing water to industries, encourage industries to utilize recycled/treated water and ensure zero discharge of untreated effluents from industrial units; ensuring Aviral and Nirmal Dhara in the Ganga and other rivers along with their tributaries; creating additional water storage capacity to ensure full utilization of the utilizable surface water resources potential of 690 billion cubic metres (bcm);ensuring long-term sustainability of finite groundwater resources; ensuring proper operation and maintenance of water infrastructure with active participation of farmers/consumers; and Promoting R&D to facilitate adoption of the latest technologies in the water sector.

With regard to sustainable environment, the Niti Aayog document, while dwelling on the prevalent situation in the country, lamented at the deteriorating levels of water pollution and air pollution, cited the findings of the Central Pollution Control Board (CPCB) that have identified 302 polluted river stretches on 275 rivers and noted that the government was aware of this challenge and had launched National Mission for Clean Ganga to address this concern. The total polluted riverine length is 12,363 km. While referring to Indian cities facing a high risk of air pollution, the document observed that the rise in air pollution could be attributed to rapid industrialization, high urbanization, increased use of vehicles, uncontrolled burning of crop residue and emissions from coal power plants and brick kilns, etc.

Pointing to the critical role of forests in achieving sustainable environmental management, the Niti Aayog document alluded to the release of the new National Forest Policy in March 2018 by the Union Ministry of Environment, Forest and Climate Change, with the remarks that the new National Forest Policy seeks to increase the sustainability of forest management in India. Stating that currently forest and tree cover occupies about one-fourth of the total geographical area in the country, the new forest policy aims to increase this share to 33.3 per cent.

Explaining its objective of maintaining a clean, green and healthy environment with peoples' participation to support higher and inclusive economic growth through sustainable utilization of available natural resources, the 2022-23 goals as envisaged in the Niti Aayog document, inter

alia include:(A) Under Air Pollution – bringing down PM2.5 levels in Indian cities to less than 50; creating 175 GW of renewable energy generation capacity; eliminating crop residue burning; and ensuring the coverage of all households with LPG for cooking. (B) Under Solid Waste Management – implementing effectively the Solid Waste Management Rules, 2016. (C) Under Water Pollution – encouraging industries to utilize recycled/ treated water to the extent possible and ensuring zero discharge of untreated effluents from industrial units; ensuring Aviral and Nirmal Dhara in the Ganga, Yamuna, and other rivers. (D) Under Forestry – increasing the forest cover to 33.3 per cent of the geographical area, as envisaged in the National Forest Policy, 1988; improving the quality of existing forests; and encouraging Farm Forestry.

We at India Water Foundation have taken a concerted note of the goals envisaged in Niti Aayog's document, especially in water and environment sectors and we are according priorities to these goals in our on-field activities.

National Clean Air Programme (NCAP)

Air pollution is one of the biggest global environmental challenges of today. A time bound national level strategy for pan India implementation to tackle the increasing air pollution problem across the country in a comprehensive manner in the form of National Clean Air Programme (NCAP) was launched on 10 January 2019 by Union Minister of Environment, Forest and Climate Change, Dr. Harsh Vardhan in New Delhi.

"Collaborative and participatory approach involving relevant Central Ministries, State Governments, local bodies and other Stakeholders with focus on all sources of pollution forms the crux of the Programme." said the Union Environment Minister. Dr Harsh Vardhan further informed that taking into account the available international experiences and national studies, the tentative national level target of 20%–30% reduction of PM2.5 and PM10 concentration by 2024 is proposed under the NCAP taking 2017 as the base year for the comparison of concentration. "Overall objective of the NCAP is comprehensive mitigation actions for prevention, control and abatement of air pollution besides augmenting the air quality monitoring network across the country and strengthening the awareness and capacity building activities." the minister further added.

CEO NITI Aayog, Shri Amitabh Kant who was also present at the launch said that NCAP is a path breaking initiative and one of the most critical and most significant programme as it addresses one of the most alarming challenges of urbanization i.e. air pollution. "Today cities occupy just 3% of the land, but contribute to 82% of GDP and responsible for 78% of Carbon dioxide emissions; cities though are engines of growth and equity but they have to be sustainable and it is in this context that NCAP being a very inclusive program holds special relevance." said Shri Kant.

The NCAP will be a mid-term, five-year action plan with 2019 as the first year. However, the international experiences and national studies indicate that significant outcome in terms of air pollution initiatives are visible only in the long-term, and hence the programme may be further

extended to a longer time horizon after a mid-term review of the outcomes. The approach for NCAP includes collaborative, multi-scale and cross-sectoral coordination between the relevant central ministries, state governments and local bodies. Dovetailing of the existing policies and programmes including the National Action Plan on Climate Change (NAPCC) and other initiatives of Government of India in reference to climate change will be done while execution of NCAP.

There will be use of the Smart Cities program to launch the NCAP in the 43 smart cities falling in the list of the 102 nonattainment cities. The NCAP is envisaged to be dynamic and will continue to evolve based on the additional scientific and technical information as they emerge. The NCAP will be institutionalized by respective ministries and will be organized through inter-sectoral groups, which include, Ministry of Road Transport and Highway, Ministry of Petroleum and Natural Gas, Ministry of New and Renewable Energy, Ministry of Heavy Industry, Ministry of Housing and Urban Affairs, Ministry of Agriculture, Ministry of Health, NITI Aayog, CPCB, experts from the industry, academia, and civil society. The program will partner with multilateral and bilateral international organizations, and philanthropic foundations and leading technical institutions to achieve its outcomes.

City specific action plans are being formulated for 102 non-attainment cities identified for implementing mitigation actions under NCAP. Cities have already prepared action plans in consultation with CPCB. Institutional Framework at Centre and State Level comprising of Apex Committee at the Ministry of Environment Forest and Climate Change in the Centre and at Chief Secretary Level in the States are to be constituted.

In addition, sectoral working groups, national level Project Monitoring Unit, Project Implementation Unit, state level project monitoring unit, city level review committee under the Municipal Commissioner and DM level Committee in the Districts are to be constituted under NCAP for effective implementation and success of the Programme.

Other features of NCAP include, increasing number of monitoring stations in the country including rural monitoring stations, technology support, emphasis on awareness and capacity building initiatives, setting up of certification agencies for monitoring equipment, source apportionment studies, emphasis on enforcement, specific sectoral interventions etc.

The launch ceremony was attended by more than 150 participants representing central and state governments, industries, national & international organizations, Universities and research institutes from across the country. India Water Foundation participated in this event and interacted with other participants for exchange of views and best practices.

Major Activities of IWF

Major activities undertaken by India Water Foundation during 2018-2019 primarily focused on most important themes of water and climate change as well as SDGs, which *inter alia*, included: fostering synergies between IWF and concerned organizations like World Water Council, UN Environment Assembly UNEA), IGNOU, World bank, SIWI's World Water Week programme etc. This fostering of synergy was designed to exchange and sharing of views on water-related and environment-related issues, imbibe new ideas and practices that could be useful for us at India Water Foundation in managing water resources, climate change, meeting water shortages, enabling us to tackle water scarcity, prove helpful in getting integrated SDGs into development policies at provincial and national levels and engendering awareness among school children about the hazards of climate change.

