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CHRONICLE – VIII

(August 2022 - February 2023)



From Editors Desk



Dear **Jalmitra**,

It gives me immense pleasure to present India Water Foundation's chronicle with highlights of our last six months. In these unprecedented times of extreme events I hope all of you are safe and healthy. In March this year, world leaders, UN agencies, civil societies etc. will gather at the UN 2023 Water Conference in New York to assess progress on the SDG6 and accelerate progress through action agendas for SDG6. We are at a pivotal time – for people, societies, economies, and our planet and need all-inclusive sustainable solutions. Let's find them with cooperation, cohesion and collaboration. I thank my team because I believe teamwork is the ability to work together toward a common vision and is an ability to direct an individual accomplishment toward organizational objectives. It is about finding your unique blueprint and expressing that courageously and confidently”

Thank you

Dr. Arvind Kumar

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EDITORIAL

G20 India Presidency: Is Golden Elixir to Build Back Forward?

Dr. Arvind Kumar*

India's assumption of the G20 presidency has decisively signaled its emergence as a significant player on the global stage. While most countries in the world, both developed and developing, have found it difficult to effectively handle the challenges thrown up by the Covid-19 pandemic and the Russia-Ukraine conflict, India, through its bold leadership and prudent policies, has been able to successfully navigate the headwinds it has encountered over the last three years. The current complex geopolitical and economic situation will make it a challenge for India to shape the international response to multiple crises.



The country has not invested much in multilateral rule-making institutions like the G20, but it is never too late to start. The G20 summit shall be the most prestigious diplomatic fete hosted in the country since the Non-Aligned Movement Summit in 1983. The yearlong role will help India at a global stage but it also comes with a number of challenges. International relations post the pandemic are not very stable and one thing that is on the agenda is the post-COVID-19 recovery. Then there is the climate change issue which India is very much interested in. India's biggest challenge would be to ensure that stability returns to international relations and how to really articulate the concerns of developing countries.

In addition terrorism, nuclear proliferation, achievement of the Sustainable Development Goals (SDGs), and others continue to unsettle the global economy and community. It is in these circumstances that India has been entrusted with the responsibility of steering the activities of the G20. Putting sustainable development at the core of the G20 agenda is welcome and urgent. Progress on the SDGs will not be possible or sustainable without addressing the multiple crises that are affecting the world.

In a historic first, the G20 troika – the outgoing, current, and next-in-line presidencies are all developing economies. In the absence of a permanent secretariat, the Troika ensures continuity for the group's agenda and priorities. Hence, the three powers can use this opportunity for continued emphasis on the developing world's priorities. This is not easy as the world is getting more and more divided. Bridging gaps and finding consensus is not easy in a divided world. The challenge is compounded by major disruptions caused by climate change, record inflation levels, food and fuel shortages, trade restrictions, and sanctions, forcing major powers to look more inward.

However, India has an additional advantage compared to its peers. It has positioned itself aloof of pure alignments yet entangled with major powers through multilaterals and plurilaterals. With a

presence in many crucial groupings such as the Quad, IBSA (India-Brazil-South Africa), and the Shanghai Cooperation Organization (SCO), India has established a mutuality of interests with all the major economies which it can effectively use during its G20 presidency. Conversely, realising the promise of Agenda 2030, putting the world on a more sustainable production and consumption path, and tackling the asymmetries in the global governance architecture are equally crucial to address the deep-rooted drivers of many of these crises.

India's resolve to change the conversation in the G20 to advance on these global priorities is welcome. Its intention to work in close co-ordination with the future Presidencies from the Global South will help maintain the focus. Selling ideas, setting norms, and finding common ground in an increasingly polarized world are not easy. Nonetheless, by practicing middle-ground foreign policy through past non-alignment and its current multi-alignment strategy, India is well-placed to mediate, negotiate, and moderate. In many cases, the lack of acceptance of common solutions is not merely a political question but reflects the inability of a singular policy solution to fit the developmental needs of countries as disparate as Canada and Indonesia. The task is certainly not easy but if there is a country well suited to talk to all sides and find co-operative solutions, perhaps it is India proving this G20 presidency to be a golden bullet for it.

**Editor, Focus Global Reporter*

INFOCUS

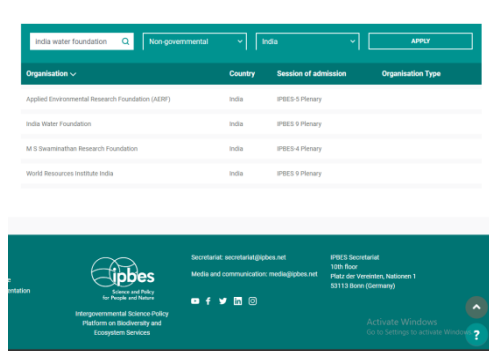
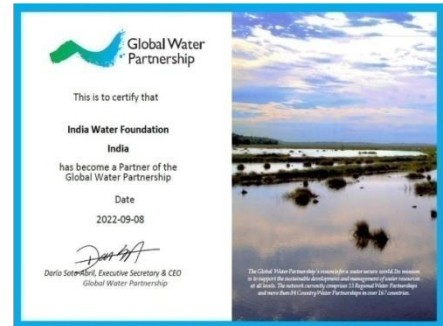
RECENT DEVELOPMENTS (MEMBERSHIP & ACCREDITATIONS)

Member - World Water Quality Alliance, UNEP: India Water Foundation became member of the World Water Quality Alliance of the UNEP. The World Water Quality Alliance (WWQA) is a global effort to improve access to safe, clean water for everyone. The Alliance is an informal network of members from local communities, NGOs, supranational and national administrations, farmers, fisheries, water authorities and other related stakeholders. WWQA serves as a platform to discuss and share information on various topics such as water quality science and technology, best practices, data collection and analysis, among others. Through this platform, members are able to collaborate to influence policies and promote sustainable development.



The World Water Quality Alliance (WWQA) is a global effort to improve access to safe, clean water for everyone. The Alliance is an informal network of members from local communities, NGOs, supranational and national administrations, farmers, fisheries, water authorities and other related stakeholders. WWQA

Member - Global Water Partnership: India Water Foundation becomes the partner of Global Water Partnership with GWP South Asia office in Sri Lanka as principal point of contact. We hope that our interaction with GWP Partners in the context of GWP country, regional, and global platforms will prove mutually beneficial and we would prove to be a reliable partner for GWP.



Observer- IPBES: India Water Foundation has been accredited as an observer organization of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). IPBES is an independent intergovernmental body established by States to strengthen the science policy interface for biodiversity and ecosystem services for the conservation and sustainable use of biodiversity, long-term human well-being and sustainable development. We are grateful to IPBES for approving IWF's candidature as an

Observer. It will serve as an opportunity for the IWF to engage at global, regional and national level to build capacities, strengthen knowledge foundations, communicate, advocate and push for policies. Looking forward to contributing towards better values-centred outcomes for people and the rest of nature.

Memorandum of Understanding with WAPCOS Limited

India Water Foundation signed a Memorandum of Understanding with WAPCOS Limited in presence of CMD Mr. R K Agrawal and Dr Arvind Kumar, President, India water Foundation.. Mr R K Agrawal is also the chairman of NPCC. He has recently been awarded the global Indian of the year 2021-22 by 18th Edition Asia-Africa Business & Social Forum, The MoU was signed by Mr. Anupam Mishra Director Commercial and HRD and Dr. Arvind Kumar. Also present were other colleagues from WAPCOS Limited and Shweta Tyagi, Chief Functionary, India Water Foundation. WAPCOS Limited is a MINIRATNA-I and ISO 9001:2015 accredited Public Sector Enterprise under the aegis of the Union Ministry of Jal Shakti, Department of Water Resources, RD & GR. A global leader in consultancy and engineering, procurement & construction (EPC) providing integrated & customised solutions for sustainable development of water, power and infrastructure projects. With in-built capability to provide multi-disciplinary project teams comprising of its own core group of professionals and specialists from various organisations of Govt. of India, WAPCOS provides consultancy services in all facets of water resources, power and infrastructure sectors in India and abroad in more than 35 countries. India Water Foundation is looking forward to executing projects and programmes in collaboration for a sustainable future.



ACTIVITIES ORGANISED BY INDIA WATER FOUNDATION GLOBAL

High Level Policy Dialogue

Accelerating SDG 6 through Multi-stakeholder Partnerships

At the UN 2023 Ecosoc Partnership Forum

31st January 2023, 1900-2015HRS (IST)

Background on the event (one paragraph)

This high level policy dialogue on Accelerating SDG 6 through Multi-stakeholder Partnerships was organised by India Water Foundation and supported by UN ESCAP. SDG 6 is to ensure availability and sustainable management of water and sanitation for all by 2030. However, SDG 6 goes far beyond water and sanitation services to cover the entire water cycle. Aside from domestic purposes, water is needed across all sectors of society, to produce food, energy, goods and services. These uses also generate wastewater which, if not properly managed, can spread diseases, and introduce excess nutrients and hazardous substances into rivers, lakes and oceans. Ultimately, as ecosystems provide water to society, a significant share of the water needs to stay within the ecosystems for them to remain healthy. Healthy ecosystems in turn safeguard the quantity and quality of freshwater, as well as overall resilience to human- and environmentally-induced changes.



There is need to increase investment in water-use efficiency, wastewater treatment, and reuse, while financing the protection of water-related ecosystems. Integrating our approaches with improved governance and coordination across sectors and geographical borders is an imperative to accelerate SDG6 achievements. The main objective is to identify and find solutions on several bottlenecks impeding greater progress on SDG 6 acceleration. Policy and institutional fragmentation between levels, actors and sectors means that decisions taken in one sector (e.g. agriculture, energy, health, and environment) often do not consider the impacts on water availability and water quality in other sectors. Funding gaps and fragmentation impede progress across levels, while data and information often are not available or not shared between sectors and across borders to effectively inform decision making.

Meanwhile, gaps in institutional and human capacity, especially at the level of local governments and water and sanitation providers, slows implementation of SDG 6 along with outdated

infrastructure and governance models. Hence there is an urgent need to accelerating effective partnerships across all stakeholders to deliver on the SDG6 which in turn would contribute to a range of other SDGs including on climate action. Promoting sustainable use of resources and enhancing investments in sectors vulnerable to climate change, such as the water sector and water dependent sectors is a priority for India's climate adaptation action.

Key Issues discussed

1. Why is SDG 6 cross sectoral in nature?
2. What are the linkages of SDG 6 with other SDGs and does the acceleration of SDG 6 need cross sectoral partnerships?
3. Discussion on the key success factors as well as key challenges for building successful multi-stakeholder partnerships to achieve SDG 6.
4. What role can local partnerships play to support national priorities and foster collaboration among cross sectors and stakeholders?
5. Why there is a critical need for multi-stakeholder, multi-disciplinary collaboration at all levels to build capacity and support networks that can ensure the SDG 6 acceleration?
6. How significant is strengthening linkages between environmental, development and people centered approach for SDG 6 progress and achievement?
7. At regional level to create partnerships or foster cooperation in a region as volatile like South Asia how is it possible to do it effectively but without ruffling any feathers?

NATIONAL

India Water Foundation was fortunate to be given the privilege to be the Knowledge Partner of the Ministry of Jal Shakti, Department of Water Resources, RD & GR in preparation and organizing of 7th India Water Week. In a meeting with the National Water Development Agency at their office the Director General NWDA Mr. Bhopal Singh , Mr. R K Jain and Mr. K K Rao proposed the same which was heartily accepted by the Hon'ble Secretary Ministry of Jalshakti Sh. Pankaj Kumar and Additional Secretary Mrs. Debashree Mukherjee. Our team and partners are committed to make this event a gala success . Spearheading the need for stronger and unified water infrastructure the India Water Week will bring all the key stakeholders on one platform-the people, the policy makers, the corporates, the agriculture community, UN and international agencies and deliberate on water in an integrated, unified, and holistic manner.



High Level Policy Dialogue On Accelerating SDG 6 through Multi-stakeholder Partnerships

India Water Foundation organized a High level Policy Dialogue on ‘Accelerating SDG6 through Multi-stakeholder partnerships’ in collaboration with United Nations Environment Programme and supported by UNESCAP SSSWA Office, World Water Council and Department of Science and Technology, Government of India on 2nd November the second day of 7th India Water Week, 2022. The main objective of the session was to identify and find solutions on several bottlenecks impeding greater progress on SDG 6 acceleration.

Ministerial Plenary

The Policy dialogue was initiated by a Ministerial plenary which was chaired by **Sh. Gajendra Singh Shekhawat, Hon’ble Union Minister, Ministry of Jal Shakti, Government of India**, and



had special addresses by **Shri Kailash Choudhary, Hon’ble Minister of State, Ministry of Agriculture and Farmers’ Welfare, Government of India**, **Mr. Atul Bagai, Head, UNEP India office**, **Mr. Rajan Sudesh Ratna, Deputy Head and Senior Economic Affairs Officer, UNESCAP, SSSWA Office** and **Dr Arvind Kumar, President, India Water Foundation**. The dignitaries on the stage launched two books i.e. ‘Ecosystem based Adaptation approaches to sustainable management of aquatic resources’ and ‘India at 75 and beyond’

by Dr. Arvind Kumar. A report on ‘Information on water supply and sanitation in urban slums of Delhi’ by India Water Foundation in collaboration with NJS Engineers India private Ltd. for Japan International Cooperation Agency (JICA) was also released.

This publication ‘India at 75 and beyond’ has perspectives from policymakers, Ministers, bureaucrats, influencers and experts to analyze the achievements of India in the last 75 years especially in the last decade while looking forward to the goals we must now achieve in the



coming decade and in Amrit Kaal. To get your copy please go to <https://www.amazon.in/dp/B09R24JNKZ>

This book **‘Ecosystem based Adaptation approaches to sustainable management of aquatic resources’** presents a close examination of the role of ecosystem-based adaptation in managing river basins, aquifers, flood plains and their vegetation to provide water storage and flood regulation.



To get your copy please go to (<https://www.elsevier.com/books/ecosystem-based-adaptation/kumar/978-0-12-815025-2>)



This report on **‘Information collection of water supply and sanitation in urban slums of Delhi’** is a result of a one year long project in which India Water Foundation and NJS undertook a survey on the water supply and sanitation in urban slum areas in Delhi. This publication is an exhaustive study on centre and state policies and

recommendations for providing equitable water and sanitation services to all. To read the complete report please go to <https://www.indiawaterfoundation.org/final-report/>

The event was hosted by Ms. Shweta Tyagi, Chief Functionary; India Water Foundation. She welcomed the dignitaries and gave a short brief of the session. She then invited **Sh. Kailash Choudhary, Hon’ble Minister of State for the Ministry of Agriculture and Farmers’ Welfare, Government of India** for his special address. Sh. Choudhary in his crucial message mentioned that water is very crucial for humankind and gave a brief on the interlinkages between agriculture and water, complementing his statement with data from various public schemes such as Pradhan Mantri Krishi Sichayee Yojana (PMKSY)



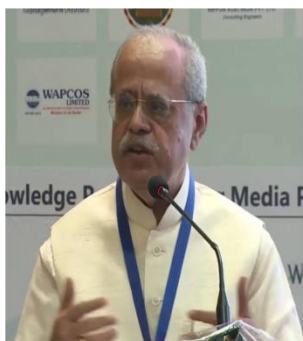
wherein he told that 70 lakh sq. hectare coverage was increased under sprinkler and drip irrigation systems at the national level to increase water efficiency in agriculture. He also said that such

advance technologies in agriculture saves about 30-50% of water and produces more and better yield.

Dr. Arvind Kumar, President, India Water Foundation in his opening remarks mentioned the primary objective behind organizing this policy dialogue and said’ “We have gathered here organizations like UNEP, UNESCAP, World Water Council, FAO, Convention on wetlands, World Bank, UN Global Compact Network of India International Water management institute to come together and deliberate on this crucial subject. We have tried to bring multi agencies on this platform to understand best practices, policy recommendations, success stories, and implementation updates.” He further stated that water is a driving force and gateway to all SDGs



and how fast it is becoming a pressing societal and geopolitical issue. We need increasing awareness regarding freshwater resources and the need to protect them both in terms of quantity and quality. Therefore, we have to engage partner organizations for tangible results and sensitize, incentivize, and galvanize stakeholders towards an overall circular and transversal approach to systematically integrate water in climate action and go beyond the vertical approach limitations of IWRM (Integrated Water Resource Management).



Mr. Atul Bagai, Head, UNEP India office, gave an insight on how twenty five years back in India people use to drink water from the taps and very recently when he visited Germany he could see the same there as well but unfortunately, presently in India the case is not the same due to excessive contamination and pollution of the resource. He delved on the triple planetary crisis of climate change, pollution and biodiversity loss looming over our heads

that needs to be addressed urgently which otherwise could become the cause of future world wars in a resource-deficit world.

Mr. Rajan Sudesh Ratna, Deputy Head and Senior Economic Affairs Officer, UNESCAP, SSWA Office highlighted few facts and figures about South and Southwest Asia in comparison to Pacific. He stated that Goal 6 of the SDGs is been taken seriously and collectively in the world only after a long negotiation at the 2015 Paris Agreement. He categorically made a statement that if India and South Asia do not achieve SDGs; the world wouldn’t be able to as well due to South Asia’s sheer size.