Water Sector

Dr. Arvind Kumar on official invitation attended as a panelist the High level Ministerial Plenary Session 2: The 3Rs and Clean Water - The Role of the Circular Economy in Reducing Water Pollution of the High Level Eight regional 3R Forum in Asia and the Pacific, 9-12 April 2018, Brilliant Convention Centre, Indore, Madhya Pradesh, India, co-organized by Ministry of Housing and Urban Affairs (MoHUA), GOI, Ministry of the Environment of the Government of Japan (MoEJ), and the United Nation Centre for Regional Development (UNCRD) of the Division for Sustainable Development (DSD)/ UNDESA.

Synergy with BSF

With a view to foster synergy between IWF and Border Security Force (BSF) in water related issues, IWF forwarded a communication to the BSF Headquarter in New Delhi suggestion fostering of synergy between BSF and IWF in water related issues in remote border areas as part of the welfare measures being addressed by the BSF through Border Area Development Programme (BADP) and Civil Action Programme (CAP). IWF suggestions included capacity building and training programmes for the designated BSF personnel, local community members of the selected areas where water problems were acute. It suggested J&K Frontier along with Rajasthan and Gujarat to be visited by the experts of the IWF during 2018 to start with. Nevertheless, negotiations in this regard are still in progress.

Synergy with World Water Council

The World Water Council (WWC), an international multi-stakeholder organization, aims at promoting awareness, build political commitment and trigger action on critical water issues at all levels, including the highest decision-making level, to facilitate the efficient conservation, protection, development, planning, management and use of water in all its dimensions on an environmentally sustainable basis for the benefit of all life on earth. The Council focuses on the political dimensions of water security, adaptation and sustainability. The World Water Council brings together a diversity of organizations mobilized to advance the water cause by involvingUN agencies, the World Bank, governments, NGOs, public and private companies, and

universities. Through their experience and know-how, the Council's main mission is to provide practical responses to the global water crisis.

India Water Foundation has been yearning to be associated with the activities of the WWC and IWF president had been looking for such an opportune occasion and accordingly IWF became a member of the WWC in 2018. At the outset of the second week of November 2018, When a WWC team led by WWC president, Mr. Loic Fouchon and his colleague Mr. Kevin Chretien visited New Delhi, they also visited IWF's New Delhi office on 10 November 2018 and had meeting with IWF President Dr Arvind Kumar and other members of IWF. During his parleys with the WWC team members, Dr Kumar discussed the challenges and possible prospects in water sector along with identification of avenues of future synergy between IWF and WWC.

Dr Arvind Kumar as a member of WWC discussed the challenges and possible prospects in water sector with Mr. Loic Fouchon President World Water Council while identifying avenues for future synergy. Subsequently, Dr Arvind Kumar was elected with a resounding majority as Governor on the Board of Governors of World Water Council for the year 2019-2021, from the entire South Asia region, during the 8th General Assembly of the World Water Council at the World Trade Center in Marseille (France), held on 30 November – 1 December 2018.

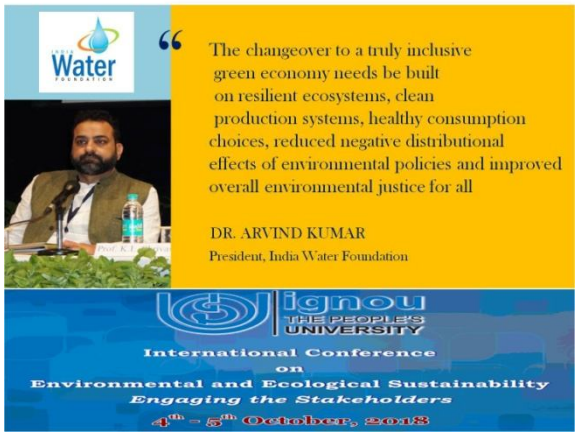
In the ensuing years, IWF is likely to witness the opportunity to oversee the implementation of the Council's triennial strategy, building further on the work achieved over the previous three years. The new strategy shall emphasize on water security, sustainability and resilience, while seeking ways to strengthen relationships between Council members. The Board will also support Council's preparation of the 9th edition of the World Water Forum to be held in Senegal in 2021.

Climate Change Sector

Synergy with World Bank

IWF was represented by its president at the launch of Technical workshop, Enabling the Business of Agriculture (EBA) organized by World Bank group on 5th April 2018, The Claridge Hotel, New Delhi. Subsequently, IWF president Dr Arvind Kumar contributed a brief write-up for the ICID News published in the second quarter of 2018 from New Delhi, wherein he described about World Bank's project, Enabling the Business of Agriculture (EBA) aiming at making agriculture as a driver of growth and a tool to alleviate poverty, the investments and performance of key players across agricultural value chains, i.e., from farmers to large and small agricultural businesses. According to the World Bank, by providing key data on regulatory frameworks that are globally comparable and actionable, EBA strengthens the information base that can be used for policy dialogue and reform. As per the World Bank, EBA seeks to improve knowledge and understanding of this business environment, which can help governments to establish appropriate regulatory systems that ensure the safety and quality of agricultural goods and services without being overly costly or burdensome on market actors. Exploring the scope of EBA in the India context, Dr Kumar lamented that small and marginal farmers face the dual plight of affordability and difficulty of adopting modern techniques of irrigation and crop production on small plots. Thus, burdened by indebtedness due to successive crop failures and low yields, more smallholder-centric reforms in the agriculture sector are needed before the EBA model could be widely applied in India.

Synergy with IGNOU



An International Conference on Environmental and Ecological Sustainability: Engaging the Stakeholders was organized by Indira Gandhi National Open University (IGNOU) on 4-5 October, 2018. IWF was represented by its President Dr Arvind Kumar, who addressed the plenary session of the conference as a key note speaker on the theme of environment and sustainability. While describing environment as a somewhat debate notion, Dr Kumar opined that the reliance cold be placed on the broad definition provided by UNEP according to which 'environment' includes a biotic and biotic components, including air, water, soil, flora, fauna and the ecosystem formed by their interaction' and might even include 'cultural heritage, features of the landscape and environmental amenity', but it excludes private property.

Having dealt with the definitional aspects of the notion of sustainability, Dr Kumar in his address referred to the development of sustainability policies over the past decades that have been

percolating from the global to the local level of governance. While tracing the development of the notion of sustainability from the 1970s to the enunciation and elaboration of the concept of sustainable development by WCED and then to the Millennium Development Goals (MDGs) and to the 2030 Agenda that deal with Sustainable Development Goals (SDGs), Dr Kumar averred that the debate on sustainability and sustainable development is still an on-going process that could be discerned from the scholarly and academic quest of environmental understanding becoming more realistic, more thorough, and more in sync with the ways in which nature, human society, economics and environment are linked. Lamenting that implementation of sustainability policies has contributed to the failure to arrest the overall decline in environmental quality, Dr Kumar in his concluding remarks further added that the reasons for this failure could be attributed to a complex set of interrelated structural causes, implementation traps and knowledge/scoping issues.

Participation in FMEAAP

The third meeting of the Forum of Ministers and Environment Authorities of the Asia Pacific (FMEAAP) was held on 24-25 January 2019 at Singapore and it was jointly organized by Singapore's Ministry of the Environment and Water Resources and the United Nations Environment Programme, Asia and the Pacific Office. This also served as a platform to contribute regional perspectives to UNEA-4 that was held in March 2019 in Nairobi, Kenya. It carried the theme 'Innovative Solutions for Environmental Challenges and Sustainable Consumption and Production'.

The Major Group and Stakeholders Forum Enabled the delegates & stakeholders to prepare their collective views and positions on the environmental issues, Ensure the representation be adequate and fair and Deliberate on innovative solutions to those environmental challenges.

Welcoming the outcomes of the theme helped building synergies between different groups. Effective people's participation in environmental governance while simultaneously emphasizing the need to mainstream biodiversity across sectors was the most discussed agenda. Further,

Sustainable Consumption and Production plans and strategies must recognize and reflect indigenous and marginalized people's views. Campaigns and awareness essential to change behaviors and lifestyles, catalyzing National roadmaps to address plastics and plastics waste were also stressed. An indirect reference to India's **'Swachh Bharat Mission'** effective in segregating and recycling waste and substitution mechanisms to replace plastics like biodegradable plastic bags or promoting organic agriculture was well acknowledged. However, Green finance was prominently stressed to support strategies for SDGs 12. This was necessitated to raise money for low carbon societies and influencing the behavior of companies to adopt more sustainable business practices.

India Water Foundation was represented by its president Dr Arvind Kumar and in his brief intervention in the session on 'Innovative Solutions for Environmental Challenges and Sustainable Consumption and Production (SDG 12)', Dr Kumar emphasized that the underlying idea of transiting towards Sustainable Production and Consumption is for instance envisaging efficient resource utilization, curb wastage of natural capital and promotion of green development. He further added that moving towards SDG-12 required an understanding of **'Circular Approach'** that entails the concept of **6Rs- Reuse, Recycle, Reduce, Refuse, Repair and Rethink** of resources. This allows resources to self-generate (like water, clean air or energy) and move in a sustainable way to avoid depletion. The production and consumption pattern must be intertwined between social, human and natural capital to help conserve the natural resources and reverse the ill-effects of environmental degradation.

Referring to India's role in realizing SDG-12, Dr Kumar noted that the country was promoting resource and energy efficiency, sustainable infrastructure, and providing access to basic services, green and decent jobs and a better quality of life for all. Referring to India formal ratification of the historic Paris Agreement on Climate Change (PACC) on 2 October 2016, Dr Kumar added that the National Policy on Biofuels and the National Action Plan on Climate Change (8 missions) are some of the Indian government's flagship schemes aimed at achieving responsible and sustainable consumption and production by the efficient use and management of natural resources.

Describing **"Resource Efficiency"** as a broad interpretation to solve the challenges posed by sustainable consumption and production by engaging concepts of green economy integrated into national development and strategy frameworks; Dr Kumar emphasized on the need for supporting developing countries by strengthening their scientific and technological capacity and moving towards more sustainable patterns of consumption and production by rationalizing inefficient fossil-fuel subsidies and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries. In his concluding remarks, Dr Kumar added that it was essential to adopt a broad, trans-disciplinary perspective among the stakeholders to bring visible impacts at the local level. With a proper sustainable policy framework to curb the excess consumption and production, there was a need to make collaborative efforts to make a visible impact and envisage a 'Responsible Production and Consumption' for the near future. He called upon the participants to **"take a pledge towards Zero Waste"**.

Synergy with SIWI's World Water Week

India Water Foundation has been synergizing with SIWI's World Water Week programme for past some years. At the World Water Week 2015, IWF made a presentation and since then it is regularly invited to participate in this momentous annual event. World Water Week in Stockholm is a week-long global water conference held each year in late August or early September. The event known as World Water Week, is organized and led by the Stockholm International Water Institute (SIWI). Events and conference sessions address A wide range of global water issues, especially pertaining to development and sustainability along with those concerning international development are addressed at this event that comprises events and conference sessions. SIWI often focuses on an array of research and development topics within and around water that support decision-makers around the globe.

The theme of 2018 World Water Week was – Water, Ecosystems and Human Development – that was held on 26-31 August 2018. On being invited to send an abstract for the said topic, India Water Foundation submitted an abstract dealing the study of Shillong in Meghalaya (India) which is located on the basin of two rivers which also serve as source of water of the city. Focusing on the growing pollution of the river-system in the city of Shillong that poses multiple problems to meet the increasing demands of water due to increased population and rapid pace of urbanization, the summary also dealt with the role of India Water Foundation in capacity-building and outreach programmes to generate awareness among the people through imparting training to the government officials in hydro-geo-morphological mapping for ground water prospection which would enable the government agencies to locate new sources of groundwater and identify depleting aquifers for replenishing thereby helping the state to meet increasing water demand. It also emphasized on the role of civil society as essential for capacity building of the people to realize the objectives of the policies and programmes.

Interestingly, IWF's abstract was approved and accepted and its president was invited to make a presentation on the said topic; however, owing to extraneous circumstances, this opportunity could not be utilized.

IWF & Wetlands

India Water Foundation was nominated as Expert Member (hydrology) to the National Wetlands Committee constituted under 2017 Wetlands Rules under the aegis of Union Ministry of Environments, Forests and Climate Change, Government of India, vide Ministry's Office Memorandum dated 15 June 2018. IWF has been represented by its President, Dr Arvind Kumar.

On 13 October 2018, Dr Arvind Kumar, expert member of National Wetlands Committee along with various officials of NRCD, MoEF&CC, GOI discussed the preparation of guidelines for Wetlands (Conservation and Management) Rules, 2017 and underlying the importance of Wetlands, to play a significant role in the realization of the SDGs.

Subsequently, IWF sent a concept note to the Committee on Integrated Wetlands Management Approach (IWMA) wherein it was emphasized that wetlands have come to assume increasing importance in supporting water and food security, in the wake of burgeoning global demand for water, growing gap between demand and supply of water in view of the fact that water is a finite source, and vagaries of climate change. While dealing with two categories of wetlands – Natural Wetlands (NWs) and Constructed Wetlands (CWs) – the note explained that designs of CWs depend on site selection based on type of land use & access, land availability, topography, soil, hydrology & substrata. Constructed wetlands can provide to small towns and rural areas with a good waste water treatment alternative. These wetlands are sustainable wastewater treatment methods in urban communities. Integrated constructed wetlands (ICWs) have the objectives of enhancing biodiversity.

Referring to the notion of Integrated Wetland Management Approach (IWMA), the Concept Note described that IWMA inter alia includes: Wetland Assessment, Developing Action Plans and Implementation, Management & Evaluation. Salient points of the Concept Note are summed up below:

IWMA provides a holistic approach for the scientific management and governance of wetlands which provide livelihoods to about 40% of the total population. Wetlands have come to play a significant role in the implementation of the SDGs; hence, IWMA focuses on linkages between wetlands and SDGs. While focusing on commitment and sustainability, this approach also emphasizes on bringing rural-urban disequilibrium on an even keen in the realm of natural resources, especially in water sector. While ensuring conservation of biodiversity, this approach also takes care of ecosystem services and the benefits accruing from them in a sustainable manner.

In view of the growing recognition of indispensability of water for climate change, IWMA also helps in enhancing resilience to climate change, improving livelihood of the people and fostering economic growth in tandem with water security, energy security, food security and enhanced resilience to the vagaries of climate change.

Successful implementation of IWMA is contingent upon whole-hearted involvement of the State Government and it also calls for no room for any communication gap between the Centre and the concerned State Government as far as implementation of IWMA is concerned. Besides, there is also need for periodic studies or feedback on the impact and sustainability of IWMA depending on specific project(s). Best practices in the realm of managing wetlands at local, national and international levels need to be emulated to ensure efficient and effective implementation of IWMA.