Our Chief Guest, Sh. Gajendra Singh Shekhawat, Hon'ble Union Minister, Ministry of Jal Shakti, Government of India shared his thoughts and anecdotes in a very balanced and captivating



manner as always. He talked about multi-sectoral approach while giving an example from his very own ministry and its two visionary programmes of Hon'ble Prime Minister of India, Shri Narendra Modi Ji i.e. Jal Jeevan Mission and Swachh Bharat Mission. He confidently said that if all the stakeholders work in sync and the same direction, India would certainly lead and steer the world towards achieving sustainable development goals. Further adding to it, he also shared his

first experience as a representative of India at UN where to his utter dismay India was targeted and seen as culprit to every problem in the world due to its demography and size. But after 2014, under the leadership of PM Narendra Modi the tables have turned and now India is seen as a torchbearer and inspiration due to its inevitable presence and contributions to the world in achieving a sustainable world. He also appreciated Dr. Arvind Kumar and India Water Foundation for coming up with such a platform concerning judicious water consumption and multi-stakeholder partnerships addressing the same.

Mr. Loic Fauchon, President World Water Council greeted India and its representatives with a Namaste and asserted that water is gradually becoming an expensive commodity due to scarcity and excessive hunger for resources by humans. Therefore, unity and joint efforts are the key and way-forward. Multi-stakeholder partnerships are a new paradigm shift towards an efficient, technologically advanced, integrated and extensive water management through cooperation, coordination, convergence. He also invited the Indian water lovers to the 10th World Water Forum which shall be organized in Indonesia in March 2024.



Technical Presentations

The Ministerial Plenary was followed by two technical presentations.

1. Overview of status and changes to freshwater ecosystems based on Earth observation and SDG monitoring and reporting - **Mr. Stuart Crane, Program Coordinator SDG 6, Freshwater Ecosystems Unit, Ecosystems Division, UNEP.**



The presentation focused on how to leverage the best available science to track, monitor, and improve the health of freshwater ecosystems. He shared the data platform by UNEP which is also known as Freshwater Ecosystem Explorer, which converts satellite imagery into statistics and facilitates free access to information on freshwater ecosystems to track surface water

changes and also observe different aspects of ecosystems. He presented 20 year data from all over the world through illustrative maps, indicating river basins that experienced high levels of change far above the standard deviation. In addition to it, he mentioned that in India over 20 years, permanent water has increased by 20% and a substantial increase in seasonal water i.e. 50%; thus, strengthening water security of the nation. As a recommendation he laid emphasis towards the importance of local level at identifying changes in river basin and gave a way out on how to leverage the best available science to track, monitor, and improve the health of freshwater ecosystems with the help of latest and accessible data.

2. SDG 6 Progress in SSWA countries- **Mr. Rajan Sudesh Ratna, UNESCAP SSWA office.** He

highlighted the statistics regarding South and Southwest Asia towards achieving SDGs. focused on the performance of SDG6 not only for India but also on other sub regions like Asia Pacific and South & Southwest Asia. He highlighted some statistics at glance regarding implementation in achieving SDGs, especially Goal6. He stated along with data that target Goal 6 of Pacific is slightly better than of South & Southwest Asia because of the unavailability of appropriate data with the latter. But in case of India, it has already achieved or crossed the same target way back in 2019; thus appreciating the different stakeholders in achieving the same. As recommendations he talked about few monad-nocks in SSWA i.e. major economic sectors dependent on natural resources such as water, water stress, negative change in the



extent of water related ecosystem, erroneous and unavailability of data, and non-cooperation among different sectors.

High Level Panel Discussion

The session then proceeded towards a **High Level Panel Discussion** which was **moderated by Dr. Divya Datt, Program Manager, and UNEP India**. She highlighted that building national capacity to monitor freshwater ecosystems health and water management is the need of the hour and for the same multi-stakeholder partnerships are the only way to address the different dimensions of water issues. She also mentioned five critical issues enveloping water in the achievement of SDGs i.e. inefficiency of water use, tackling water pollution at source and wastewater management, impact of climate change on hydrometeorology in India, health of ecosystems including wetlands, and inequity in availability and accessibility of water.



Among our eminent guest panelists, the first was **Mr. Satya Tripathi, Former Secretary General of UN and currently Secretary General, Global Alliance for Sustainable Planet**. He focused on cross-system thinking and regenerative agriculture and also gave an example of Andhra Pradesh, a state in India that is running quite successful programmes for the same. While water health is vital



to the nutraceutical industry, but accessing high quality water is increasingly challenging. “Polluted water in the ground actually washes the essential nutrients plants need out of the soil, making the nutraceutical industry’s work harder,” he added. “This water pollution makes the soil acidic and affects the solubility of nutrient ions like magnesium, potassium, iron, and calcium.” Therefore, as a way forward he talked on cross-system thinking and regenerative agriculture as a

Low-Emission Development Pathway for Improved Resilience, Soil Health, Livelihoods, rehabilitate water services and catalyze the transition to sustainable food systems in India and regarding the same gave an example of Andhra Pradesh, a state in India that is running quite successful regenerative agriculture programmes. He also requested all the stakeholders to think beyond boundaries and work in silos and collaboration regarding sustainable development goals.

Mr. Jerker Tamelander, Director, Science and Policy, Secretariat of the Convention on Wetlands congratulated the Government of India



for adding 26 more wetlands under the Ramsar Convention of international importance and taking it to a total of 75 wetlands in India and appreciated India's efforts on implementing Ramsar Convention successfully. He stressed on integrated wetland policy as wetlands play an important role in functioning of the water cycle. As water moves through the surface or underground, it passes through wetlands, which in turn regulate the

quantity, quality and reliability of water which is crucial to achieve SDG agenda by 2030 and also talked about limited availability of data and limited exchange among sectors, lackadaisical monitoring and tracking of global targets. To conclude, he added that governments need to be more prudent at multi-sectoral collaborations in charting a roadmap to sustainable development.

The next panelist **Mr. Mark Smith, Director General, International water management Institute** highlighted that water resources management decisions are made by a multitude of actors working across various sectors and scales. Partnership and cooperation platforms are thus essential to ensure that these actors take coordinated decisions and work towards the same direction. Multi-stakeholder partnerships or such mechanisms unite stakeholders in a process to collaboratively solve problems and



explore opportunities, as they play a role of catalyser and manager to deal with changes in complex situations across societies. He also laid emphasis towards joint action and consensus building in achieving SDGs while bringing together local institutions to work collectively towards set targets.



Mr. Rajan Sudesh Ratna shared his inputs and put forward a question towards other panelists that how significant is strengthening linkages among environment and other socio-economic sectors? He also talked about

three pillars of sustainability i.e. Environment, Social and Economic factors. He called on all the stakeholders to see SDGs through a multi-farious approach to make it more holistic and inclusive.

In the end he concluded by stressing on efficient use of water through behavioral change and technological advancements in the sector.

Dr. Satya Priya, Senior Water Resources Management, Specialist, World Bank stated that water is a connector and crucial for mankind. No one policy, department and institutions can resolve the issue of water unavailability singlehandedly. Therefore, we need to focus on the source rather than the destination of water and concentrate on its forward and backward linkages. We should focus on how to make the source of water retainable and sustainable. He also talked about the role of communities that needs to be garnered when it comes to the implementation at the ground level and towards the end he also asserted quote by former Prime Minister of Singapore Harry Lee Kuan Yew that ‘Every other policy has to bend on knees for our water survival.



Mr. Ratnesh Jha, Executive Director, UN Global Compact Network India firmly said that if we are to have any chance of success, some of the world’s oldest needs—moving clean water to communities and removing dirty water—must be met with the best that modern technology has to offer. Smart water technologies across sectors can detect anomalies and can provide capacity building capacity. He also mentioned about the most successful initiatives on multi-stakeholder partnerships by UN Global Compact Network i.e. *UN Global Compact CEO Water Mandate* and the *Water Resistance Coalition* explaining that both these actions are industry-driven, co-

led, which elevate global water stress to the top of the agenda and catalyze innovations and digitization for Safe, Sustainable, Resilient, and Inclusive Water Management.

Ms. Patricia Meijas, Specialist Land and Water division, FAO brought the perspective of agriculture in relation to water and its different dynamics such as inefficiency, over-consumption and pollution of an indispensable resource i.e. water. She mentions that even if agriculture may be biggest water-related challenge of all. Already today, 70 per cent of all freshwater withdrawals go to farming but that share needs to be significantly reduced. If we are to feed the 10 billion people estimated to live on our planet by 2050,



agriculture must shift to much more water efficient crops and practices. She also requested all the stakeholders for their concerted efforts through willingness of different sectors, segregated data and evidence based informed decisions for multi-stakeholder collaboration.



Mr. MP Singh, Chief of Development Operations, Japan International Cooperation Agency gave a very different and unusual donor's perspective to the session wherein he laid importance towards neoteric knowledge exchange and relevant technology assistance towards achieving SDGs. He also readout few of the Japan's support to India through ODA loan in water and sanitation sector which accounts for more than 50,000 crores, through 38 ODA Loans, 4 Grant Aids and 12 Technical Cooperation Projects. A special mention of JICA's projects in water sector wherein water supply has reached to

approximately 30 million people and 15 million people have received access to sanitation. He also quite assertively mentioned that JICA's assistance for the development of water and sanitation sector in India is noted as one of the largest amongst all the bilateral and multilateral development partners in India.

Ms. Veena Khanduri, Executive Secretary-cum-Country Coordinator, India Water Partnership as a guest speaker stressed on the need for an open and transparent dialogue on evidence based knowledge in the water sector. She also laid emphasis on SDG 6.5.1 for data collection and exchange among multiple sectors for better multi-stakeholder partnerships at local and global levels respectively. Therefore, embarking towards a more responsible and inclusive sustainable development of the world and specifically India.



Ms. Divya Datt gave the concluding remarks to close the discussion.

MoU with India Water Foundation and Mahatma Gandhi Institute for Combating Climate Change (MGICCC)

India Water Foundation signed a Memorandum of Understanding with Mahatma Gandhi Institute for Combating Climate Change (MGICCC) which is an autonomous institute under Government of NCT of Delhi mandated to organize training programs for Government, Public Sector and Private Sector officials in climate change and related areas and to conduct actionable research in key areas like pollution control, waste management, biodiversity, greening, energy efficiency, renewable energy, climate change and clean development mechanism, etc. on 2nd November 2022 under the aegis of 7th India Water Week. Both IWF and MGICCC recognize that there exists synergy between



the two and both are concerned with tackling challenges relating to sustainable development and management of habitats and environment and there exists considerable scope for cooperation amongst them.

MoU with India Water Foundation and Network for Certification and Conservation of Forests (NCCF)

India Water Foundation (IWF) has signed a Memorandum of Understanding with Network for Certification and Conservation of Forests (NCCF) which is a registered society of experts and stakeholders of natural resources. The

MoU has been signed in the fields of carbon credits, water credits, sustainable management, protection and utilization of water resources, hydrology, sustainable development, capacity building and research. NCCF is engaged in the development of India specific and globally bench marked sustainability standards as its core working area, apart from working for policy advocacy, training and capacity building through multi-stakeholder engagement. NCCF is the National Governing Body of PEFC in India and is the part of PEFC thematic task forces covering industries like Rubber, Textile, Furniture, Construction and Packaging. NCCF has developed the first ever Indian Certification Standard for Forest Management and that has been endorsed by the leading international certification organization, the PEFC, giving it global recognition. This scheme is being used by many states for forest certification. NCCF has launched its Trees outside Forests (ToF) Certification Scheme, which is the first of its kind and is currently under the process of endorsement by PEFC. Looking forward to jointly explore and identify projects in water and environment related Sectors.



Webinar Under Amrit Sarovar Initiative: To commemorate the birthday of PM Modi and to augment the dream initiative of PM Modi, the Amrit Sarovar initiative under which 75 water bodies will be created in each district. India Water Foundation conducted a preliminary webinar in the series of webinars for the district magistrates of the country. The webinar was attended by the DMs and officials of more than 100 districts where experts from IWF had a

discussion with them towards achieving an Integrated Approach. It was followed by an interactive rich discussion. We appreciate the excitement shown by the districts in achieving these targets.

LOCAL

Gautambudh Nagar: 'Earth has experienced changes in climate and land use with practices like deforestation, intensive farming and Disruptions in Environmental Habitats which provide new opportunities for diseases. The integrated and multi-sectoral approach will galvanize support and commitment from key-stakeholders and seek for their contribution towards India's aim of becoming a net zero economy. To achieve that we need to have a synergy between various organisations working in a particular field and undertake a massive capacity building exercise to create a pool of trained manpower to achieve this mission" said Dr Arvind Kumar President, India Water Foundation at the final consultation workshop on 24/02/2023 at Bisrakh Block Development office, Gautambudh Nagar under the programme Year of Awareness on Science and Health supported by NCSTC, Ministry of Science and Technology, GOI. It was a follow up meeting to the earlier organised consultation on 09/02/2023. The meeting was chaired by Chief Development Officer of Gautambudh Nagar, Sh. Tejpratap Mishra and also present was the District Development Officer Mr. V K Tiwari. The consultation had multi-departmental participation and had presentations from experts of India Water Foundation like Dr Ajit Tyagi on Disaster Risk Reduction, Dr D K Tyagi on Climate Change and Forestry and Mr. J K Bassin on water management. The flip chart activity was much appreciated by the participants and gave an opportunity to share their #perspectives. Both the workshops organised by IWF will go a long way in strategising proper resource mapping especially with the burgeoning population in Delhi NCR. During the workshop twenty five Champions of Change were identified and duly rewarded. All the participants received certificates. Dr. Kumar in his address gave suggestions and solutions identified during the consultation.



We need to have a shared vision of the importance of convergence in scaling up programs where the varying socio-cultural contexts, differential financing, planning approaches and varying competencies need to be considered. An integrated approach in building resilience towards climate related risks and cascading human health risks” said Dr Arvind Kumar, President, India Water Foundation at the consultation workshop in Gautambudh

Nagar, Noida under the programme Year of Awareness on Science and Health (YASH) supported by NCSTC, Ministry of Science and Technology, Government of India on 9th February 2023. The consultation was chaired by Chief Development Officer Gautambudh Nagar who apprised the

India Water Foundation of the challenges at the block level of the district and shared with us the best practices of the block. The programme was held in the Bisarakh block of Gautambuddh nagar under the aspirational block model Programme to implement and enable holistic development in those areas that require added assistance. The focus area will also be more specific thus ensuring greater attention to detail. The consultation had inter departmental participation from various departments like water resources, agriculture, women and family welfare, education, health, skill development etc. The Flip Chart activity was much gripping for the participants, it gave them an opportunity to share their prospective ideas and perspectives on various issues. The consultation organized by IWF also had presentation by Mr J K Bassin on water scenario of the district. This workshop will be an autobahn for strategizing, planning, implementation and monitoring of existing challenges in the district like sanitation, water efficiency etc. With the mushrooming population in Delhi-NCR that cuts across technical and programmatic boundaries it needs specific attention, particularly to address challenges with multiple determinants spanning several sectors, such as sustainable environment.

East Delhi: “For Building Back Better, an aspiration linked to the societal and development transition towards low to zero carbon development, among other objectives, the pandemic is a catalyst or opportunity for the urgently needed acceleration of the transformational changes required for an inclusive, resilient, and sustainable future world for all” said Dr Arvind Kumar President India Water Foundation at the final consultation workshop under the programme 'Year of Awareness on Science and Health' supported by NCSTC, Ministry of Science and Technology, Government of India. The consultation was chaired by DM East District Sh. Anil Kumar Banka who made India Water Foundation aware of the existing challenges in the district like sanitation, bad roads etc. and sought support from IWF in charting out a proper district plan to address these challenges. There were two technical presentations by Dr Ajit Tyagi on Disaster Risk Reduction and early Warning System and by Dr J K Bassin on water resource management. There was participation from multi-departments and had in depth discussion on disaster risk reduction, water and sanitation, drainage, sewage etc. The flip chart activity was much appreciated by the participants and gave an opportunity to share their perspectives. The consultation organized by IWF will go a long way in strategizing proper resource mapping especially with the burgeoning population in Delhi NCR. During the workshop twenty five Champions of Change were identified and duly rewarded. All the participants received certificates.



Bulandshahr: “We have to stress on the critical importance of coordination and cooperation, and call for a network to enhance integrated approach towards human health risk, and building resilience towards climate induced disasters “said Dr. Arvind Kumar President India Water Foundation at the final consultation workshop under the programme 'Year of Awareness on Science and Health' supported by NCSTC, Ministry of Science and Technology, Government of India. The consultation had multi-departmental participation and had in depth discussion on sustainable agriculture practices like water use efficiency and climate smart-agriculture. The flip chart activity was much appreciated by the participants and gave an opportunity to share their perspectives. Both the workshops organised by IWF will go a long way in strategising proper resource mapping especially with the burgeoning population in Delhi NCR. During the workshop twenty five Champions of Change were identified and duly rewarded. All the participants received certificates and winning school children in the painting competition were also rewarded. Dr. Kumar in his address gave suggestions and solutions identified during the consultation.