IWF President, Dr Arvind Kumar as member National Wetlands Committee, MoEF&CC, GOI, visited Kolkata on 13 January 2019 to discuss the permission grant of proposed elevated corridor on the East Kolkata Wetlands to be constructed by West Bengal government. It established deeper scrutiny of the proposal, a site visit and extended deliberations with the concerned authorities.

Efficacy of EbA

Affirmation of its belief that ecosystem-based adaptation to climate change contributes to enhancing resilience to climate change was reiterated in a small article published by IWF president in the ICID News of the fourth quarter 2018. Asserting that climate change has emerged as a global phenomenon entailing extensive consequences and is deemed as a 'threat multiplier' entailing the potential of amplifying global risks, the article notes that tackling numerous threats stemming from climate change is fraught with an array of problems of fiscal resources, governance, transnational cooperation and pressure. Explaining that deployment of fiscal and technological resources, apart from being extremely expensive, is prone to fall apart in the absence of a governance mechanism based on natural solutions, the author alludes to the fact of growing recognition for the need for going in for nature-based adaptive solutions to enhance resilience to climate change and ecosystem-based adaptation (EbA) is gaining salience over adaptive solutions to climate change. Example of successful integration of EbA approach in Meghalaya in dealing with climate change and the resultant benefits accruing from the deployment of this approach is also highlighted in this article.

Synergy with APCCAF

The 6th Asia Pacific Climate Change Adaptation Forum 2018, was held at Manila on 15-19 October, 2018, and it was co-hosted by the Government of Palau, the Philippine Climate Change Commission, and ADB, together with the APAN secretariat at UN Environment. Being the largest gathering of adaptation practitioners in the Asia and Pacific region, the forum gave a clarion call on the theme "Enabling Resilience for All: Avoiding the Worst Impacts". The 6th Forum was focused around four "streams" focusing on (i) resilience of social and human systems, (ii) resilience of natural systems, (iii) resilience of industry and the built environment, and (iv) resilience of island communities. The inclusion of islands recognizes that Asia and the Pacific's numerous and diverse island communities face particular challenges associated with economic shocks and natural hazards, and building resilience is often an existential task. The Forum also helped to advance regional priorities and mobilize political support for the international climate conference (COP24) in Katowice, Poland in December 2018.

India Water Foundation was represented at the 6th Asia Pacific Climate Change Adaptation Forum 2018 by its President Dr. Arvind Kumar, who as a panelist, shared experiences and knowledge gained, lessons learned, and good practices of Ecosystem-based Adaptation & Resilience in Meghalaya. While espousing the case of EbA in Meghalaya, a state located in India's North-East region, where India Water Foundation (IWF) has been cooperating with the state government in policy-making and a partner in development in managing natural resources under the government's flagship programme entitled Integrated Basin Development and Livelihoods Programme (IBDLP); Dr Kumar acknowledged that ecosystem-based adaptation approach adopted in Meghalaya facilitated climate resilience, conservation of biodiversity & eco-services. It delivered manifold economic, social and environmental co-benefits that surpass climate adaptation and these, inter alia, include: biodiversity conservation; climate mitigation through increased carbon sequestration; conservation of traditional knowledge, livelihood and practices of local communities; improved recreation and tourism opportunities; enhanced food security etc. It was integrated through the IBDLP programme, launched with partial inputs from IWF, designated as knowledge partner.

Talking about the success of the EbA, Dr Kumar apprised the audience about enormous benefits that Meghalaya has reaped from adoption of EbA, after implementation of Integrated Basin Development and Livelihoods Promotion Programme in a mission mode designed to leverage the comparative advantage that Meghalaya has through twenty missions. The gross income of the state almost doubled and transformed the tribal hunters' community into entrepreneurs by providing them alternative livelihood by adopting sustainable climate smart agriculture, economic forestry, revival of fisheries and various other opportunities to accelerate growth.

Adhoc Open Ended Expert Group (AHOEEG) Meeting

Being invited to the Second Meeting of the Ad hoc Open-Ended Experts Group on Marine Litter and Microplastics held at United Nations Offices in Geneva, Switzerland, on 3-7 December 2018, India Water Foundation was represented by its President, Dr Arvind Kumar. This meeting was preceded by the coordination meeting for Major Groups and Stakeholders on 2 December 2018. The mandate of the expert group was to explore the barriers to combat marine litter and micro-plastics and is symbiotically linked to the global community's efforts to combat this menace. The recommendations especially were to be adopted at UNEA4 in March 2019. After a first meeting of the AHOEEG in May 2018, a second meeting was convened on 3-7 December, 2018, in Geneva, Switzerland. The group gathered member-States, experts, Major Groups and stakeholders to exchange on options to tackle marine plastic litter and microplastics.

The participating organizations and experts urged for the establishment of a dedicated Convention on plastics, which at present is largely missing from the international framework. The meet emphasized on two distinct themes. Firstly, Information and Monitoring, and Governance. The Information and Monitoring path recognized a continuing need for measuring, monitoring and reporting on global progress on preventing plastic from entering the marine environment to achieve a substantial reduction in marine plastic pollution. In terms of the

Governance path, the most important factor in eliminating plastics from the marine environment relates to the life cycle of the plastic. That includes the whole process, from their production from the raw material, to the point of entering the ocean. Long-term implementation strategies include the use of recyclable and reusable materials, as well as improvements in how (plastic) waste is managed at the local government level.

The stakeholders proposed a four-pillar strategy, which focused on: coordination and cooperation of existing mechanisms; binding measures to reduce plastic pollution and harmonize legislation; financial support for a new institution and participating developing countries; and technical support to ensure informed, science based decision-making and avoid false solutions to the plastic pollution crisis.

Experts called for the need for stronger global action to combat marine litter. A number of initiatives and activities exist aiming at eliminating plastic litter entering the ocean and their potential should be explored within their respective mandates. Meanwhile, there was a growing recognition for a new governance model to be explored. Some delegations pointed to a new legally binding agreement as one possible effective response to be considered.

India Water Foundation was represented at this meeting by its President Dr Arvind Kumar and subsequently Dr Kumar contributed a small write-up entitled “Micro-plastics-beneath the ‘’Plastic Soup’”, and it was published in the February 2019 issue of *SME World*. In this write-up, the author while describing the hazardous challenges of the irregulated use of plastics, emphasized on the need of reducing this plastic pollution in sync with SDG-13 and SDG-14. He also stressed that a “plastic free” charter envisaging a toxic free and plastic free future for every single living entity was the need of the hour and parties should take measures to ensure the minimum generation

Synergy with UN Environment Assembly (UNEA)

Having been accorded Observer Status by the UN Environment Assembly (UNEA), India Water Foundation has been actively associated with the UNEA and regularly participates in its meetings. IWF took part in the fourth session of the UN Environment Assembly (UNEA-4) that was held on 11-15 March 2019 in Nairobi, Kenya. Under the overall theme, ‘Innovative Solutions for Environmental Challenges and Sustainable Consumption and Production,’ it was acknowledged that UNEA-4 will address:

- Environmental challenges related to poverty and natural resources management, including sustainable food systems, food security and halting biodiversity loss;
- Life-cycle approaches to resource efficiency, energy, chemicals and waste management; and
- Innovative sustainable business development at a time of rapid technological change.