Hapur: "Cooperation, Coordination and Convergence are the cornerstones for all inclusive sustained development of districts and should be aligned with an integrated approach." said Dr Arvind Kumar President India Water Foundation at the final consultation workshop under the programme 'Year of Awareness on Science and Health' supported by NCSTC, Ministry of Science and Technology, Government of India. The consultation was chaired by Chief Development Officer Ms. Purna Singh. She highlighted that capacity building, IEC and convergence is the need of the hour. Both the workshops organised by IWF will go a long way in strategising proper resource mapping especially with the burgeoning population in Delhi NCR. During the workshop twenty five Champions of Change were identified and duly rewarded. All the participants received certificates and winning school children in the painting competition were also rewarded.



Dr. Kumar in his address gave suggestions and solutions identified during the consultation. He presented CDO with his publication India at 75 and beyond and also gave her the award of the champion of change for her proactive leadership.

“The roadmap to development is sustainable integrated approach and the problems of human development, resource crunch or funding issues may have caused the slow pace development of



Hapur, but these problems can be reversed by capacity building, awareness, network and coordination to bring success for community and the future generation” said Dr. Arvind Kumar at the multi-stakeholder dialogue organized by India Water Foundation and supported by NCSTC Division, Department of Science and Technology, Government of India Ministry of Science and Technology Government of India on 7th October 2022 at Vikas Bhawan conference hall, Hapur. The dialogue was chaired by Ms. Perna Singh Chief Development Officer, Hapur and attended by around 80-90 nominated officers from various departments. The experts present from India Water foundation Dr S K Sharma Principal Advisor IWF and Dr. D K Tyagi former PCCF Maharashtra spoke about various indicators of development and gave expert opinion on queries. On this

occasion the CDO Ms Singh provided aglimpse of local issues, appreciated her officers and highlighted how it becomes important to converge development at a single platform laying its focus on fulfilling the aspirations of people to make their life better’ The entire day was filled with multi-sectoral interactive brainstorming discussion to encourage people to become catalysts for change and development themselves by identifying challenges and using their realistic ambitions to raise a high bar of success. The two day activity was filled by discussions with political representatives, intellectuals and other stakeholders from the district on the challenges plaguing the grassroots level who reciprocated with a positive gesture. Various outreach programmes like signature campaign, street plays, painting competition, dialogues and debates etc.

Bulandshahr: “Collaborative and multi-sectoral approach for designing and implementing programs and policies and interdepartmental coordination is the key to tackle the most urgent planetary, human and animal health threats. It can be achieved by adopting the one health approach in an integrated manner” said Dr. Arvind Kumar at the multi-stakeholder dialogue organized by India Water Foundation and supported by NCSTC Division Department of Science and Technology, Ministry of Science and Technology, Government of India on 6th October 2022 at the DM’s conference hall, Collectorate, Bulandshahr. The dialogue was chaired by Sh. Chandra Prakash Singh, District Magistrate, Bulandshahr in the presence of Sh. Abhishek Pandey, Chief



Development Officer, Bulandshahr and attended by around 100 nominated officers from various departments. The experts present from India Water Foundation Dr. S K Sharma Principal Advisor IWF and Dr. D K Tyagi Former PCCF Maharashtra spoke about various indicators of development and gave expert opinion on queries. On this occasion the DM Bulandshahr Sh. Chandra Prakash ji spoke on how around 90% of the issues emerge from the administrative setup or otherwise and in order to address them, one must first priorities to ensure a change in attitudinal mindset'. CDO Sh. Pandey in his address mentioned how global local experiences bring forth intense deliberations and discussions to ponder upon the #challenges and the quest for a positive solution.

The entire day was filled with multi-sectoral interactive brainstorming discussion to encourage people to become catalysts for change and development themselves by identifying challenges and using their realistic ambitions to raise a high bar of success. The two day activity was filled by discussions with political representatives, intellectuals and other stakeholders from the district on the challenges plaguing the grassroots level who reciprocated with a positive gesture. Various outreach programmes like signature campaign, street plays, painting competition, dialogues and debates etc.

PROGRAMMES ATTENDED BY INDIA WATER FOUNDATION

GLOBAL (INPERSON)

PARIS: Shweta Tyagi, Chief Functionary, India Water Foundation attended the UN Water Summit on Groundwater, which took place at UNESCO headquarters at Paris from 6-8 December 2022. The summit gathered more than 850 on-site participants, 3,500 online participants from more than 139 countries. The Summit was the culminating event of the 2022 campaign “Groundwater-making the invisible visible”, implemented by the dedicated UN-Water Task Force, co-ordinated by UNESCO and IGRAC, on behalf of UN Water. In the joint message, Governments, the donor community, the private sector and civil society are called upon to declare voluntary commitments and announce

accelerated action towards financing sustainable groundwater management. The summit culminated with passing the baton event from the Government of Senegal who organized the 9th World Water Forum in Dakar, Senegal to the Government of Indonesia who would be hosting the 10th World Water Forum in Bali, Indonesia.

PARIS: 80th Board of Governors meeting of the World Water Council - Conseil Mondial de l'Eau was held in Paris attended by Chief Functionary Shweta Tyagi. It was followed by the 9th General Assembly that was held on 10th December, 2022 attended by both Dr. Arvind Kumar and Shweta Tyagi.



REGIONAL (INPERSON)

ISLAMABAD: It was an overwhelming feeling to get an opportunity to bow in front of the statue of Mahatma Gandhi inaugurated by Gandhi ji himself at the Indian High Commission in Islamabad, Pakistan during Dr. Kumar’s visit to attend the Sixth South and South West Asia Forum on the Sustainable Development Goals organized by SSWA Office of UNESCAP from 5-8th December 2022. I availed the opportunity to present my latest publication on India at 75 and beyond to Sh. Dr Suresh Kumar, Charged'affaires at the Indian Embassy, Islamabad. He was deeply touched by the warm gesture of Sh. Dr. Suresh Kumar, Charged'affaires and Sh. Gaurav Thakur, First Secretary at India Embassy inviting me for lunch and spending a relaxed afternoon.

Sixth South and South-West Asia Forum on the Sustainable Development Goals

At the Sixth South and South-West Asia Forum on the Sustainable Development Goals discussing



Accelerating the recovery from COVID-19 and the full implementation of the 2030 Agenda for Sustainable Development at all levels from 5-7 December 2022 in Hybrid mode At Islamabad, Pakistan. Dr. Arvind Kumar made presentation on the report of SDG 6 progress and implementation which he drafted for UN ESCAP for the South and South west Asia countries – India, Nepal, Bhutan,

Afghanistan, Bangladesh, Pakistan, Srilanka, Iran, Turkey and Maldives. Accelerated actions are required to achieve clean water and sanitation (SDG 6) in the subregion as the progress towards the Goal is slow. Increasing water pollution, climate change impact, drought and desertification are worsening these trends. The contamination and low levels of water use efficiency, lead to water scarcity if unmitigated. The session discussed, among other things: Status, trends, emerging issues, and interlinkages of implementing SDG 6; Good practices to facilitate inclusivity in access to clean water and sanitation including innovative technologies & Areas for subregional cooperation.

Policy Dialogue on Regional Cooperation for Sustainable Development in South Asia – Role of the South Asia Network on SDGs (SANS)-ISLAMABAD

“Recent climate-related disasters in Pakistan, Nepal, Bangladesh and India are a reminder that policymakers must act now to protect their citizens and mitigate and reverse the signs of climate change to secure sustainable growth for the future. Regional cooperation and the SDGs are intrinsically synergistic and mutually reinforcing.” said Dr. Arvind Kumar, President India Water Foundation during the Policy Dialogue on Regional Cooperation for Sustainable Development in South Asia – Role of the South Asia Network on SDGs (SANS) organized by SSWA office UNESCAP on 8th December 2022. The session was moderated by Ms. Mikiko Tanaka, Head, ESCAP South and South West Asia Office, chaired by Mr Rana Ihsan Afzal, SAPM Coordinator for Commerce and Industries, Pakistan and opening remarks were by Ms. Cecile Fruman, Director, Regional Integration and Engagement,



South Asia, The World Bank Afghanistan. The presentation in the session was made by Dr. Arvind Kumar, Dr Posh Raj Panday, SAWTEE, Nepal and Prof Selim Raihan, South Asian Network on Economic Modeling (Online). The panelists in the discussion were Dr Hassan Daud Butt, Advisor, SDPI, Dr Omar Joya, Biruni Institute (Online), Dr Fahmida Khatun, CPD, Dhaka (Online), Prof Selim Raihan, South Asian Network on Economic Modeling (Online), Ms Sonam Pem, Tarayana Foundation Center, Bhutan (Online), Prof Sachin Chaturvedi, Research and Information System for Developing Countries, India (Online), Dr Arvind Kumar, India Water Foundation, Mr. George Cheriyan, CUTS, India (Online), Prof Nagesh Kumar, Institute for Studies in Industrial Development, India (Online), Dr Posh Raj Pandey, SAWTEE, Nepal, Dr Abid Suleri, SDPI, Islamabad and Dr Lakmini Fernando, IPS, Sri Lanka. Other special invitees in the session were Dr Güven Sak, The Economic Policy Research Institute of Turkiye (Online), Ms Tayaba Batool, Capacity Analytics, Dr Aishath Shehenaz Adam, Maldives National University (Online) and Ms Sofoora Kawsar Usman, Sustainable Development & Research Institute (Online).

Plenary on Strengthening Climate Diplomacy in South Asia: Together for Implementation'

"Pursuit of climate diplomacy by the countries of South Asia entails the potential of enabling the concerned countries to prepare for appropriate risk assessment and risk management strategies at a regional and global strategic level" said Dr Arvind Kumar as panelist during the plenary on Strengthening Climate Diplomacy in South Asia : Together for Implementation' of SDPI's Twenty-fifth Sustainable Development Conference (SDC) & Sixth South and South West Asia



Forum on the Sustainable Development Goals organized by SDPI and Ministry of Planning of the host country on 5th December 2022. Other esteemed co-panelists in the session were Dr Abid Qaiyum Suleri, Executive Director, Sustainable Development Policy Institute, Mr Farrukh Iqbal Khan, Director General, Organization for Islamic Cooperation and Economic Diplomacy (OIC&ED), Ministry of Foreign Affairs, Mr. Mohammad Khosa, Senior Commercial Director, PepsiCo, Mr. Ahmad Rafay Alam, Environmental Lawyer, The session was chaired by Ambassador Shafqat Kakakhel, Chairperson, BoG, SDPI and guest of honour was H.E. Dr Riina Kionka, Ambassador, Delegation of the European Union to Pakistan.

GLOBAL ONLINE

79th Board of Governors Meeting of the World Water Council

Dr. Arvind Kumar attended the 79th board of Governors meeting of the World Water Council held on 15th and 16th October in Egypt in hybrid mode.



The meeting was held in Cairo, Egypt on the sidelines of the Cairo Water Week and was graced by Minister of Water Resources and Irrigation, Hani Sweilam of Egypt. There were several presentations on taking the outcomes of the 9th World Water Forum to the next level and role at UNFCCC COP 27 which is also being organized in Egypt. Therefore we attended it virtually because we have to travel to Egypt again

next month. Shweta Tyagi, Chief Functionary, India Water Foundation also attended the meeting. We are happy that the 10th World Water Forum is being organized in Bali, Indonesia, Asia and our support and cooperation is with the Government of Indonesia in every way. I took this opportunity to invite the governors of the board to attend the 7th India Water Week as knowledge partner of the Ministry of Jalshakti, Government of India in organizing the water week. The World Water Council and the Government of Indonesia signed an agreement in a hybrid form to commence a formal collaboration for the organisation of the 10th World Water Forum. From the Government of Indonesia the agreement was signed by H.E. Basuki Hadimuljono, Minister of Public Works and Housing, Indonesia. Several other bilateral agreements were signed and we looking forward to an exciting year ahead full of new possibilities.

REGIONAL ONLINE

SANS MEETING: “The SANS network is getting more vibrant, focused and inclusive. Inter Regional Trade, Clean Green Energy play a significant role in robust climate Action and is possible through effective regional cooperation. The development gains of cooperation are immense, and in the face of extreme climate events and major long-term risks, a quest for resilience should not stop” said Dr Arvind Kumar, President India Water Foundation in the first 2023 SANS members brainstorming session on 15 February 2023, to discuss the short-term strategic deliverables for the sub-region,



prepare an action plan for such delivery and how SANS members would contribute/deliver them. The meeting was organized by UNESCAP SSWA office following the discussions in the Regional Policy Dialogue on 8 December 2022 in Islamabad.

ESCAP-CED: "Our objective should be to share knowledge and experience on implementing Climate Smart Agriculture and harness regional level collaboration. To implement priority actions linking the CSA approach with agriculture-related investments, policies and measures in their transition to CSA; sharing and discussing mainstreaming and up-scaling of CSA good practices and case studies" I said during my intervention in the ministerial Session of The seventh session of the Committee on Environment and Development at ministerial level. This meeting was called for by the declaration adopted at the Seventh Session of the Ministerial Conference on Environment and Development in Asia and the Pacific. The Committee on Environment and Development (CED) is an intergovernmental body of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). It is convened every two years to review regional trends, identify priorities for action, promote dialogue, consider common regional positions and promote a collaborative approach to addressing the development challenges of the region between Governments and civil society, the private sector and the UN System and other international organizations. The CED provides recommendations to the Commission as a body – made up of 53 members and 9 associate members. The Committee is organized on the theme of “Protecting our Planet through Regional Cooperation and Solidarity in Asia and the Pacific” from 29 November – 1 December 2022 at Bangkok, Thailand



SANS MEETING: "As many of our challenges from air pollution, disasters to connectivity cut across borders, we have to push the importance of regional cooperation for the implementation of the 2030 Agenda and UNESCAP and SANS can play a key role in coordinating and supporting regional actions." is what I highlighted during the preliminary meeting for the Policy Dialogue on Regional

Cooperation for Sustainable Development in South and South West Asia (SSWA) – Role of the South Asia Network on SDGs (SANS) . The main meeting of SANS members shall take place on the sidelines of 6th South Asia Forum on sustainable development at Islamabad, Pakistan from 5-8th December 2022. It was a pleasure interacting with other members of the SANS network from Bangladesh, Pakistan, Nepal, Sri Lanka and Afghanistan.

NATIONAL (INPERSON)

MADHYA PRADESH : Dr. Arvind kumar attended the one day Water Conclave organised by Madhya Pradesh State Policy and Planning Commission to present review and deliberate on the draft Integrated Water Policy for the state of Madhya Pradesh on 30th September 2022. It is an honour to be part of the Policy Drafting Committee and contributing in creating the Policy Framework and institutional creation. It's first of its kind policy which is taking shape in a proper way and would turnout as envisioned by the Hon'ble CM. The conclave was chaired by the hon'ble Chief Minister Sh. Shivraj Singh Chouhan who is a visionary leader and very vocal about turning water conservation into a priority issue. The conclave had the presence of Prof. Sachin Chaturvedi, Vice Chairman of Madhya Pradesh policy and planning commission, Sh. Tulsi Silawat, Minister of Water Resources MP, senior bureaucrats from the state, officials from line departments and multistakeholders for consultation.



INAUGURATION OF THE 7TH INDIA WATER WEEK: It was a glorious moment for all of us to witness the opening ceremony of the 7th India Water Week with the precise addresses of President of India H.E. Smt. Draupadi Murmu, hon'ble Governor of Uttar Pradesh Smt. Anandiben Patel, Hon'ble CM of UP sh. Yogi Adityanath, Hon'ble Union Minister of Jalshakti Sh. Gajendra Singh Shekhawat and Sh. Pankaj Kumar, secretary Ministry of Jalshakti in presence of Hon'ble MOS Jalshakti Sh Tudu and Sh. Prahlad Patel. With her gracious presence and warm address the



President Murmu officially opened the water week. All the galaxy of dignitaries very graciously and with warmth welcomed the delegates, international guests, organizations, water warriors. Sh. Shekhawat's address was especially excellent and very balanced on the achievements of India in water sector. His humble demeanour and sartorial style is what makes him the leader of youth. He enjoyed the cultural programme with the delegates and opened the exhibition as well. It's very commendable that he was present for the whole day and was full of energy

throughout. The valedictory session on 5th November shall be graced by HE Vice President of India and several other ministers.

DST MEETING: Dr Arvind Kumar, President India Water Foundation had a comprehensive fruitful meeting with Hon'ble Secretary, Department of Science and Technology, Ministry of Science and Technology GOI and had discussions on various issues and challenges and explored areas of future collaboration and cooperation between IWF and DST. The warm gesture of the hon'ble secretary is quite appreciative. Other senior officials present in the meeting were



Mr S K Varshney, Head International Cooperation, Scientist G Department of Science and Technology, Dr. Neelima Alam Scientist F Technology Mission Division Department of Science and Technology GOI. Dr. Kumar also presented Dr. Srivari Chandrasekhar his latest publication on India at 75 and Beyond.