The dialogues addressed, in turn, life-cycle approaches to resource efficiency, energy, chemicals and waste management, and innovative sustainable business development at a time

of rapid technological change. Reporting back to plenary in the afternoon, the dialogue moderators highlighted the need for a significant shift toward sustainable consumption and production (SCP), It is noted there is no single definition of a sustainable lifestyle, but that a collaborative effort by all stakeholders can create a chain reaction of change, “if we have the courage to make it happen.”

The Ministerial Declaration contained 26 resolutions and three decisions, addressing many global environmental issues including marine litter and microplastics, single-use plastics, sustainable nitrogen management, and the empowerment of women and girls in environmental governance. They also adopted the UNEP Programme of Work and budget for 2020-21. UNEA-4 extensively called for “Sustainable Management of Plastic Waste including Micro and Nano-Plastics through Innovative Solutions”. It highlighted the urgent need for a paradigm shift toward Sustainable Consumption and Production (SDG-17).

It is rightly remarked that “The menace of Plastics is not the core issue, but what to do with the plastic is the actual bone of contention”. In such a scenario, managing the menace of single-use or micro plastics in definitely an arduous task but right steps in right direction shall be rewarding in manifold ways. India has hosted World Environment Day 2018 with the vibrant theme “Beat Plastic Pollution” and the Versova beach cleanup in Mumbai. Recently, 'Plastic Waste-Free India' has been anthem has been launched in 7 languages to support India’s campaign to make India plastic-free by 2022.

Taking cognizance of the above success, it is important that we spearhead steps to phase out **‘Single Use Plastics’** and ban micro beads in products. Recognizing the prospects of Circular Approach, initiatives like recycling plastics, promotion of degradable alternatives, appropriate product redesigns to replace plastics as packaging material.

However, the most important priority must focus on appropriate waste management and remediation systems with proportionate ‘Polluter Pay Principle’ to compensate the environmental damage. Without waste management, the purpose of plastic free India gets defeated. The most important imperative towards fighting plastics lies in the assessment of plastic litter across the globe. With harmonized Monitoring, Evaluating & Reviewing methods and techniques, real time data base can be easily facilitated.

Reaffirming the principles of Eco-friendly green practices, Green Attitudes must be promoted to shift towards modern green thinking. To raise awareness globally on the significance of marine plastic litter there must be a sense of urgency to take actions by countries and associated stakeholders. The developed countries while recalling the ‘Common But Differentiated Responsibilities (CBDR) should pledge to disseminate information, technical assistance and technology transfer to the developing countries at the earliest because, the vagaries of climate change affects them first.

Stressing the importance of the protection and management of coastal ecosystems and their biodiversity in climate change mitigation and adaptation by identifying the causes of damages,

improvement of the management of areas to improve environmental services and community welfare, namely environmental services and livelihood must be prime call to address the menace of plastic pollution.

Acknowledging that finding a solution to an underlying problem is a tedious task altogether, IWF is sanguine that prudent and practical solutions hold the key to effectively circumvent the problems and challenges to a larger possible extent. Infrastructure is critical to achieving the 2030 Agenda. It is estimated that an additional US$1 trillion/year will have to be invested in infrastructure to meet the Sustainable Development Goals (SDGs). Simply put, infrastructure underpins the global economy, and countries cannot achieve sustainable development without infrastructure. The notion of reduction of micro plastic pollution should stand in synchronous with the underlined Sustainable development goal (SDG) 13 (Climate Action) and 14 (Life under water). A “Plastic free” charter envisaging a toxic free and plastic free future for every single living entity is the need of the hour and parties should take measures to ensure the minimum generation of hazardous waste.

IWF & SDGs

Steadfast in its commitment to the realization of the 17 SDGs along with their related targets, India Water Foundation has been constantly according priorities to these goals in its activities and this norm was adhered to during the period under review as well.

Speaking on behalf of The India Water Foundation, IWF President Dr Arvind Kumar drew attention to the deteriorating environment that is witnessing massive stress viz water stress, food spoilage, resource wastage, increasing carbon emissions and inefficient resource management and all that shows a trend towards a grim situation. This is resulting in the decline of the world’s finest available ‘natural capital’. Describing the current situation as grim replete with unforeseen future consequences, he cited averred that the lives of the next generation were at bleak with just 3% of fresh water left with a burgeoning population likely to cross 10 billion by 2050.This is one such example which is bound to affect every section of the society.

Describing that the underlying idea of transiting towards Sustainable Production and Consumption is for instance envisaging efficient resource utilization, curb wastage of natural capital and promotion of green development, Dr Kumar noted that the challenge in maintaining ecosystem services was to assess the contribution of natural capital in our daily lives and what can be done to enhance the livability prospects. For instance, consider the case o**f** groundwater**.** Many groundwater basins are prone to unrestricted extraction and misuse with falling water table. Rainfall is sometimes inadequate to refill the already depleting ground water resources. In such a situation, recharging the ground water capacity through traditional methods (check dams, recharge pits, farm ponds) or modern technology (aquifer recharge, water harvesting, hydro-fracture method, pressure injection grouting) must be taken note of.

While sharing IWF’s experiences with regard to disseminate scientific knowledge and aiming to raise the capacity building especially in the Asian context, I would like to emphasize on the following suggestions: With Paris Agreement being ratified and Agenda for Sustainable

Development 2030 on the roll, it becomes necessary to enlighten every individual of the challenges of unsustainable and wasteful resources. While harnessing the scientific knowledge at grassroots level, it is the civil society which can serve as a proactive catalyst between the government and the people to ensure effective implementation of the environment related policies. Eco-actions like the use of glass cups for beverages, using recycled paper, zero food wastage and segregation of dry-wet wastes must be encouraged on day-to-day basis. This can be a proactive gesture to transit towards 'sustainability along with responsibility'.

Referring to a move towards sustaining Goal-12, Dr Kumar emphasized on the need to understand the importance of 'Circular Economy' that entails the concept of 4Rs- Reuse, Recycle, Reduce and Renewal of resources; thereby, allowing resources to self-generate (like water, clean air or energy) and move in a sustainable way to avoid depletion**.** He further remarked that technology like 'data analysis or real time data' must be enabled to improve the data statistics and manage important information. The production and consumption pattern must be intertwined between social, human and natural capital to help conserve the natural resources and reverse the ill-effects of environmental degradation. Stressing on the need for adopting abroad, trans-disciplinary perspective among the stakeholders to bring visible impacts at the local level, he hoped that with a proper sustainable policy framework to curb the excess consumption and production, we could make collaborative efforts to make a visible impact and envisage a 'responsible production and consumption' for the near future.

While making a presentation at the Amity University, NOIDA (UP, India), Dr Arvind dwelt on the theme of the importance of water and its linkages with human health, environment and economic development because water is not just a sector but a connector and this nexus of SDG 6 of Clean Water and sanitation for all with SDG 3 Good health and wellbeing, SDG 12 Responsible consumption and Production and SDG 17 on Partnerships to achieve Goals is an indispensable catalyst for almost all developmental activities. Drawing attention of the audience towards the menace of water pollution and fast shrinking sources of ground and surface water, Dr Kumar emphasized on the necessity of going circular to recover, recycle, refurbish, refuse, water resources.