TECHNICAL SESSION INDIA WATER WEEK: Dr Arvind Kumar made a technical presentation on 2nd November 2022 in the Technical Session organized by Indo-German Bilateral Development Cooperation Project Water Security and Climate Adaptation in Rural India (WASCA-II), GIZ and convened also by GIZ India on Impact of Climate Change Adaptation Strategies as part of the 7th India Water Week. Dr. Kumar's presentation was titled 'Climate Change Adaptation



via Cross Cutting Methods' and it delved on the cross-cutting role that climate change plays in varied sectors and how concepts like ecosystem based adaptation is a strategy that if adopted timely will address and fulfill achievement of all 17 Sustainable Development Goals by 2030. The sessions had various presentations from experts on climate change, case studies shown by Shri. Yogesh Kumar (IAS), Additional Commissioner, MGNREGA, Department of Rural Development, Uttar Pradesh, Smt. Sufiyah Faruqui Wali (IAS), Commissioner, MGNREGA, Department of Rural Development, Madhya Pradesh, Dr Darez Ahamed (IAS)

Commissioner, Department of Rural Development, Tamil Nadu, Smt. Shivangi Swarnkar (IAS), Commissioner, MGNREGA, Department of Rural Development, Rajasthan and Ms. Shilpa Nag C T (IAS), Commissioner, Department of Rural Development and MGNREGA, Karnataka

IUCN MEMBERS MEETING WITH DG: "We have to chart out a proper annual road map and adopt an integrated approach for ecosystem conservation and restoration. This is a great opportunity



for us to identify possibilities of engagement with IUCN. A platform like IUCN can bring together the strengths of national and sub-regional members to complement each other's strengths and further vibrant engagement. Sustainable funding needs to be explored with conservation and restoration of sustainable wetlands, forests, river systems etc. as well" I said during a members hybrid meeting with the visiting IUCN Director General Mr. Bruno Oberle, Ms. Grethel Rojas Deputy Director General and IUCN regional Councillor Mr. Vivek Menon at IUCN India Country Office. We appreciate the warm gesture of the DG and DDG. The regional councillor Mr. Menon is very

proactive and deserves a thanks from all the members for convening this meeting at such a short notice. I also presented the DG with my book India at 75 and beyond and had comprehensive discussions with other members.

Y20 UNDER G20: It was very exciting to be amidst youth and taking their perspectives on topics of environment, health, science etc. for the YASH project of India Water Foundation sanctioned by the Ministry of Science and Technology, Govt of India at the Netaji Subhash Technical University on 16th February 2023. The activities were aligned with the Neighborhood Youth Parliament organised by Nehru Yuva Kendra. There were various Departments involved covering diverse topics/ backgrounds such as Yoga, Environment, Health, International Year of Millets, Mission LiFE, Cultural etc. integrated with components of G20's Y20 working.



REPORTS

India at SCO: Towards MULTI-ALIGNMENT

*Dr. Arvind Kumar**

The SCO declaration 2022 was a set of a mine run and promises and the proceedings were also banal. Yet, India's participation was desirable and the visit of the Prime Minister was meaningful for India's national interests and foreign policy goals.

Geopolitical realities do not present black-and-white choices. When you have complex relations with your neighbours, it makes sense to engage with their neighbours. The SCO region is India's immediate neighbourhood. Last week all the attraction was on the Shanghai Cooperation Organization (SCO) summit held in Samarkand, Uzbekistan. The two day deliberation of the 22nd meet had full attendance and was important for India for its presence being



Picture Courtesy: MEA

felt and significant for Prime Minister Narendra Modi to refrain from engaging China and Pakistan in bilateral dialogues on the sidelines of the summit, protrude India's achievements and offer India's help in promoting connectivity in setting up regional resilient supply chains and combat terrorism.

The Samarkand declaration advocated "commitment to peaceful settlement of differences and disputes between countries through dialogue and consultation". They stressed that the principles of mutual respect for sovereignty, independence, territorial integrity of States, equality, mutual benefit, non- interference in internal affairs, and non-use or threat of use of force are the basis for sustainable development of international relations. The member countries are also planning to develop common principles and approaches to form a unified list of terrorists, separatist and extremist organizations whose activities are prohibited on the territories of the SCO member states. Russia was seen fetching more customers for its gas as Western countries look to cut their dependence on it and suggested that the organization should think about holding its own big athletic event.

The Shanghai Five, formed in 1996, became the Shanghai Cooperation Organization (SCO) in 2001 with the inclusion of Uzbekistan. With India and Pakistan entering the grouping in 2017 and the decision to admit Tehran as a full member in 2021, SCO became one of the largest multilateral organizations, accounting for nearly 30% of the global GDP and 40% of the world's population.

The summit which brought the Presidents of member states Russia, China, Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan together, as well as Prime Ministers of India and Pakistan, and the Presidents of the observer nation, Iran, attracted great international interest. Türkiye attended the summit as special guest with other guest countries, including Azerbaijan, Armenia, Belarus, Turkmenistan, and Mongolia. Particularly, the picture that reflects the leaders who attended the summit, sitting together and listening to Indian Prime Minister Narendra Modi drew attention of international media.

In the era of the Russia-Ukraine war, strained relations between China and the US, and unstable situations in different regions in Eurasia, the organization is one of the main platforms for regional powers in Eurasia that promotes a stable security environment. However, one cannot ignore that there are enormous internal contradictions within this organization. Bilateral hostility between India and Pakistan, China and India, fear of Russia in Central Asian Republics, and Russian apprehensions about Chinese economic dominance in its near-abroad are too obvious to gloss over.

Three developments in the last couple of years affected cohesion in SCO. First, the COVID-19 pandemic did not permit the summit level interactions among the SCO members for two years to take place. Second, the Russian invasion of Ukraine started a new kind of Cold War between Russia and the US-led West. And, third, the fourth Taiwan Strait crisis was sparked by the visit of Speaker of the US House of Representatives Nancy Pelosi to Taipei.



Picture Courtesy: MEA

The Samarkand summit of the SCO was organized in the backdrop of those developments that have led to Russia and China coming together against the US. The spill-over effect of the Ukraine war on Europe and, in fact, the rest of the world and the psychological effect of Chinese threat to use force against Taiwan to unify it with the mainland in the Indo-Pacific influenced the proceedings in the SCO summit.

India urged Shanghai Cooperation Organization member states to give each other full right to transit, as it would enhance connectivity and help in establishing reliable and resilient supply chains in the region. India also emphasized the initiative to promote millet and address issues related to food security and playing a big role in marking 2023 as the International Year of Millets. In addition to this, under the framework of major cultural outreach programme, Varanasi (Banaras) was declared as the SCO Tourism and Cultural capital for 2022-23 to promote the rich cultural and historical heritage of the people and the tourism potential of SCO member states. The rotational

presidency of the Shanghai Cooperation Organization has been handed over to India in Samarkand. Delhi will hold the presidency of the grouping for a year until September 2023 and next year, India will host the SCO summit.

The SCO declaration 2022 was a set of a mine run and promises and the proceedings were also banal. Yet, India's participation was desirable and the visit of the Prime Minister was meaningful for India's national interests and foreign policy goals. India traditionally is opposed to bloc formation and India happened to be the only country in the SCO that could not have been pressured to take anti-Western stands. The Samarkand summit of SCO indicates that Russia and China would not be able to make the body an anti-Western regional body, despite their current bonhomie. Yet, it is important to keep SCO as a mechanism to back multilateralism; and thus India assuming the chairpersonship of this body will be a test for Indian diplomatic skill in the run-up to the next summit in Varanasi to promote multilateralism in the emerging world order. India's success will underline the relevance and value of its "strategic autonomy."

That is one reason why forums like SCO come handy!

**President, India Water Foundation*

World Water Week 2022 in Review

*Shweta Tyagi**

“Almost half of the world’s human population relies heavily on groundwater for survival, and as that population continues to grow, many more people will come to depend on this water source.” Gabriela Suhoschi, Director, World Water Week and Prizes, SIWI

There is a lot more water in the planet than what we can see in our local rivers, lakes, and oceans. Water that we may not be able to see is also a part of the hydrological cycle and is very important to our efforts to achieve a sustainable future. The significance of this “invisible water” is one of the key issues that were covered at World Water Week in 2022 held from August 23 through September 1 at Stockholm.

This year the theme was **“Seeing the Unseen: The Value of Water.”** The focus of the theme was three key areas:

- *The importance of water for human health and development;*
- *The value of water in relation to the environment and climate change;*
- *The value of water in terms of economics and finance.*



The conference paid special attention to groundwater, soil moisture, and atmospheric water, collectively referred to as “invisible water,” which are difficult to see with the human eye, making them frequently forgotten—even by water experts—and their potential underutilized. It emphasized on the need to change, in light of the current global water crisis if we are to achieve the Sustainable Development Goals, in particular Goal 6, focusing on providing everyone with access to clean water and sanitation and create a more inclusive and better future for all.

SDG6, groundwater management, World Toilet Day in 2023, the interconnectedness of water and sanitation in all facets of human society development, the role of developing countries, and the UN Water Conference in 2023 were some of the major topics that were discussed and explored during the event in a variety of formats, including workshops, panels, presentations, storytelling competitions, and more.

The event up welled the current global food crisis with over 50 million people experiencing severe food insecurity, mostly as a result of drought, in East Africa, European and American regions and reports from UNCCD suggest better water management and land restoration as the most feasible alternatives because if left forsaken, over 75% of the world’s population could be impacted by 2050.



Image Source/Credit: Newmyroyals

Another major highlight of World Water Week is the Royal Award ceremony. This year in the junior category Camily Pereira dos Santos and Laura Nedel Drebes were awarded upon developing biodegradable sanitary napkins from plant waste which can lessen plastic pollution and stop water waste.

The Stockholm Water Prize was conferred upon Dr. Wilfried Brutsaert, popularly referred to as Mr. Evaporation in the hydrology field, acknowledging his work on invisible water, particularly groundwater and evaporation.

Participants from various countries shared their experiences illustrating the difficulties the rapid change in water is posing to their communities. The flooding in Pakistan, the food crisis in Africa, and the drying rivers of Europe are just a few examples of extreme disasters that were discussed extensively. India, too shared its experience by shedding light on National Mission for Ganga’s “Arth-Ganga model” of successful valuing of rivers for people and development. The model aims to achieve a symbiotic relationship between nature-society, by strengthening the people-river connect which is being implemented through development of natural farming along with a move towards decentralized governance.



Dr. Lan Wang-Erlandsson from Stockholm Resilience Centre, remarked that the theme of this year’s World Water Week “hits the nail right on the head” and others appeared to concur that the theme was truly topical. But several speakers also emphasized that there are significantly more solutions than are typically reflected in the conversation and here are a few key takeaways ahead of 2023, a crucial year for water.

- **There are more solutions than most people think**

Investing in sanitation, regenerative farming, water-smart city planning, early-warning systems, and watershed restoration are a few of the answers that might help lessen the effects of droughts, floods, and storms around the world.

- **We need transformations rather than just problem solving**

“Profound societal shifts are required to confront the interconnected climate, water, and biodiversity problems in a way that leaves no one behind,” the conference stressed.

- **Everyone must participate in the transitions to enable real change, especially women and young people.**

To enable “radical and inclusive transformations” that will help us reach the SDGs, **water must be at the top of the global agenda.**

- **A new relationship with nature is required,** one in which water is viewed holistically and the interdependence of freshwater, terrestrial, and marine ecosystems is acknowledged.

The World Water Week provides an international forum for networking and collaboration as well as one-of-a-kind opportunities to interact with people from all around the globe and learn first-hand about their experiences and demonstrates that despite unsettling trends like the rise of polarization, wars, and tensions worldwide, we have the power to steer the world towards a more sustainable trajectory and that working as a community can be crucial to bring about change. But for that, it is imperative that we induce a fresh perspective about what is achievable and a common understanding of the objectives we hope to accomplish.

**Chief Functionary, India Water Foundation*

Historic biodiversity accord clinched at COP15 summit

*Dr. Arvind Kumar**

Participants in the WG meetings also discussed potential global benefit-sharing systems for the use of digital sequence information (DSI) on genetic resources. An informal advisory group contributed by developing policy alternatives that covered the entire gamut from bilateral to multilateral approaches. To the astonishment of many, the difficult and contentious subject of DSI led to fruitful conversations and advanced very swiftly. This was most likely influenced by the fact that representatives from developing nations consistently stated that they thought benefit-sharing from the implementation of DSI was an essential component of any GBF. These changes were reflected at the COP, when DSI debates advanced more quickly than GBF discussions.

The Conference of the Parties (COP) to the Convention on Biological Diversity (CBD) adopted the hard-won, thoughtfully-considered Kunming-Montreal Global Biodiversity Framework during its 15th conference, which was all about compromise. The GBF itself offers the background: the global rate of species extinction is at least tens to hundreds of times higher than during the preceding 10 million years, and 25% of species in examined animal and plant groupings are threatened. In addition to providing food and fibre, biodiversity improves people's quality of life by creating chances for employment and recreational activities. Changes in land and marine usage, direct exploitation of organisms, climate change, pollution, and invasive alien species are the main causes of the extraordinary loss of biodiversity.



Picture Courtesy/Credit: Indian Express

Given how difficult it is to reverse the loss of biodiversity, only major overhaul will be able to do it. The entire society must engage in transformative thinking, and all economic endeavours must be reevaluated through the prism of biodiversity. The 2022 UN Biodiversity Conference's main objective was to facilitate this transformative process, and it succeeded in doing so by adopting a number of measures that fall within the Convention and its Protocols. The civic society had high hopes for the caucus. Throughout the two-week conference, delegates heard the message, "The world is watching you." Parties submitted the anticipated updated roadmap to 2030 with the GBF, marking an important step toward the goal of achieving ecological harmony by the year 2050.

On process for transformative potential

The Aichi Biodiversity Targets, the previous CBD framework to “take effective and prompt action to halt the loss of biodiversity,” were adopted by the parties for the ten-year period of 2011–2020. In Kunming, China, the new GBF was scheduled to be adopted as its replacement in late 2020, but the COVID-19 epidemic postponed both events. Since there was a longer than expected two-year wait for a physical COP, certain preliminary sessions of subsidiary bodies, working groups, and advisory organizations had to be convened virtually. It became evident during the discussion at this COP on the examination of the effectiveness of processes that many people found virtual meetings to be difficult. Technical shortcomings, time zone disparities, and difficulties with unofficial consultations contributed to a less than ideal situation to lay the groundwork for a new biodiversity framework.

Five sessions of the Working Group (WG) on the GBF were called by delegates, including one just before COP 15. As the negotiation text expanded and shrank at various points, the participants were reminded of an accordion. The “zero draft” submitted by the WG Co-Chairs later evolved into a first draft after the addition of the parties’ suggestions. An unofficial group had simplified the initial text before the last WG meeting; a few days before the COP, it was once more loaded with party insertions. This procedure may have seemed ineffective, but it did make sure that delegates and other participants understood the diverse perspectives and interests at stake.



Picture Courtesy/Credit: Reuters

Participants in the WG meetings also discussed potential global benefit-sharing systems for the use of digital sequence information (DSI) on genetic resources. An informal advisory group contributed by developing policy alternatives that covered the entire gamut from bilateral to multilateral approaches. To the astonishment of many, the difficult and contentious subject of DSI led to fruitful conversations and advanced very swiftly. This was most likely influenced by the fact that representatives from developing nations consistently stated that they thought benefit-sharing from the implementation of DSI was an essential component of any GBF. These changes were reflected at the COP, when DSI debates advanced more quickly than GBF discussions.

Up to the last days of COP 15, the interrelationships between so many things proved to be one of the major obstacles preventing progress. Many delegates were unable to commit to the high goals outlined in the draft GBF if there was no commitment to effective resource mobilization, and vice

versa, creating a “chicken and egg” problem. However, the inherent interdependence of the components made it clear that a package needed to be presented to the plenary for comprehensive assessment. The GBF, its monitoring framework, resource mobilisation, DSI, capacity building, planning, monitoring, reporting, and review were the six main components that made up the final package.

Shift to a new level of consciousness

In addition, the hastily gavelled passage of the package in the early hours of Monday, December 19, just hours before the COP was scheduled to end, against the declared protest of one party, may have had a negative impact on this COP. Later that afternoon, however, there was a brief moment of reconciliation that served to correct the situation, and resistance was reduced to a reservation in the



Picture Courtesy/Credit: Greenhumour

meeting report. Consequently, the COP came to a joyful conclusion with new GBF as more inclusive, comprehensive, and SMART (as in more specific, measurable, achievable, relevant, and time-bound) than the Aichi Biodiversity Targets, however much complex.

Targets 1 through 8 are intended to mitigate threats to biodiversity, with two targets standing out for having higher ambitions than the previous targets: to effectively conserve 30% of terrestrial, inland water, coastal, and marine areas through protected areas and other effective area-based conservation measures by 2030 (from 17% for terrestrial and inland water and 10% for coastal and marine areas by 2020); and to make sure that at least 30% of degraded terrestrial, inland

water, and marine areas are restored by 2030 (from 10% for coastal and marine areas by 2020). Targets that are more particular than the prior targets are added in addition to these core targets. They deal with spatial planning, preventing the extinction of high biodiversity areas, stopping human-caused extinctions, collecting wild species sustainably, and mitigating the effects of invasive alien species, reducing risks from incessant use of pesticides (at least by half) and minimizing the overall impact from climate change.

Targets 9 to 13 focus on addressing people’s needs through shared benefits and sustainable use. The main issues are how to manage wild species and regions of primary industry in a sustainable way, how to maintain ecosystem services and functions, and how to make sure that everyone benefits

from the utilization of genetic resources. Unlike the Aichi Targets, Target 12 intends to increase biodiversity's interconnectedness through green and blue spaces in metropolitan areas.

The tools and solutions for implementation and mainstreaming are addressed in targets 14 to 23. Most crucially, in contrast to the ambiguity of the relevant Aichi Target, the resource mobilization targets have been quantified. The objective of Target 19 is to significantly increase the level of financial resources from all sources to at least USD 200 billion annually by 2030, including by increasing transfers from developed to developing countries to at least USD 20 billion annually by 2025 and at least USD 30 billion annually by 2030. The USD 200 billion target lists the resources needed for domestic execution but leaves unspecified the total amount that domestic, international, public, and private resources are expected to contribute. Furthermore, the parties made a bold commitment to modify any subsidies or other incentives that endanger biodiversity and cut them by at least USD 500 billion annually by 2030. Parties are obligated under Target 15 to take action to encourage and facilitate the private sector's disclosure of and response to adverse impacts on biodiversity.

The GBF is a more extensive and all-encompassing system than its predecessor according to Section C on “considerations for the implementation of the framework.” First, it reaffirms the crucial functions and contributions of indigenous peoples and local communities (IPLCs) as keepers of biodiversity and collaborators in conservation, as well as their rights under the UN Declaration on the Rights of Indigenous Peoples and other international agreements. It alludes to several belief systems, such as the idea of coexisting peacefully with Mother Earth, which was crucial during the negotiations. Additionally, it subjects the GBF to a whole-of-government and whole-of-society approach that emphasizes intergenerational parity, gender equality, a human rights-based perspective, and connections between biodiversity and health. Additionally, it recognizes that each party will make contributions in accordance with national circumstances, priorities, and capabilities.

On Implementation

“We can now destroy or we can cherish, the choice is ours.” – Sir David Attenborough

The GBF, a new guide to coexisting with nature, intends to support, enable, and finance the essential action to combat biodiversity loss. By updating national biodiversity strategies and action plans, it is anticipated to strengthen biodiversity policies at all levels in the public and commercial sectors (NBSAPs). The indicators chosen by this COP will also make it easier to measure, report on, evaluate, and review policy action, which is expected to facilitate implementation.

Simultaneously, the more comprehensive GBF will aid in dismantling silos, enabling the mainstreaming of biodiversity in other policy fields like agriculture and health. But it is doubtful whether it will be successful in tackling the direct and indirect causes of biodiversity loss, especially those connected to unsustainable growth and rising inequities.

India's stance at COP-15

While the Global Biodiversity Framework was attempting to address various assessments, India, one of the Convention's Parties and a member of the High Ambition Coalition (HAC), strongly pushed for consideration of Digital Sequence Information (DSI) under the CBD's access and benefit sharing mechanism, among other things. India also rejected the idea of area-based biodiversity conservation targets and stated that the one-size-fits-all approach is unacceptable. Minister of Environment, Forestry, and Climate Change Bhupender Yadav as the head of the Indian delegation said "Hundreds of millions of people depend on agriculture for their survival, means of subsistence, and cultural identity. Therefore, necessary assistance to disadvantaged sectors cannot be referred to as subsidies and should not be targeted for elimination. Their security in food and nutrition must be assured while promoting modernization. The viability of a post-2020 global biodiversity framework, he continued, "will depend on the mechanisms we establish for an equally ambitious Resource Mobilization Mechanism". The provision of financial resources to parties from poor countries requires the development of a fresh, special procedure. To ensure the successful execution of the post-2020 GBF, such a fund should be operational as soon as possible.



Picture Courtesy/Credit: The Hindu

Lessons learned and moving forward

The evaluation of the largely unmet Aichi Biodiversity Targets warns that the GBF will only be as good as its implementation. The ability of the CBD parties to meet the GBF targets will depend on the prompt allocation and transfer of the required funding. Building capacity, transferring technology, and collaborating in science will all be crucial. The GBF will not be successful without more sustainable consumption choices being made by everyone, in addition to economic development.

While acknowledging that the COP mostly met its objectives, certain delegations singled out specific GBF provisions as unrealized potential. They emphasized that there should have been more financial obligations to developing nations, a time-bound trajectory for stopping species extinction, and an objective for the sustainable management of productive regions that extends beyond basic sectors. Some people also brought up the fact that this COP failed to take substantial action on significant concerns outside of the GBF package, such as biodiversity mainstreaming and climate change. This was primarily brought on by divergent views on whether the Convention was capable of implementing the principle of common but differentiated obligations as well as underlying socioeconomic concerns by some parties. Stripping these decisions of most of their content prevented the harvesting of the fruit of four years' collective work, some observed.



Picture Courtesy/Credit: Reuters

This COP was a success overall because the rigorous GBF package was adopted. The GBF was accepted as a fair compromise that moved society one step closer to coexisting with nature. The GBF is a brand-new strategy that is inclusive, thorough, moderately SMART, and fairly ambitious. Only time will tell if it has the power to revolutionize biodiversity governance, prevent and reverse current patterns of biodiversity loss, and foster human peace with nature.

**President, India Water Foundation*

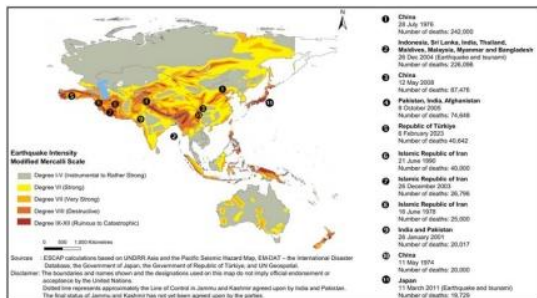
A report on India Energy Week 2023 ‘**Showcasing India’s Growing Prowess as an Energy Transition Powerhouse**’ by Ms. Shweta Tyagi , published in Focus Global Reporter.

The first major event under India’s G20 Presidency the India Energy Week 2023 India held in Bengaluru from February 6–8, 2023 and provided a dynamic unique opportunity for India to bring together all the international stakeholders, domestic as well as international, on a common platform to facilitate Growth, Collaboration and Transition to make a sustainable, transformative and prosperous future for all.....Click on the link ahead to read the complete report-



<https://www.facebook.com/drarvind.kumar.3/posts/pfbid02Av6j4kGZh2De3TdTfKxNtnkYPJuYbs9Jq8ekU7DjVsC4Hew5t1EC2Mzp1GwLvsn51>

A report on '**The tremors that jolted Syria and Turkey: Is South Asia Safe?**' by Shweta Tyagi* published in focus global reporter.



Hazards always come as a surprise but are also inevitable. The tragic events in Syria and Turkey are virtually identical. They were caused by a fault system, which has been well-documented through years of laborious fieldwork, historical records, and geophysical observations. Several cities were tragically destroyed by the earthquake on February 6 and its powerful aftershock, which occurred in southeast Turkey and Syria and was approximately

equally strong.....Click on the link ahead to read the complete report –

https://www.focusglobalreporter.org/the-tremors-that-jolted-syria-and-turkey-is-south-asia-safe/?fbclid=IwAR3_ON_pW2RSYW3unIyJXpQ3M63RCqdNGhIUO7m4QBDrEDPvhRcJkNI_x-U

PUBLICATIONS

During the India Water Week the minister Sh. Gajendra Singh Shekhawat, Hon'ble Union Minister, Ministry of Jal Shakti, Government of India, and had special addresses by Shri Kailash Choudhary, Hon'ble Minister of State, Ministry of Agriculture and Farmers' Welfare, Government of India, Mr. Atul Bagai, Head, UNEP India office, Mr. Rajan Sudesh Ratna, Deputy Head and Senior Economic Affairs Officer, UNESCAP, SSWA Office and Dr Arvind Kumar, President, India Water Foundation launched three publications -

'Ecosystem based Adaptation approaches to sustainable management of aquatic resources' and by Dr. Arvind Kumar. This book '**Ecosystem based Adaptation approaches to sustainable management of aquatic resources**' presents a close examination of the role of ecosystem-based adaptation in managing river basins, aquifers, flood plains and their vegetation to provide water storage and flood regulation. To get your copy please go to (<https://www.elsevier.com/books/ecosystem-based-adaptation/kumar/978-0-12-815025-2>)



'India at 75 and beyond' by Dr. Arvind Kumar. This publication '**India at 75 and beyond**' has perspectives from policymakers, Ministers, bureaucrats, influencers and experts to analyze the achievements of India in the last 75

years especially in the last decade while looking forward to the goals we must now achieve in the coming decade and in Amrit Kaal. To get your copy please go to <https://www.amazon.in/dp/B09R24JNKZ>

A report on 'Information on water supply and sanitation in urban slums of Delhi' by India Water Foundation in collaboration with NJS Engineers India private Ltd. for Japan International Cooperation Agency (JICA) was also released. This report on '**Information collection of water supply and sanitation in urban slums of Delhi**' is a result of a one year long project in which India Water Foundation and NJS undertook a survey on the water supply and sanitation in urban slum areas in Delhi. This publication is an exhaustive study on centre and state policies and recommendations for providing equitable water and sanitation services to all. To read the complete report please go to <https://www.indiawaterfoundation.org/final-report/>

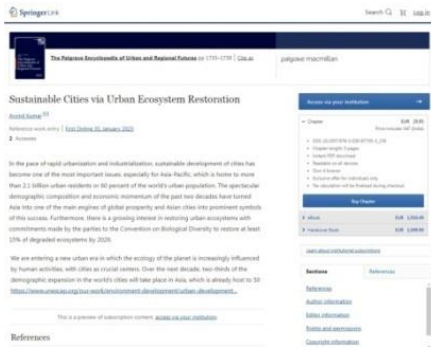


ARTICLES (RECENTLY PUBLISHED)

'Sustainable Cities via Urban Ecosystem Restoration' a research article authored by Dr. Arvind Kumar published in The Palgrave Encyclopedia of Urban and Regional Futures edited by Dr. Robert Brears. To get your copy please click on the link

[https://link.springer.com/referenceworkentry/10.1007/978-3-030-87745-](https://link.springer.com/referenceworkentry/10.1007/978-3-030-87745-3_159?fbclid=IwAR1SnCNVzz3FcNPeODMMcAxR9OJZYbJWT4M9Q_ZbJw0IgpmlS22L9cfQRlc)

[3_159?fbclid=IwAR1SnCNVzz3FcNPeODMMcAxR9OJZYbJWT4M9Q_ZbJw0IgpmlS22L9cfQRlc](https://link.springer.com/referenceworkentry/10.1007/978-3-030-87745-3_159?fbclid=IwAR1SnCNVzz3FcNPeODMMcAxR9OJZYbJWT4M9Q_ZbJw0IgpmlS22L9cfQRlc) to access the article and buy your copy from Springer Link.



Climate Emergency: Aren't we playing with Danger??"

The United Nations Climate Change Conference COP27 closed in November with a breakthrough agreement to provide “loss and damage” funding for vulnerable countries hit hard by climate disasters. This determines a way forward on a decades-long.....Click on the link ahead to read the complete Article - https://www.focusglobalreporter.org/climate-emergency-arent-we-playing-with-danger/?fbclid=IwAR0wa3-6YJm2d_9yqtR_bql5g6lx6oXnwdd-N2Lwo29ww5UOLGngGWbLdY

Multi-sectoral Actions for Net Zero Transitioning

Last year at the United Nations Climate Change Conference (COP26), Prime Minister Narendra Modi announced India's net-zero target as part of the ambitious “Panchamrit” pledge by 2070.....Click on the link ahead to read the complete write up- <https://www.focusglobalreporter.org/multisectoral-actions-for-net-zero-transitioning/?fbclid=IwAR1slfgiQaCfgo4D8mQsVpXpfxXwrdeXpYnWWZRnNaz9s-oVHJflfu4v9jc>

Water Security for Sustainable Development with Equity' published in SME World Magazine, Vol. XV, No. 11, November 2022 issue. Click on the link ahead to read the complete report – https://www.indiawaterfoundation.org/wp-content/uploads/2022/11/SME-november-_Page-32-35.pdf?fbclid=IwAR3oWeYdt6OsuE81KdxwLwImUgDcYpenHEcXIjLGTXhD0eKx-Gu_sf0F5As

Progression to Prosperity from Poverty??

Unequal opportunities including access to services, and gender inequality continue to prevail along with income inequality registering a sharp rise and the gap between the rich and poor gets even



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UNGA: Piecemeal of an Emerging World

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Testing Times for Indian Diplomacy

Assumption of the Indian presidency of the G20 and Shanghai Cooperation Organization (SCO) in 2023 and that of the UN Security Council in December 2022 takes place at a moment of unprecedented change and challenge.....Click on the link ahead to read the complete write up.
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Metamorphosing into a net zero Economy?

Dr. Arvind Kumar's article on '**Metamorphosing into a net zero Economy?**' published in SME World Magazine, Vol. XV, No. 09, September 2022 issue. Please feel free to share your comments and suggestions for improvement. Click on the link ahead to read the complete article-
<https://www.facebook.com/drarvind.kumar.3/posts/pfbid035ziNcqjyL1KWdF6hub56nTwgZCYWBV8zKiWYWvgssmCUiQkso1jQoXjt7RrFkmuHI>

India's G20 Presidency: Challenges and Opportunities

India dons the mantle of G20 presidency at a time when the entire world is grappling with geopolitical tensions along with global economic slowdown. The G20, since its emergence in 1999, has played a crucial roleto read more click on the link
<https://www.focusglobalreporter.org/indias-g20-presidency-challenges-and-opportunities/?fbclid=IwAR39nYFp4u7iXBQE9l2POUZXDW7vNs6q0c2u2WLXMCrR88cwsu9-384301Q>

Is Green Hydrogen the Silver Bullet for Future Energy Security?

Dr. Arvind Kumar*

With the announcements coming from the European Union, Kazakhstan, Namibia, Egypt, Oman, and Kenya, green hydrogen took a centre stage at COP 27 last year. A green hydrogen revolution has begun to take shape as more and more nations have unveiled roadmaps, policies, and incentives. The Union Cabinet of India approving a ₹19,744 crore National Green Hydrogen mission that aims to make India a ‘global hub’ for using, producing and exporting green hydrogen. This is undoubtedly a challenging feat to achieve. India’s economy is projected to grow to \$20-30 trillion over the next three to five decades and this growth coincides with our net zero commitments. The problems and opportunities around green hydrogen are tangible and actual. Demand and supply side policy pushes are required. While the Hydrogen Mission claims to offer the required guidance, it also needs to be sensitive to changing geo-economics of energy to give India the best chance to capitalize on its green hydrogen opportunity.

The intent of the mission is to incentivize the commercial production of green hydrogen and make India a net exporter of the fuel. The mission has laid out a target to develop green hydrogen production capacity of at least 5 MMT (Million Metric Tonne) per annum. This is alongside adding renewable energy capacity of about 125 GW (gigawatt) in the country. This will entail the decarbonisation of the industrial, mobility and energy sectors; reducing dependence on imported fossil fuels and feedstock; developing indigenous manufacturing capabilities; creating employment opportunities; and developing new technologies such as efficient fuel cells. By 2030, the Centre hopes its investments will bring in investments worth ₹8 trillion and create over six lakh jobs. Moreover, about 50 MMT per annum of CO₂ emissions are expected to be averted by 2030. As per its Nationally Determined Contribution (NDC) to meeting the goals of the Paris Agreement, India has committed to reduce emissions intensity of its GDP by 45% by 2030, from 2005 levels.

It might be necessary to emphasize once more that hydrogen is not a primary fuel since, unlike other primary energy resources like fossil fuels, nuclear fuels, or renewable energy sources; it is not readily available in a naturally pure form. It is similar to how protons and electrons move in electricity in that neither is naturally occurring and must be produced by a primary energy source. But because they may be produced at one end, transferred, and then consumed at the other, both are effective energy carriers. There are no further parallels between hydrogen and electricity. India Water foundation made a presentation at the Ministry of Petroleum and Natural gas, government of India on factoring water in production of green hydrogen and are looking forward to contributing further as well,

How favourable is economics for green hydrogen

India is well-positioned to directly transfer some of the lowest realised renewable costs in the world into a globally competitive green hydrogen economy, as shown by NITI Aayog and RMI's Harnessing Green Hydrogen report. Days before the cabinet's approval, the NTPC revealed it had started green hydrogen blending in Gujarat and India's railways minister Ashwini Vaishnaw announced India would have its first green hydrogen-fueled trains by the end of 2023.

India's annual energy consumption is 7,000 terawatt hours (TWh), of which only 4% is derived from renewable sources. The majority of the total energy consumed—1,400 terawatt hours of electricity—is used for the transportation, industrial, commercial, agricultural, and residential sectors. 85% of India's energy needs are met by fossil fuels, mostly coal, oil, and gas. Solar and wind power make up roughly 4% of installed capacity, nuclear power makes up 2.5% and hydropower makes up 4.5%. Depending on the growth trajectory, the current energy consumption of 7,000+ TWh will expand 5-7 fold over the following 3-5 decades, just about the period when New Delhi sets a net zero target. But how this transition towards a cleaner alternative will hinge one pivotal action: accelerating India's decarbonisation. The push for green hydrogen is intended to reduce India's massive carbon emissions, which total 2.7 billion tonnes, by about 55 million tonnes.