Making a pointed reference to lamentable situation of water in India, he cited the on-field experiences garnered by the experts of the IWF while working in the Aspirational Districts of Uttar Pradesh and Uttarakhand by way of community engagement and stakeholder consultation that resulted in discerning the problems and challenges of the six aspirational indicators underlying the water sector: basic education, health, infrastructure, financial inclusion and skill development. With a view to linking fresh water with sustainable development, Dr Kumar emphasized on acknowledging some imperatives such as securing water as human right; active involvement of local communities in water management, increasingly focus on water resource management, ecosystem protection and water supply and sanitation as part of the policy and practice. In his final analysis, he pleaded for managing water in a sustainable manner because water is at the core of attaining SDGs.

India Water Foundation was represented by its president Dr Arvind Kumar at the "South Asia Forum on the Sustainable Development Goals" and "Policy Dialogue - Unlocking the Potential of

Regional Cooperation in South Asia for achieving Sustainable Development Goals: The Way Forward" was held on 4-6 October 2018 and organized by UNESCAP- SSWA office Delhi . Dr Kumar described it as a unique opportunity to share perspectives on "Empowering people and ensuring inclusiveness and equality.

Representing India Water Foundation at a breakfast seminar of RIS (Research and Information System), that was held at RIS, New Delhi on 9th January 2019 to discuss **"Development Models and Humanitarian issues"** for Developing Countries, Dr Arvind Kumar affirmed that implementation of SDG agenda 2030 should focus on 'the last mile delivery'.

Towards Aspirational Districts, Six Aspirations, One Future'

From periphery to mainstream, having covered wide range of districts from **Chitrakoot, Fatehpur, Haridwar, Balrampur, Siddhartha Nagar, Shravasti and Bahraich in the states of Uttar Pradesh & Uttarakhand,** the entire experience garnered by the IWF deciphered understanding of the real meaning of **'Aspirational Districts'**. The districts represented important spiritual &cultural hotspots but remain relatively backward in development. But being less developed, it also signified that these districts have immense potential to bring Mainstream& Balanced development through 'participatory governance' and serve as an inspiration for other districts to tailor a similar model.

Realizing this, India Water Foundation felt the need to raise awareness of the people to bring about 'development from below'. Acknowledging the idea of 'Learn Global and Act Local and vice versa' and upholding the principles of Solve Different, we realised this concept through Eco Routes: Eco and WASH dialogues for Eco intelligent rural rejuvenation field capacity enhancement' a project supported by NCSTC department, Ministry of Science and Technology in aspiring districts. Taking a bird's eye view, we took cognizance of the noble issues viz 6 key indicators of Education, Heath & Nutrition, Basic Infrastructure, Agriculture & Water Resources, Skill Development and Financial Inclusion.

The problems were manifold, multiple challenges but the aspirations of these districts were held high such that no obstacles could deter to inhibit the aspirations. Acknowledging the same, IWF while 'taking science at ground zero' made an effort to raise the scientific awareness and temper, capacity building of the people, disseminating good practices on health, education and hygiene. The women community of Chitrakoot for instance, during our MHM (Menstrual Hygiene Management) session faced the biggest challenge of deeply rooted socio-cultural taboos surrounding menstruation. Many were unaware of nutritional component while many never heard about reproductive tract infections (RTI). IWF, through vociferous interaction, brought about behavioral change among women, attitudinal shifts in social mindset and prompting women to spread MHM learning in their community. In short, we provided training to the trainers who would take the lead forward to diffuse their experience and learning to the people of Community. IWF applauded the innovative efforts of distinguished people in their respective work space and community by felicitating them with **'Champions of Change'** Award. They represent the future discourse of the respective districts to chart out a roadmap based on their

ambitions, successful stories, innovative grass root ideas and willingness to bring ‘Real Change from below’’.

As per the problems, issues shared by the community stakeholders, experts from our end also deliberated and advised amicable solutions local, nature-based solutions and technical suggestions as well to address water scarcity, ground water depletion, interlinking health-nutrition, sustainable agriculture practices, raising entrepreneurship skills and the prospects of river rejuvenation. IWF ensured to lay a foundation stone of ‘unique yet proactive’ solutions.

We underlined that Development also has a vicious cycle, even if one of the 6 indicators is misplaced or removed, the entire cycle breaks. Hence, it becomes important to converge Development at a single platform laying its focus on fulfilling the aspirations of people to make their life better’. Also, the stakeholder consultation was preceded with activities of painting competition for school children, public consultation, school interaction and play-card activities, human-chain formation. The campaign at Ghats, Schools, marketplace, railway Station, bus Station, religious places, malls, community parks, etc. was indeed educative for everyone, including us to learn & share experiences, pieces of wisdom, attempting to bring cohesive solutions, which was previously ignored largely. The essence of such campaign was that people from diverse cultures, formed a mosaic of opinions reflected the symbolic representation of various opinions, mindset, and thoughts of the people.

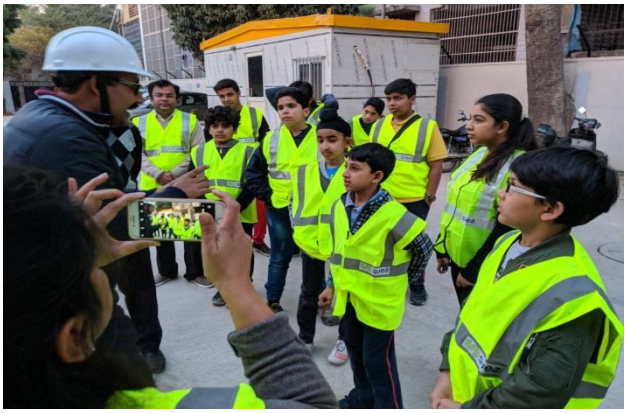
We raised the mandate of Eco literacy higher ranging from scientific principles of WaSH especially among children & women, reducing plastic trash & litter and promoting water conservation and intricately seized the golden opportunity to align the success with our ‘Eco Routes mandate. The campaign gathered an intense momentum of approvals or disapproval of many local causes and challenges. Through these powerful messages, we seized the golden opportunity to mobilize people, garner new dimensions and align our ‘Eco Routes stakeholder dialogue along the same lines. We spearheaded the idea that ‘Change is the need of the rightful need of the hour & it must come from within’. In these districts, every single individual acted as a **‘Catalyst of Change’**.

Keeping Education as a key tool, we encouraged schools; teachers motivate students to think about worsening crisis of environment with specific impetus to Water and disseminate their social responsibility to children. Painting competition reflected the engagement of children in a creative environment to identify their thinking in alignment with environmental themes of Sustainable Development, Water conservation, Renewable energy, Climate change and Circular approach. It allowed complete self-expression and supports their creativity and innovative ideas expressed through environmental art. We aligned our agenda & activities according to IWF mandate and engage them as equal Partners-in-Development. As a proactive civil society, we took this opportunity to disseminate knowledge, best green practices, train and educate and capacity building initiatives in order to help students, teachers understand the significance of conserving environment and make their respective schools as the Environmental harbingers of **'Future Next'**.

Summing up our intellectual journey in the 7 Aspirational Districts, the response from the stakeholders was overwhelming and we looked forward to converge different aspirations of the district in a holistic manner. The support received from the district administration and the community was well appreciative. On the bottom line, it can be said that that people from diverse backgrounds, reflected a mosaic of opinions, thoughts, attitudes and mindset, which was interesting, engaging and a fruitful experience. As a part of our ongoing Eco Routes mandate, we believe that true inspirations can lead the path of success and hence Aspirational Districts deserve a credit for themselves.