Other than the role of external factors, other domestic factors such as inadequate funding for clean energy, challenges of land acquisition for renewable energy projects as well as lack of coordination between national targets and state-level enforcement played a crucial part. It is important to note that these challenges will also spill over as hurdles to meeting the targets set for green hydrogen.

So what makes hydrogen important to India?

There are significant reasons; first, the need for huge infrastructure development to carry all the energy as electricity, massive investment is required in the development of T&D infrastructure along with maneuvering the potential disruption due to the possibility of hacking of the network in this AI age. Second, green hydrogen can act as storage of renewable energy, and by doing so make the 'infirm' nature of renewable energy a 'firm energy'. In that sense, hydrogen is a carrier of renewable electricity (and might in future be of nuclear energy as well). Third, hydrogen can step in as a substitute for material sustainability of fertilizers, plastics and steel.

India's Challenge: Using Competitive Advantages and Acting Quickly

All of this is to push climate policy. In comparison to the United States and Europe, India also stands to gain; nevertheless, it also necessitates the urgency to act and the expansion of objectives to facilitate a faster transformation. The \$1/kg target, which looks ambitious for a 2030 timeframe, is quickly losing relevance as governments strive to reach it in a considerably shorter period of time through incentives and other government support. In this developing environment, it is important to pay attention to the potential role that ammonia and hydrogen exports could play in India as market-creating engines. More aggressive incentives and market development methods are required to significantly boost competition. Additionally, in this competitive environment, India is beginning to produce electrolyzers, but it is still in its infancy. China now dominates the global electrolyser production market. India's manufacturing can therefore be greatly accelerated with target-backed government incentives in order to gain a piece of this global capacity.

The problems and opportunities around green hydrogen are tangible and actual. Demand and supply side policy pushes are required. While the Hydrogen Mission claims to offer the required guidance, it also needs to be sensitive to changing geo-economics of energy to give India the best chance to capitalize on its green hydrogen opportunity. The recent announcement by PM Modi on green hydrogen is just the way to move ahead. To ensure that the Indian economy grows quickly and sustainably, this will need to be followed by other missions like the hydrogen fuel cell mission (HFC), blue hydrogen mission, and CCUS mission.

Green hydrogen development is still in the nascent stages globally and while India can take the lead in being a major producer, it doesn't have the necessary infrastructure yet to execute all these intermediary steps. It also needs to announce incentives to convince enough users of industrial hydrogen to adopt green hydrogen. It needs to develop inclusive supply chains in the form of pipelines, tankers, intermediate storage and last leg distribution networks as well as put in place an effective skill development programme to ensure that lakhs of workers can be suitably trained to adapt to a viable green hydrogen economy. Concerted national and international efforts going forward would be required in the field of finance and investments, policy planning and research.

**President, India Water Foundation*

An update on the State of Global Climate in 2022 and Climate Change

Prof Ajit Tyagi*

“Humanity is waging war on nature. Nature always strikes back – and it is already doing so with growing force and fury. The fallout of the assault on our planet is impeding our efforts to eliminate poverty and imperiling food security. And it is making our work for peace even more difficult, as the disruptions drive instability, displacement and conflict.

Nearly half of humanity is living in the danger. Many ecosystems are at the point of no return. Unchecked carbon pollution is forcing the world’s most vulnerable on a frog march to destruction. That spells catastrophe...”

UN Secretary General Antonio Guterres

Introduction

Climate is defined as average weather conditions prevailing at a place or a region over a long period. At a broader scale Climate system includes land, atmosphere, ocean and cryosphere. World Meteorological Organisation (WMO) specifies a period of 30 years to define climate of a place. Climate is not static. It exhibits short term variability and change over a long period of time. Variation in climate from one year to another is known as Natural variability. Drought in one year and floods in another is a part of natural variability. Changes in weather elements and climate system observed over a long period of time is called Climate Change. The Earth’s climate has changed throughout history. In the last 650,000 years and seen cycles of glacial advance and retreat, with an abrupt end of last ice age about 11,000 years ago. It marked the beginning of the modern climate era and of human civilization. Most of these climate changes are attributed to very small variation in Earth’s orbit that change the amount of solar energy received by the Earth. These climate changes used to take place over a very long period spread over thousands of years. The current warming trend is of significance because most of it is caused by human activity since the mid-20th century and proceeding at a rate unprecedented.

Intergovernmental Panel on Climate Change (IPCC)

To address the issues of climate change, the Intergovernmental Panel on Climate Change (IPCC) was established in 1988 by the United Nations Environment Programme (UNEP) and WMO. It was dedicated to providing the world with objective scientific information relevant to understanding the scientific basis of the risk of human-induced climate change, its natural, political and economic impacts and risks and possible response options. The IPCC has three working groups. The first Working Group deals with scientific aspects of climate change, second with vulnerability and adaptation and third with mitigation. The IPCC comes out with Assessment Reports (ARs) and Special Reports. The IPCC AR6 Special Report of 2022 based on latest models and impact studies

stated that with global warming of 1.5⁰ C there would be increased risks to health, livelihood, food security, water supply, human security and economic growth. Over a period of time the knowledge base on observed and projected impacts and risks generated by climate hazards, exposure and vulnerability has increased significantly.

State of Global Climate 2022

The World Meteorological Organization (WMO) is an intergovernmental organization with a membership of 193 countries. The WMO is specialized agency of the United Nations for meteorology (weather and climate), operational hydrology and geophysical sciences. The WMO monitors global climate through Global Climate Observing System (GCOS) and Global Atmospheric Watch (GAW). The WMO comes out with Annual Statement on the State of the Global Climate. These reports provide guidance to policy makers in international meetings like COP.

The WMO released State of Global Climate 2022 Report^{X1} on 13 January 2023. It gives details of climate indicators^{X2} such as Greenhouse gases, global temperature, ocean heat, ocean acidification, sea level rise, sea ice glaciers, and extreme weather.

Four key climate change indicators – greenhouse gas concentrations, sea level rise, ocean heat and ocean acidification – set new records in 2021. This is yet another clear sign that human activities are causing planetary scale changes on land, in the ocean, and in the atmosphere, with harmful and long-lasting ramifications for sustainable development and ecosystems.

Extreme weather – the day-to-day “face” of climate change – led to hundreds of billions of dollars in economic losses and wreaked a heavy toll on human lives and well-being and triggered shocks for food and water security and displacement that have accentuated in 2022.

Key Messages

Greenhouse Gas (GHG) concentrations reached a new global high in 2020, when the concentration of carbon dioxide (CO₂) reached 413.2 parts per million (ppm) globally, or 149% of the pre-industrial level. Data from specific locations indicate that they continued to increase in 2021 and early 2022, with monthly average CO₂ at Mona Loa in Hawaii reaching 416.45 ppm in April 2020, 419.05 ppm in April 2021, and 420.23 ppm in April 2022.

X1. *WMO Statement on the State of the Global Climate in 2022*

<https://public.wmo.int/en/our-mandate/climate/wmo-statement-state-of-global-climate#>

X2. *Using Indicators to explain our changing climate to policy makers and the public*

Michael Williams (WMO Secretariat) and Simon Eggleston (GCOS)

WMO Bulletin : Vol 66(2), 2017

Global Annual Mean Temperature:

Increase in Greenhouse gas emissions leads to global warming. The average global temperature in 2022 was about 1.15 [1.02 to 1.27] °C above the pre-industrial (1850-1900) levels. 2022 is the 8th consecutive year (2015-2022) that annual global temperatures have reached at least 1°C above

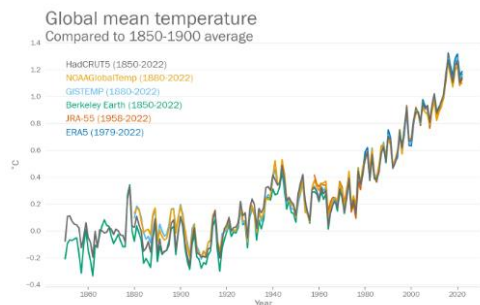


Figure 1 : Global Mean Temperature compared to 1850-1900 Average

pre-industrial levels. According to all datasets compiled by WMO (Figure 1) 2015 to 2022 are the eight warmest years on record. The likelihood of – temporarily – breaching the 1.5°C limit of the Paris Agreement is increasing with time. For India, the year 2022 was the fifth warmest year on record since nationwide records commenced in 1901.

Ocean Heat: Ocean heat in 2021 was record high. The upper 2000m depth of the ocean continued to warm in 2021 and it is expected that it will continue to warm in the future – a change which is centennial to millennial time scales. All data sets agree that ocean warming rates show a particularly strong increase in the past two

decades. The warmth is penetrating to ever deeper levels.

Ocean acidification. The ocean absorbs around 23% of the annual emissions of anthropogenic CO to the atmosphere. This reacts with seawater and leads to ocean acidification, organisms and ecosystem services, and hence food security, tourism and coastal protection. As the pH of the ocean decreases, its capacity to absorb CO from the atmosphere also declines. The IPCC concluded that “there is very high confidence that open ocean surface pH is now the lowest it has been for at least 26,000 years and current rates of pH change are unprecedented.

Mean Seal Level:

In 2022, global mean sea level (GMSL) has continued to rise (Figure 2). The GMSL rise is estimated to be $3.4 \pm 0.3 \text{ mm}\cdot\text{yr}^{-1}$ over the 30 years (1993-2022) of the satellite altimeter record, but the rate has doubled between the first decade of the record (1993-2002) and the last (2013-2022) during which the rate has exceeded $4.4 \text{ mm}\cdot\text{yr}^{-1}$ (Figure 2). The GMSL acceleration is estimated to be $0.12 \pm 0.05 \text{ mm}\cdot\text{yr}^{-2}$ over the 30-year period. GMSL increased by about 5 mm between January 2021 and August 2022. Since January 2020, the increase in GMSL amounts to around 10 mm, a substantial fraction of the GMSL rise since 1993 (around 100 mm), despite the ongoing La Niña. This has major implications for hundreds of millions of coastal dwellers and increases vulnerability to tropical cyclones

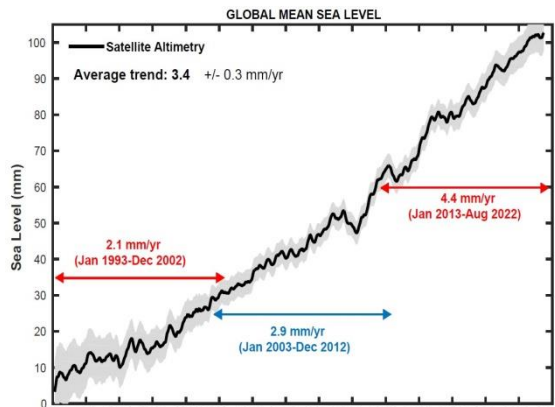


Figure 2: Global mean sea level evolution from January 1993 to August 2022 (black curve) with associated uncertainty (shaded area) The horizontal, coloured straight lines represent the average linear trends over three successive time spans. (Source LEGOS)

Cryosphere:

The cryosphere comprises the frozen parts of the earth – glaciers and ice sheets, sea ice, snow, and permafrost. Satellites provide long-term measurements of many aspects of the cryosphere, providing a complementary source of information to the data gathered in situ in the remote and often inhospitable environments in which the components of the cryosphere are found.

Sea ICE

Arctic sea-ice extent was below the long-term (1981-2010) average for most of the year, with a Spring sea-ice maximum of 14.59 million km² in March 2022, 0.84 million km² below the long-term mean (Figure

3). The smallest daily extent of the year, 4.67 million km², occurred around 18 September and was the 9th or 10th lowest annual-minimum daily extent on record^{1,2}.

Sea ice extent in the Antarctic has seen both record high (2014) and low (2017/2022) extents in the past 10 years (Figure 8). Antarctic sea-ice extent dropped to 1.92 million km² on February 25 2022, the lowest level on record and almost 1 million km² below the long-term (1981-2010).

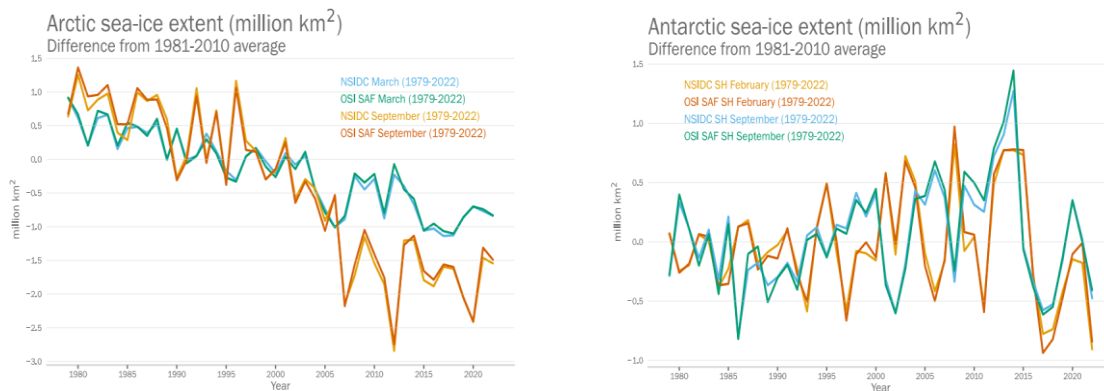


Figure 3: Sea ice extent anomalies (relative to the 1981-2010 average) from 1979 to 2022 for (left) the Arctic and (right) the Antarctic. Blue/green lines indicate the anomalies in annual maximum ice extent (March for the Arctic and September for the Antarctic) and orange/red correspond to the annual minimum ice extent (September for the Arctic and February for the Antarctic). Data from EUMETSAT OSI SAF v2p1 and National Snow and Ice Data Centre (NSIDC) v3 (Fetterer et al., 2017) (see details in Sea ice).

¹<https://climate.copernicus.eu/sea-ice-cover-september-2022>

²<https://nsidc.org/arcticseaicenews/2022/09/arctic-sea-ice-minimum-ties-tenth-lowest/>

Glaciers

Glaciers are formed from snow that has compacted to form ice, which deforms and flows downhill to lower and warmer altitudes, where it melts. Where glaciers terminate in a lake or the ocean, ablation also occurs through melting at the ice-water interface and through calving processes.

According to the World Glacier Monitoring Service, preliminary results for 2022 are only available for a few selected regions at this time, as field observations are recently completed and need to be evaluated. We report here on preliminary data from the Swiss Alps.

In the European Alps, records of glacier mass loss were shattered in 2022. Mass losses were far beyond the range of historical variability. Average thickness changes of between 3 and over 4 metres were measured throughout the Alps, substantially more than in the previous record year 2003. In Switzerland 6% of the glacier ice volume was lost between 2021 and 2022 (Figure 4).

Greenland ice sheet

An ice sheet is an area of glacial ice that exceeds 50 000 km². In the current climate there are two ice sheets: one on Greenland, the other on Antarctica. For Greenland³ the estimated total mass balance⁴ was -85 Gt representing a net ice loss during the 2022 mass balance year (1 September 2021 – 31 August 2022).

The melting and ablation seasons in Greenland began late in 2022 and the summer was relatively cool compared with recent years. However, there was a period of high temperatures at the end of July 2022 with intense surface melt over large parts of the ice sheet and large ice losses over a few days. September 2022 was also extraordinarily warm, with widespread and generally high positive temperature anomalies along with widespread melting early in the month (Figure 5 right). Summit Station, the highest point in Greenland (3 200 m), had its warmest September on record (since 1991) and experienced melting conditions on September 3, 2022, the first time melting has been

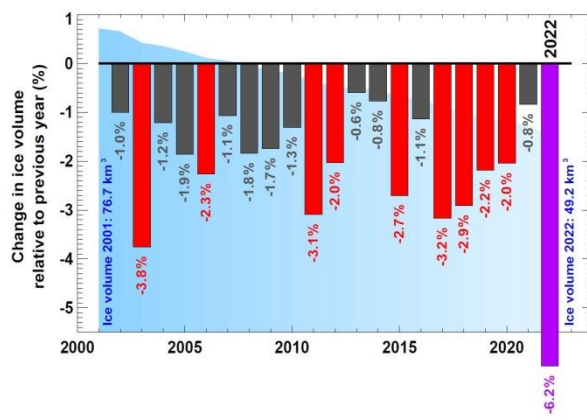


Figure 4: Total annual loss of Swiss glaciers related to the current ice volume 2002-2022. The vertical bars indicate the percentage change in ice volume relative to the previous year. Red bars are the 10 largest relative mass losses on record. The purple

³ Based on the average of three regional climate and mass balance models. See Mankoff, K. D., X. Fettweis, P.L. Langen, M. Stendel, K.K. Kjeldsen, N.B. Karlsson, B. Noël, M.R. van den Broeke, W. Colgan, S.B. Simonsen, J.E. Box, A. Solgaard, A.P. Ahlstrøm, S.B. Andersen and R.S. Fausto, 2021: Greenland ice sheet mass balance from 1840 through next week. *Earth Syst. Sci. Data* 13, 5001–5025, doi: 10.5194/essd13-5001-2021

⁴ A negative mass balance indicates a loss of ice mass, a positive mass balance indicates a gain.

registered at this site in September⁵. Later in September, heavy rain associated with post-tropical cyclone Fiona fell on the ice sheet, also a first for September.

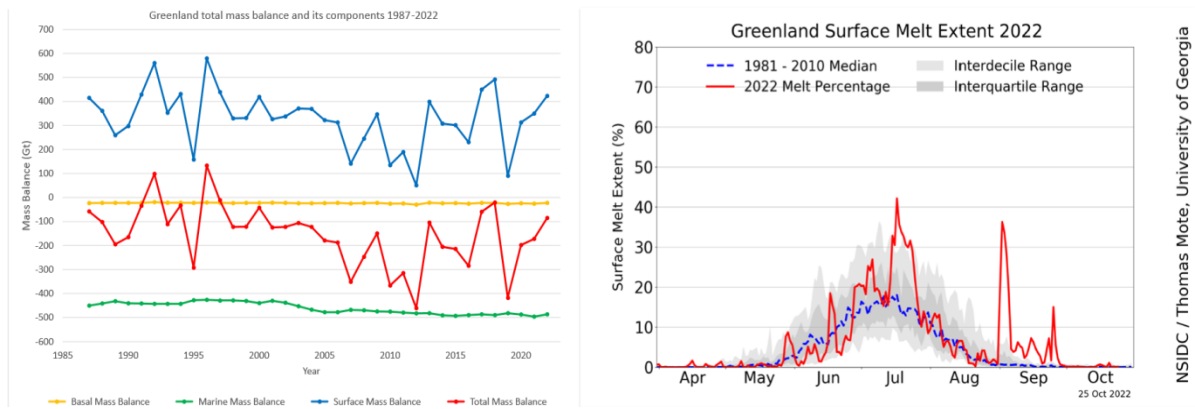


Figure 5: (left) Components of the total mass balance of the Greenland Ice Sheet 1987-2022. Blue: Surface mass balance (SMB), green: marine mass balance (MMB), orange: basal mass balance (BMB), red: total mass balance (TMB), the sum of SMB, MMB and BMB. Mankoff et al. (2021), updated and redrawn by M. Stendel. (right) Greenland Ice Sheet melt extent, 2022.. Image and analysis courtesy of Thomas Mote, U.S. National Snow and Ice Data Center.

Extreme Weather Events

Although the broad-scale changes in the climate, as tracked by the key indicators, are important, the impacts of weather and climate are most often and most clearly felt during extreme events such as heavy rain and snow, droughts, heat waves, cold waves and storms, including tropical storms and cyclones. In conjunction with other factors, these can lead to or exacerbate other high-impact events such as flooding, landslides, and wildfires. WMO report lists high-impact events of 2022 and is based on input from WMO Members and UN agencies.

South Asia heat waves and floods

The pre-monsoon period was exceptionally hot in India and Pakistan. Pakistan had its hottest March and hottest April on record. The heat caused a decline in crop yields. This combined with the banning of wheat exports and restrictions on rice exports in India are threatening the international food markets and posing risks to countries already affected by shortages of staple foods⁶.

Pakistan experienced exceptional flooding during the monsoon season, peaking in late August⁷. July (181% above normal) and August (243% above normal) were each the wettest on record nationally. Sindh province was particularly badly affected, with Balochistan also hard-hit. Preliminary satellite data indicated that 75 000 square kilometres, about 9% of Pakistan’s area, was

⁵<https://nsidc.org/greenland-today/>

inundated at some stage during August. Estimated 1700 people died⁸ in the floods along with 936 000 head of livestock. Rainfall triggered flooding and landslides have also substantially disrupted transportation and building infrastructure, and food prices increased by 29%⁹. Some 33 million people were affected, and 7.9 million people were displaced, with nearly 600 000 living in relief sites¹⁰.

Adjacent areas of Afghanistan were also affected. There was also significant flooding in India at various stages during the monsoon season, particularly in the north-east in June, with over 700 deaths reported during the season from flooding and landslides, and a further 900 from lightning. Floods also triggered 663 000 displacements in the Indian state of Assam¹¹.

In Bangladesh, the worst floods in 20 years have affected some 7.2 million people with 481 000 displacements recorded. In Cox's Bazar, heavy rains affected nearly 60 000 refugees and triggered secondary displacement¹². Emergency shelter assistance was provided to over 15 000 affected families¹³.

Drought in the Greater Horn of Africa

Drought intensified in the Greater Horn of Africa region, focused on Kenya, Somalia, and southern Ethiopia. Rainfall was well below average across the region in the March-May rainy season, the fourth consecutive poor wet season since the second half of 2020, which was the longest such sequence in 40 years. As in the previous prolonged drought in 2010-12, La Niña and the negative Indian Ocean Dipole were substantial contributors to the dry conditions.

Across the East Africa region, under the effects of the drought and other shocks, an estimated 18.4 to 19.3 million people have faced food Crisis or worse levels of acute food insecurity before June 2022¹⁴. Paired with funding shortfalls and the global increase in food prices, more than 3.5 million refugees in the region (75% of the total 7refugee population) have been affected by major cuts in food assistance¹⁵. Over 1.1 million people have been internally displaced in Somalia as a consequence of the drought by September 2022¹⁶Fleeing a complex mix of conflict and drought, over 16 000 Somali refugees arrived in Dollo Ado, Ethiopia and another 10 000 in Kenya until June 2022¹⁷. Adding to the multiple risks already faced by displaced people, resilience to climate-related disasters, environmental degradation and displacement is often lowest in conflict-affected contexts.

Southern Africa floods

Many of the high-impact disasters in 2022 happened consecutively, leaving little time for recovery between one shock and the next. The southern Africa region has been battered by a series of

cyclones over two months, leading to a surge in the need for protection and shelter for hundreds of thousands of affected persons, including refugees and Internally Displaced Persons (IDPs)¹⁸.

Madagascar had four landfalls in the space of a month in late January and February. Ana (January) and Batsirai (February) both caused significant loss of life there, with Ana also going on to have major impacts from flooding in Mozambique and Malawi. Gombe (March) brought flooding to Mozambique with significant casualties.

More than 190 000 people who lost or fled their homes during Tropical Storm Ana in January remained displaced inside Malawi in April⁶. Two months after the storm had displaced over 20 000 IDP households in Mozambique⁷, UNHCR recorded 736 000 people affected by Tropical Cyclone Gombe in Nampula and Zambezia provinces, while over 129 000 people were internally displaced¹⁹.

The south and western regions of Madagascar entered an extended multi-year dry period since 2015-16 during which there have been droughts of varying severity nearly every season. Whilst significant rain fell during 2021-22 in many parts of southern Africa, long-term localised drought persists in some areas, especially in southern Madagascar, where rainfall totals have been below average in most years since 2011.

Northern hemisphere summer heat waves and drought

Exceptionally hot and, in places, dry conditions affected China, Europe and North Africa during the summer. China had the most extensive and long-lasting heat wave since national records began, extending from mid-June to the end of August and resulting in the hottest summer on record by a margin of more than 0.5 °C. It was also the second-driest summer on record, with most of the southern half of China (apart from Guangdong province) having seasonal rainfall 20% to 50% below average. The heat was particularly severe in the Yangtze River valley, which also suffered from significant drought during its driest summer on record; the Yangtze River at Wuhan reached its lowest recorded level for August. There were also numerous wildfires in the region.

Europe also experienced numerous major heat waves during the summer, with significant heat waves occurring in each of the three summer months. The most exceptional occurred in mid-July. The temperature exceeded 40 °C in the United Kingdom for the first time, with a reading of 40.3 °C at Conings by on 19 July²⁰, 1.6 °C above the previous national record, whilst 33.0 °C on 18 July at

¹⁴International Bank for Reconstruction and Development / The World Bank 2022. Food Security update, September 29, 2022.

¹⁵[UNHCR East and Horn of Africa, and the Great Lakes Region Operational Update Region | April - June 2022](#)

¹⁶OCHA, UNHCR, IOM [Somalia: Drought and Famine Displacement Monitoring Dashboard \(September 2022\)](#)

¹⁷[East and Horn of Africa, and the Great Lakes Region: UNHCR Drought Situation Response Update #1 | August 2022](#)

¹⁸[UNHCR News- Urgent help needed in Malawi to rebuild lives wrecked by Tropical Storm Ana](#)

¹⁹[IOM Mozambique – Tropical Storm Ana Flash Report 03 \(02 February 2022\)](#)

Phoenix Park (Dublin) was the highest in Ireland since 1887. Numerous locations broke previous records by more than 3 °C, particularly in northern England and western France. The heat extended as far north as Sweden, where 37.2 °C at Målilla on 21 July was the country's highest since 1947. South-western France was particularly affected by wildfires, with over 62 000 hectares burnt, whilst there was significant property loss in several fires in the outer suburbs of London. In Portugal, the hydrological year (October-September) was the third driest on record and the summer heat exacerbated the already severe drought situation^{21,22}. These conditions fuelled severe wildfires and the total burned area in 2022 (to 15 October) was 110 000 ha, the highest since the catastrophic fire season of 2017²³.

The Mediterranean region experienced major heat waves in June and August. Tunisia had its hottest June on record and some locations set record highs in August. For the second consecutive year, wildfires caused major loss of life in Algeria, with 44 deaths reported in fires from 16 to 18 August.

Estimated mortality due to the heat is complicated by changes in background death rates due to COVID. Nevertheless, some official estimates have been made including around 2 800 deaths in the UK²⁴ (among those aged 65 and older), 4 500 in Germany²⁵ and 11 000 in France²⁶.

Drought also affected many parts of Europe and the Mediterranean. In Europe, conditions were at their most severe in August, when rivers including the Rhine, Loire and Danube fell to critically low levels. Three states in west-central Germany had their driest summer on record. France had its driest January to September period since 1976, and the United Kingdom and Uccle (Belgium) had their driest January to August since 1976, while the 12 months ending in August 2022 were the driest for at least 40 years in Morocco. Significant drought also continues to affect parts of southwest Asia, particularly Iran and Iraq.

Climate Change Impacts and Risks

“The science is unequivocal, the climate changes are unprecedented, and there is no more time for delay” - AR6 Working Group I – The Physical Science Basis^{x3}

Climate change impacts and risks are becoming increasingly complex and more difficult to manage. Multiple climate hazards will occur simultaneously, and multiple climatic and non-climatic risks will interact, resulting in compounding overall risk and risks cascading across sectors and regions. If global warming transiently exceeds 1.5°C in the coming decades or later (overshoot), then many human and natural systems will face additional severe risks, compared to remaining below 1.5°C. Depending on the magnitude and duration of overshoot, some impacts will cause release of additional greenhouse gasses and some will be irreversible, even if global warming is reduced

IPCC Working Group II Report for Policy Makers^{X4} states that adverse impacts from climate hazards and resulting risks are cascading across sectors and regions, propagating impacts along coasts and urban centres and in mountain regions. These hazards and cascading risks also trigger tipping points in sensitive ecosystems and in significantly and rapidly changing social-ecological systems impacted by ice melt, permafrost thaw and changing hydrology in polar regions. Wildfires, in many regions, have affected ecosystems and species, people and their built assets, economic activity, and health. In cities and settlements, climate impacts to key infrastructure are leading to losses and damages across water and food systems, and affect economic activity, with impacts extending beyond the area directly impacted by the climate hazard. In Amazonia, and in some mountain regions, cascading impacts from climatic (e.g., heat) and non-climatic stressors (e.g., land use change) will result in irreversible and severe losses of ecosystem services and biodiversity at 2°C global warming level and beyond. Unavoidable sea level rise will bring cascading and compounding impacts resulting in losses of coastal ecosystems and ecosystem services, groundwater salinization, flooding and damages to coastal infrastructure that cascade into risks to livelihoods, settlements, health, well-being, food and water security, and cultural values in the near to long-term.

Food security: The compounded effects of conflict, extreme weather events and economic shocks, further exacerbated by the COVID-19 pandemic, undermined decades of progress towards improving food security globally. Worsening humanitarian crises in 2021 have also led to a growing number of countries at risk of famine. Of the total number of under nourished people in 2020, more than half live in Asia (418million) and a third in Africa (282 million).

Displacement: Hydro Meteorological hazards continued to contribute to internal displacement. The countries with the highest numbers of displacements recorded as of October 2021 were China (more than 1.4 million), the Philippines (more than 386 000) and Viet Nam (more than 664 000).

Ecosystems: including terrestrial, freshwater, coastal and marine ecosystems – and the services they provide, are affected by the changing climate and some are more vulnerable than others. Some ecosystems are degrading at an unprecedented rate. For example, mountain ecosystems – the water towers of the world –are profoundly affected. Rising temperatures heighten the risk of irreversible loss of marine and coastal ecosystems, including sea grass meadows and kelp forest. Coral reefs are especially vulnerable to climate change. They are projected to lose between 70 and 90% of their former coverage area at 1.5 °C of warming and over 99% at 2 °C. Between 20 and 90% of current coastal wetlands are at risk of being lost by the end of this century, depending on how fast sea levels rise. This will further compromise food provision, tourism, and coastal protection, among other ecosystem services.

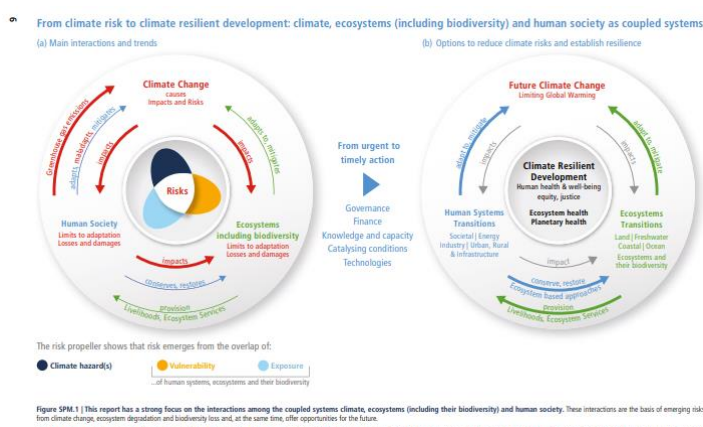
Adaptation

Adaptation, in response to current climate change, can reduce climate risks and vulnerability mostly via adjustment of existing systems. **Working Group II of AR6** recognizes the interdependence of climate, ecosystems and bio-diversity, and human societies (Figure SPM.1) and integrates knowledge more strongly across the natural, ecological, social and economic sciences than earlier IPCC assessments^{X5}. The assessment of climate change impacts and risks as well as adaptation is set against concurrently unfolding non-climatic global trends e.g., biodiversity loss, overall unsustainable consumption of natural resources, land and ecosystem degradation, rapid urbanization, human demographic shifts, social and economic inequalities and a pandemic. The report recognizes the value of diverse forms of knowledge such as scientific, as well as Indigenous knowledge and local knowledge in understanding and evaluating climate adaptation processes and actions to reduce risks from human-induced climate change. AR6 highlights adaptation solutions which are effective, feasible, and conform to principles of justice.

Many adaptation options exist and are used to help manage projected climate change impacts, but their implementation depends upon the capacity and effectiveness of governance and decision-making processes. Enabling conditions are the key for implementing, accelerating and sustaining adaptation in human systems and ecosystems. These include political commitment and follow-through, institutional frameworks, policies and instruments with clear goals and priorities, enhanced knowledge on impacts and solutions, mobilization of and access to adequate financial resources, monitoring and evaluation, and inclusive governance processes. These and other enabling conditions can also support climate resilient development.

There are a range of adaptation options, such as disaster risk management, early warning systems, climate services and risk spreading and sharing that have broad applicability across sectors and provide greater benefits to other adaptation options when combined. For example, climate services that are inclusive of different users and providers can improve agricultural practices, inform better water use and efficiency, and enable resilient infrastructure planning.

Climate resilient development is the need of the hour. It integrates adaptation measures and their enabling conditions with mitigation to advance sustainable development for all. It calls for inclusive



governance, investment aligned with climate resilient development, access to appropriate technology and rapidly scaled-up finance, and capacity building of governments at all levels; the private sector and civil society enable climate resilient development.

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Achieving SDG2 and SDG6 while addressing Drought and Climate Change

Dr. Julie LADEL*

One third of humanity lacks access to safe drinking water and half lacks access to sanitation, especially in rural areas of developing countries. Sector policies are too oriented towards providing water and sanitation services at all levels that benefit only a few people, without seeking equity and universality of services. Groups that are more difficult to target, such as the poor rural segment of the population, should be targeted more specifically.

Sustainable Development Goal 6 (SDG6) on sanitation aims to halve the flow of wastewater into rivers and streams. Non-revenue water is therefore a key component of the water balance. On average, 20% of drinking water is lost to leaks in France, which is a tremendous performance in terms of efficiency. The objective is to renew the network at a rate of 0.7%. 75 years is the theoretical duration of a network, but 150 years is the current level of network renewal in France.

120 cities have been totally disconnected from the water supply in France due to the widespread drought of 2022. Separating public and private approaches is not a sustainable way to deal with water scarcity and public-private partnerships (PPPs) could be further developed as a way to provide the best solutions.