Miscellaneous Activities

Generating Awareness among School Children



The role of children, as future citizens, in transforming the society is undeniable. As precursors of transformation, their energy, skills, enthusiasm and exuberance need to be properly harnessed to groom them as potential agents of socio-economic transformation of the society; nonetheless, erroneous channelization of these potentials entails the likelihood of turning them into agents of societal obliteration because they lack proper guidance and critical thinking. Thus, here lies the role of the teachers and parents in guiding the youth and children to the correct way of living and utilizing their vital energy for the betterment of society. India Water Foundation has been according priority to capacity building programmes of youth and school children in water, climate change and sustainable development goals from time to time.

Accordingly, in the last week of March 2019, India Water Foundation, in a general letter addressed to the principals of the schools of Delhi, called upon each school to help build

capacity building of the students in tandem with India Water Foundation in sensitizing them about the theme of **"Beat Plastic Pollution"** that constituted the buzz word of the 2018 World Environment Day. India Water Foundation, a civil society and think-tank would like to bring forth to explain the menace of plastic pollution and how collective efforts can help curb its minimum use. We would like to make children understand the meaning, issues and the implications of SDG 12 since they are further youth-in-making which we believe they carry large prospects of learning, innovation and creativity. They are the future torchbearers of society. Inculcating Gandhian values of sustainability, morality, trusteeship, respect for Mother Nature should be imbibed at an earlier age. As a proactive civil society, we take this opportunity to disseminate information, best green practices, train and educate and capacity building initiatives in order to help students understand and realize the significance to preserve and conserve environment.

Eliciting the cooperation of the schools in enlisting students as Jal Mitra volunteers, the communication explained that by that way the schools could get an opportunity to showcase their talent and relate it with water awareness in different events and activities of India Water Foundation. The communication further stated that by keeping Education as a key tool and a potential mechanism to bring Eco-Development, the IWF would encourage schools, teachers and children and motivate them to think about and understand this crisis, causes and come up with sustainable solutions for a water secure society and also help understand their social responsibility.

Conveying the sanguinity of looking ahead to make children, teachers and guardians aware and brace themselves for the prospects that SDG 12 supplements efforts towards Climate Change, the IWF communication invited the school to be part of this collective endeavor and engage as Partners-in-Development who can sensitize their parents, friends, neighborhood further.

International Cooperation

India Water Foundation continued its earnest efforts during 2018 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, in the aftermath of water having been accorded priority in negotiations on climate change.IWF continued to maintain its synergy with UNEP, ESCAP-SSWA office, WHO, UNICEF, FAO, UN-Habitat etc. Another notable development during the period under review was the fostering of close cooperation of IWF with World Water Council (WCC), UN Environment Assembly (UNEA), and CTCN. 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 also monitored the progress and other developments in this regard and has been reflecting on them in the Indian context through the social media and other modes of communication.

Miscellaneous Activities

- In a communication addressed to President of India on 22 May 2018, India Water Foundation conveyed its volition to cooperate with the National Committee for the Commemoration the 150 Birth Anniversary of Mahatma Gandhi in the dissemination of Gandhian approach for achieving the Sustainable Development Goals (SDGs). An identical communication was also addressed to the Prime Minister of India on 22 May 2018.

- On 17 July 2018, IWF addressed a communication to the Union Ministry of Water Resources with the request of making IWF as partner in progress in the Namami Gange Project.

- Focusing on the impact of climate change on the plight of displaced people, Dr Arvind Kumar, IWF President, in a short write-up published in the August 2018 issue of SME World, while dealing with increase in the number of climate-induced disasters and there adverse impacts on human beings in general, also dealt with multiple effects of disaster-related migrations. He also emphasized on the need for effective policy measures to deal with environmental migration.

- Dr Arvind Kumar delivered the thought leadership lecture, 9th in the series of the Thought Leadership Lecture at Jaipuria Institute of Management, Jaipur on 4th August 2018. While dwelling on the burning issues in water and environment sectors confronting India in particular and the world in general, he emphasized on the importance of well-informed and experienced leadership in tackling these crises.

- In a communication addressed to the Chief Minister of Uttarakhand on 7 September 2018, IWF requested for becoming a partner in progress of the state, especially in Water and environment sectors and cited its work in Meghalaya as the stark example of achievement.

- In a communication addressed to the Prime Minister of India on 16 November 2018, IWF suggested that India should host World Water Forum, the world's largest event, in March 2024 and that hosting such an event could help India elicit FDI and state-of-the-art technology in water sector, thereby assisting the nation meet its water related needs.

- On 13 February 2019, IWF addressed a communication to the Ministry of Railways with the request to become a partner in progress of the Indian Railways to facilitate maintenance of water quality, sanitation and hygienic practices in the railways.

- As a member of Technical Advisory Committee (TAC), Dr Arvind Kumar was a part of discussions regarding India's draft Second Biennial Update Report (BUR) to be submitted to UNFCCC was held at Indira Paryavaran Bhawan, Ministry of Environment Forest and Climate Change, GOI, on 26 October 2018.

- Dr. Arvind Kumar had the pleasure of meeting on 12 December 2018 Ms. Kalsang Youdon, Vice President of the Tibetan Women's Association and her colleagues. Environmental issues of present concerns of Himalayas like shrinking glaciers, endangered wildlife, water pollution, deforestation etc., were shared

- Dr Arvind Kumar, President India Water Foundation and member CAPART, welcomed the merger of CAPART with NIRD & PR (National Institute of Rural Development & Panchayati Raj) at the CAPART meet held at Vigyan Bhawan on 28 January 2019. Dr Kumar acknowledged that the meeting was productive and it constituted a new pathway for rejuvenation of CAPART.

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, tribals 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 empaneled 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. Since 2012, India Water Foundation has been aknowledge partner of Meghalaya Basin Development Authority (MBDA) Government of Meghalaya, and Meghalaya Water Foundation as well as member of Meghalaya State Water Resources Council.The Govt. of Meghalaya vide its official notification dated 29 November 2017,further renewed the appointment of India Water Foundation as member of the State Water Resources Council of Meghalaya as the member of the State Council for Climate Change and Sustainable Development.

IWF has been granted accreditation on 2 August 2017 as an observer to the Governing Body of United Nations Environment Programme (UN Environment) the United Nations.

On 21 September 2017, the Niti Aayog, (WR & LR Division) of Govt. of India appointed IWF as member of Working Group on Water Resources Development, Management and Efficient utilization to seek inputs for development agenda for New India @75 under the Chairmanship of Prof. Ramesh Chand, Member NITI Aayog, GOI.

In early February 2019, India Water Foundation was granted membership of the Climate Technology Centre and Network (CTCN) for playing a meaningful role in information sharing and capacity building, providing technical assistance in response to country requests, and participate in outreach and networking activities.

On 20 December 2018, the United Nations Framework Convention on Climate Change (UNFCCC) granted “Observer Organization” status to India Water Foundation to sessions of the Conference of the Parties (COP).

A memorandum of understanding between India Water Foundation and the Government of Sikkim was signed on 11 December 2017 for cooperating with government of Sikkim in the field of water resources, environment, sustainable development, and recently launched “Sikkim Comprehensive Water Resources Plan”.

On 30 January 2018, India Water Foundation was appointed as a Member of the Technical Advisory Committee for India's Third National Communication and Biennial Update Reports to UNFCCC, constituted by the Ministry of Environment, Forest and Climate Change (Climate Change Division), GOI, New Delhi.

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). The 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, 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. IWF can facilitate interaction with print and electronic media.

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 inter governmental 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.

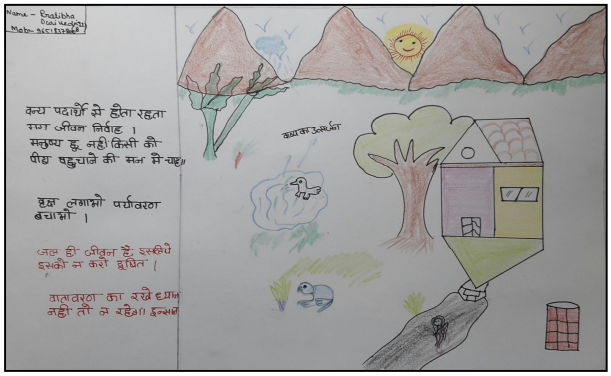
Emphasis on Soft Approach

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.




… बदलाव लाने वाले बीस लोग सम्मानित
डीएम ने प्रशस्ति पत्र व प्रतीक चिह्न देकर मान बढ़ाया
अमर उजाला ब्यूरो

स्वच्छाग्राही को प्रशस्ति पत्र देकर सम्मानित करते डीएम। अमर उजाला

विकास भवन कार्यक्रम में उपस्थित लोग। अमर उजाला

यह बीस चेहरे हुए सम्मानित


The Shillong Times

There's need for integrated approach

Dr Arvind Kumar, president of India Water Foundation, writes on how Meghalaya can achieve complete water security


… lost water resources

ARVIND KUMAR
WATER CONSERVATION ACTIVIST

The immediate priority is to make a paradigm shift to the supply side management and address those challenges that make water usage more efficient and discourage wastefulness. Priority must be laid on the allocation of resources, efficiency in water use and ensuring rejuvenation of the available water bodies.

WATER STRESS: Sustainable management is needed.


Enabling Business …
Dr. Arvind Kumar*


SIKKIM EXPRESS
OF THIS LAND, FOR ITS PEOPLE

Good Morning Sikkim, today is TUESDAY, 19 DECEMBER, 2017 ■ REGD NO. WB/SKM/02/2015-2017 VOL. XXXXI NO. 339 ■ RNI No. RN 40962/1990 ■ www.sikkimexpress.com ■ ₹ 5.00

Results show India ready for reforms: Modi

Sikkim comprehensive water resources plan launched

PANKAJ DHUNGEL

IWF president Arvind Kumar (second from left) and Security secretary Sonam Dadul Bhutia …


Indian … world water …

STATESMAN NEWS SERVICE
NEW DELHI, 7 DECEMBER

Arvind Kumar, president of India Water Foundation, has been elected to the Board of Governors of World Water Council for three years from 2019 to 2021. He is the only one elected from the south Asia region to this prestigious Council.

The eighth general assembly of the council held at Marseille, France, also elected Loic Fauchon as its president. More than 250 members from 35 countries attended the assembly.

IWF, which has special consultative status with UN-ECOSOC, works at the regional and sub-regional level to encourage the use of integrated water resources management and integrated water and environment management and water-energy-food nexus approaches to sustainable development into national policy at national and regional levels.

"The water situation is fragile, and this situation is even more critical as we have the responsibility to provide water for tomorrow's needs while meeting today's demand. This also requires sharing water for humans as much as for the environment," said Loïc Fauchon.

The World Water Council brings together a diversity of organisations mobilised to advance the water cause by involving UN agencies, the World Bank, governments, NGOs, public and private companies, and universities. Through their experience and know-how, the Council's main missio… provide practical … es to the glo…


… अवार्ड से किया गया …

मेरठ, 7 जून। डॉ. अरविन्द कुमार, अध्यक्ष, इंडिया वाटर फाउंडेशन …


… जिले का विकास …

बलरामपुर | हिन्दुस्तान संवाद

इंडिया वाटर फाउंडेशन के अध्यक्ष डा. अरविंद कुमार ने कहा कि जिले के पिछड़ेपन को दूर कराने के लिए सरकार पूरी तरह प्रतिबद्ध है। मेघालय माडल पर आकांक्षी जिले के विकास में परिवर्तन लाया जाएगा। आठ विभागों के प्रस्तावों पर सरकार विकास कार्यक्रमों पर धनराशि खर्च करेगी। वह गुरुवार को विकास भवन सभागार में अधिकारियों व कर्मियों की एकदिवसीय कार्यशाला को संबोधित कर रहे थे।

उन्होंने कहा कि पौधरोपण से पहले …च करके स्थलों का चयन किया जाना …हिए। पौधे लगाने के बाद उनकी सुरक्षा …द जरूरी काम है। वह बोले कि सभी …ों पर उद्योग नहीं लगाए जा सकते हैं। …को उद्यमी बनाया जाना जरूरी है। …रकार ने मेघालय प्रदेश में इसी तर्ज …र करके सफलता पाई है। प्रोजेक्टर …म से अधिकारियों व कर्मियों को विकास के माडल बताए गए। कार्यशाला में जल निगम के अधिशासी अभियंता मनोज कुमार सिंह, डीएसटीओ ओमकार सिंह, पर्यावरणविद् नागेन्द्र सिंह, कौशल विकास मिशन के जिला प्रबंधक विनोद तिवारी, स्वच्छ भारत मिशन जिला समन्वयक योगेश कुमार व … बिंदुओं पर प्रस्ताव तैयार करके उपलब्ध कराया। कार्यक्रम का संचालन श्वेता त्यागी ने किया। इस अवसर पर जिले के आठ विभागों के अधिकारी व कर्मचारी मौजूद थे। इस दौरान कई लोगों को बेहतर कार्य करने …

गुरुवार को विकास भवन सभागार में बोलते फाउंडेशन के अध्यक्ष ● हिन्दुस्तान


सदा सत्य तथा मृदु वाणी का प्रयोग करना है। धर्म है।
ज्ञान और सत्य की प्राप्ति शिक्षा के माध्यम से होती है।
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Save Life
EVERY DROP Counts
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The changeover
green economy
on resilient ecosystem
production systems, hea
choices, reduced negative
effects of environmental polic
overall environmental justice for
DR. ARVIND KUMAR
President, India Water Foundation
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rvind Kumar of the #IndiaWaterFoundation
on the importance of building #resilient
ecosystems. Join the #APAN2018 on 15-19
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Resilience, broadly construed as the ability to successfully deal with change, is a characteristic of individuals, communities, and ecosystems. We depend on ecosystems for our survival and in turn impact these ecosystems from the local to the global level. Building resilience into an ecosystem... means working to support the health and functions of associated habitats, organisms and processes. For that reason, both the Aichi Biodiversity targets and the Sustainable Development Goals include resilient ecosyst as a key priority for action.
ARVIND KUMAR
PRESIDENT, INDIA WATER FOUNDATION
6TH ASIA-PACIFIC
CLIMATE CHANGE
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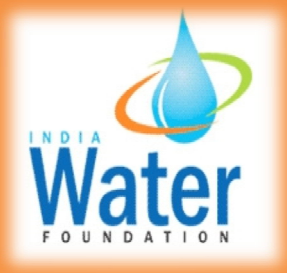

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