Currently, the water sector or SDG6 accounts for only 2.5% of total regional development bank financing (**Source: French Development Agency, AFD**). With 1.8 million deaths per year still due to lack of clean water, banks could increase their commitments to 5-8% of their budget, focusing on water.

Of the 1,571 million hectares of agricultural land in the world, 1,251 million hectares are rainfed drylands, or about 80% of the total. The problem with drylands is that annual potential evapotranspiration (PET) is greater than annual precipitation (P).

The ecological transition and climate change rely on the water pillar. The erraticity of extreme events makes the situation complex. This context becomes a challenge for farmers. Scientists observe a discrepancy between the models and what is happening.

Regarding the achievement of SDG2, three agricultural revolutions have taken place so far: mechanization, the green revolution to feed 125 people per farmer and precision agriculture to feed 265 people per farmer. The use of mineral fertilizers and crop protection products, mechanization and irrigation contributed to the green revolution. It led to a dramatic increase in agricultural productivity. The Green Revolution had a dramatic economic impact by allowing yields to increase and stabilize (wheat yields tripled and rice yields doubled). Cereal production increased fourfold in

50 years when the population tripled. During the period 1963-1983 (the key years of the Green Revolution), the total production of rice, wheat and maize in developing countries increased by 3.1, 5.1 and 3.8 percent per year, respectively (**Source: FAO**). Precision agriculture is underway with the advent of new digital technologies and irrigation technologies such as drip irrigation.

Good water governance at the local level is also essential to achieve sustainable results. Water user associations use computer tools (Apps) with a potential evaporation calculator and their own rainfall measurement, they are able to obtain their water balance and irrigate accordingly (**Source: International Center for Agricultural Research in the Dry Areas, ICARDA**). Overall, certain farming practices such as intercropping with two or more crops or trees grown simultaneously with or without new management can provide better yields and income for farmers. In Morocco, ICARDA found a 20-fold increase in income per hectare with lentils and onions or quinoa compared to lentils alone.

Drought is certainly the most serious threat to our agri-food systems. The Indian government has budgeted 53 billion rupees (about 600 million euros) to irrigate the drylands of the state of Karnataka (**Source: L'Opinion, February 3-4, 2023**). Wells, tanks, tube wells and canals are the main source of irrigation in Karnataka. Other sources of irrigation are rivers and groundwater. As agriculture is the major occupation of the state, irrigation plays a vital role in achieving higher land yields. Irrigation became necessary because rainfall was scarce and inconsistent in many parts of Karnataka, except for the western ghats where rainfall was abundant. Many rivers originate in the western ghats, including the Tungabhadra River, and flow eastward across the plains of Karnataka. The foundation stone of Karnataka's largest irrigation project was laid by the then Indian Prime Minister Lal Bahadur Shastri on May 22, 1964. It was designed to irrigate 621,597 ha of land in Gulbarga, Raichur, Bijapur, Bagalkot and now Yadgir. Of the total 1.28 crore hectares ($1.28 \times 10^{11} \text{ m}^2$) of cultivable land in Karnataka, 40.32 lakh hectares ($40.32 \times 10^9 \text{ m}^2$) is currently irrigated, or 31.5%.

Twenty of the SDG targets focus on water and climate change. A combined effort on SDG 2 and SDG 6 achievement within the overall achievement of SDG 13 on Climate Action would certainly bring sustainable results by 2030 in the search for food security, improved water resources management and water security in the uncertain times of climate change. To achieve these results, the support of youth should be sought. Indeed, currently 1.2 billion youth between 15 and 14 years old are living on Earth and most of them are environmentally sensitive. This would require correct mentoring by senior experts and officers all over the world.

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Innovative Aquifer Storage & Recovery and Bank Filtration Managed Aquifer Recharge Systems

By Dr. Arvind Kumar*, Dr. S. K. Sharma & Shweta Tyagi

ABSTRACT

The paper describes innovative Managed Aquifer Recharging techniques (MAR) as water management tools. Such innovative techniques as against conventional water harvesting methods have storage as their goal and portability as use in augmenting drinking water supplies. Innovative methods discussed include Aquifer Storage & Recovery (ASR), Lake Bank & River Bank Filtration Systems (LBF & RBF) as well as In stream-modification systems such as check dams and sub-surface dykes. The sub-surface dams are located and designed to obstruct stream base-flows for abstracting ground water from aquifers upstream of dam bund. The site-geometry factors and operational data related to performance factors of ASR, LBF and RBF systems are to serve as criteria for development and evaluation of innovative MAR projects as area-specific water management tools.

1. Introduction: Paper outlines four innovative & efficient Aquifer Recharging study frameworks leading to enhancement of ground water availability in hitherto water stressed areas. Broad schematic and detailed study frameworks of the following MAR projects area described:

- (i) Aquifer Storage & recovery Projects (ASR)
- (ii) River Bank Filtration Systems(RBF)
- (iii) Lake Bank Filtration (LBF)

2. Approach & Methodology: Approach necessary to developing Innovative MAR Projects is shown in Flow- Chart:

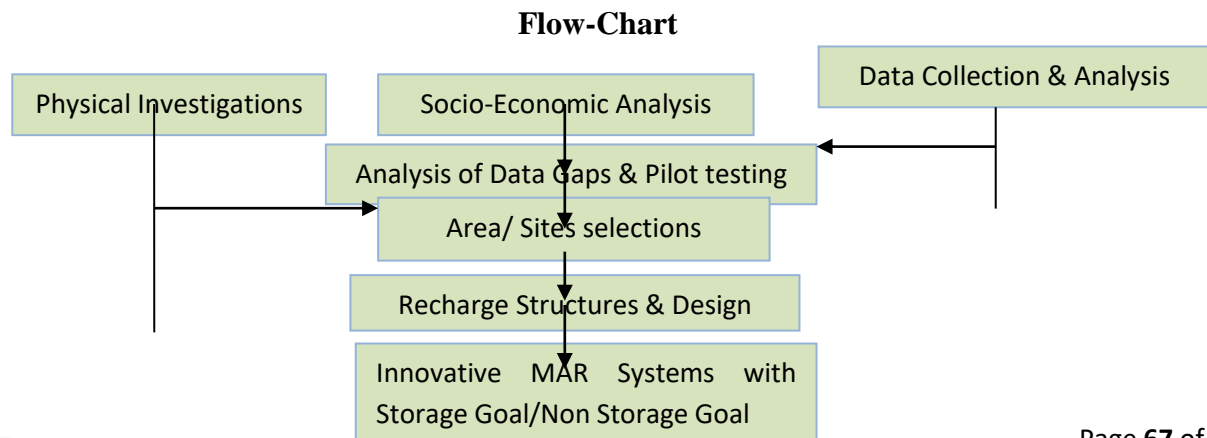


Figure1: Factors in Development of Innovative MAR Techniques for Feasible sites and Structures

2.1 Site Selection for Innovative MAR Projects: Site selection is dependent on data collection, field survey & investigations, data analysis, data gaps and filling data gaps. Data gap are examined through remote sensing & GIS and geophysical investigations followed by pilot test drilling to checking and validating field data.

2.2 Areas & Sites Selection Covenant: Primarily it is necessary to ensure that areas identified and sites selected for ground water recharging techniques meet the requirements of MAR Innovations. Site selection process is to focus more on rate of infiltration and rate of recharging the desiderated & empty storage space of aquifers. The indicated approach will lead to areas and sites selections and finally the setting up of designed recharging structures.

3. Feasibility Aspects of Innovative MAR Systems: These are described and illustrated as below:

3.1 Aquifer Storage & Recovery System (ASR System): ASR system in essence is the storage of water in unconfined and confined aquifers with use of available source recharging

waters such as treated urban storm water etc using injection well bore & pressure system for seasonal storage of water and its extraction via Recovery system for use of ground water in times of need. A typical diagrammatic illustration of Aquifer Storage & Recovery System is shown in **Figure-2**.

The technique is widely in use in United States of America. It demands

its use in India in various states under water stress due to over-exploitation of ground water.

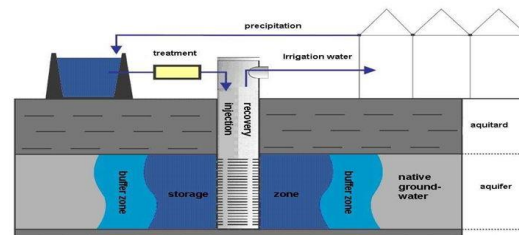
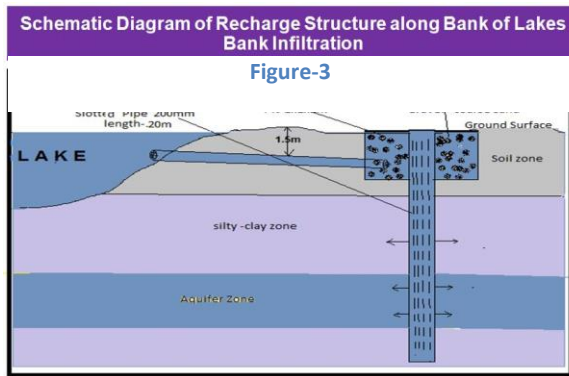


Figure-2

3.2 Lake Bank/River Bank Filtration Induced Recharge System: Lake and River bank filtration systems are meant to increase aquifer recharge and development of automatically filtered drinking water supplies elbit with some disinfection measures. Sitting of Pumping production wells with respect to lake & river morphology and hydraulic behaviour of areas

can cause substantial influence on the extent of filtrate portions. Positioning of production wells on inner bends of meandering river sections can produce water by pumping wells which serve to induce direct filtration from river sections.

Similarly an array of production wells when installed parallel to the banks of lakes, hydraulically connected to area aquifer will also induce filtered-flow of water to wells for direct use in drinking water supply.



Relative elevation of area ground water table & Lake and River water levels normally depict hydraulic connections of water body & aquifer water production system. The velocity heads, pressure heads and elevation heads are parametric determinants which effect water yield in RBF and LBF systems. RBF wells set up along banks of rivers are both vertical production wells and Radial Collector

Wells (RCWS).

River & Lake bed characteristics, site geometry factors bear strong impact on capacity of Bank Filtration system. A typical diagrammatic sketch of Lake Bank Filtration System is shown as **Figure-3**.

3.3 In stream Modification Systems: Such systems are branded as small check dams ,sub-surface dykes,nala bunds etc. normally located in Hard rock areas.

Remote sensing and GIS tools are used in mapping & developing thematic layers of geomorphology, drainage, land use and land cover wherein micrometric parameters like micro & macro watersheds, drainage density & drainage frequency infiltration numbers help to characterize watershed details as to their run-off generating potential which can be trapped via bunds to develop pondages of water . The drainage density factor of watershed helps to characterize run-off as drainage density of watersheds is directly proportional to run-off and inversely proportional to permeability. The downstream areas of such dammed pondages accordingly get increased ground water levels and water yield for irrigation and allied uses.

Similarly, vertical walls when raised in ephemeral streams and rivers can help trap stream base-flows through sub-surface dyking system to yield ground water upstream of dykes. An example of in-stream modified systems to locating check dams is shown in **Figure-4**.

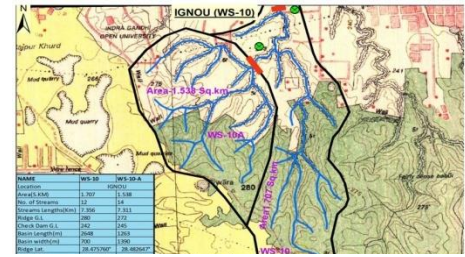


Figure-4

CONCLUSION: The paper summarizes factors and techniques relevant to the success of Innovative MAR Projects discussed. Study and design of Bank Filtration Systems (RBF/LBF) as well as Aquifer storage & recovery well systems using hydrological, geomorphologic factors and production well systems can serve as alternative to direct surface water abstractions. These are established techniques being used world-wide and are also suggested to be ably and amicably used in Indian situations in water stressed region in different states. The discussed innovations have storage as their goal and water portability as use.

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The International Forests Day, 21st March (The day celebrated to convey the importance of Forests in our life)

Dr. Dinesh Kumar Tyagi*

21st, March, the day designated by United National General Assembly to generate the awareness among the people about the importance of forests and trees in general in the life of human beings not only of the present generation but also of the next generation. In 16th session of Food and Agriculture Organization (FAO), an UN body it was decided to celebrate the 21st March as World Forestry Day every year to make the people aware about the utility of forests in one's life. In 2012 United Nation General Assembly decided to celebrate 21st March as International Forests Day and the first International Forests Day was celebrated in 2012. Every year a theme is decided for celebration and the theme for 2023 is the **"Forests and health"** underlining the importance of forests to health of not only of the people but also of the earth planet in general.



The importance of forests in human life is one of the fundamental threads of Indian culture and all scriptures of India emphasize the importance of forests and trees in human life. Sant Tukaram, the famous bhakti movement Sant rightly pointed out **"Vriksha Valli Amaya Soyare Vanchare"** meaning the trees and other wild animals living in the forests are our true companions. The world forests area was 76 million sq. km. in 18th century and now it is 38 million sq. km. This forests area comes around 33% of the world geographical area. Forest generally defines as an area of more than 1 ha with tree density of 0.1 and above. In 200 years the world forests area has become half due to immense biotic pressure and the developmental activities of the modern world. The human population of the world is around 7 billion and experts say that the biotic pressure is 1.5 times of the earth carrying capacity.

The major countries which owe the maximum forests areas are Russia (7.76 million sq.km.), USA (3.03 million sq.km.), Canada (3.10 million sq.km.), Brazil (4.77 million sq.km.) and China (1.8 million sq.km.). National Forest Policy of India envisages that 33% of the total geographical area under forests and it should be around 60% in the hills states and 40% in the states with plain area. India geographical area is around 32.87 lakh sq.km (329 million ha) which is 2.4% of the world geographical area. India has forests area of 7.17 lakh sq.km, which is 21.34% of the country geographical area and 1.8% of the world forests area. The non-forests area in India is around 25.44 lakh sq.km. Out of this 7.17 lakh sq.km forest, around 3lakh sq.km (3 million ha) is degraded or

open forests and remaining forests are moderately dense to dense forests (Density of Forests is above 0.5).

India celebrates number religious festivals for the well beings and cohesiveness of the societies. It celebrates Deepawali, the festival of lights; Holi, the festival of colors and friendship, Eid, the festival of brotherhood and Christmas, the festival of cheers. India is unique country as it is the only country in the world which celebrates “**Van mahotsav**” the festival of trees every year in monsoon season since 1950 much before the world has started celebrating **World Forestry Day or International Forests Day on 21st March** with same fervor and enthusiasm. The conservation and sustainable living has imbibed within all the countrymen through traditions, culture and religions. Trees are demigod for us.

However, in the recent time owing to urbanization, globalization, erosion in the moral values and wide gap between the demand and supply of commodities, the people have forgotten these virtues of sustainable life style. This has culminated in the environmental imbalance which has been manifested in the form of climate change, desertification, draught, famine and loss of bio diversity. Farmer suicide in many States is the outcome of the above phenomenon only. Indian population was 23.88 Cr when the first census was carried out in 1871 and the forests area was around 100 million ha. The forests area was reduced by 33 million ha and become 77 million ha in 1950. Therefore in 1950, Dr. Kanhaiya Lal M. Munshi then the minister of Agriculture and Food had started “Van mahotsav” celebration or in other words the festival of life considering the importance of forests in human life.

Dr Rajender Prasad, then the president and Shri Jawahar Lal Nehru, then the prime minister both had participated in the tree planting program in Delhi. The basic objective to celebrate Van-Mahotsav was to develop enthusiasm about forests protection and tree planting to create the tree covers outside the forests also among our countrymen.

Van mahotsav is being celebrated in the month of July of every year throughout the country and the tree planting program continues in monsoon season. The major objectives of van mahotsav are restocking and regenerating our open forests areas, meeting energy need of rural area where majority of people are still using fuel-wood for cooking and other purposes, shelter belts to protect from wind and sun in order to increase the productivity of crops, meeting fodder need, soil conservation, aesthetical, economical etc. The planting of trees were considered as sacred activity which rewards human beings in present and future.



India supports 15% of world human population (1.30 billion) and 19% of cattle population. 3 million people in India depends on forests for their livelihood. North Eastern states of our country



have around 70 to 90% of its geographical area under forests. However, the big states which have the major forests area of the country are Madhya Pradesh (77,352 sq.km.), Arunachal Pradesh (67,321 sq.km.), Maharashtra (62,000 sq.km.) and Chattisgarh (52,000 sq.km.). It is estimated that world has 3 trillion trees and every year 15 billion trees are cut for various reason. We should plant 10 trees if we cut 1 for any reason. There is a need of planting 45 billion trees every year. India has around 35 billion trees. Canada has the highest number of trees per capita (8,953 trees/capita). Brazil has 1,494

trees/capita, USA 716 trees/capita, China 102 trees /capita whereas India has only 28 trees/capita. There is urgent need to increase per capita trees in India. It is estimated that 119 trees per capita are the minimum requirement to have the adequate oxygen to breath and to have other essential ecosystem services. India has 3 million ha of open forest area as per the recent report of Forest Survey of India(FSI), Dehradun and out of this 1.80 million ha has the sufficient root stock and can be regenerated and stocked by giving protection whereas 0.60 million ha with limited root stock and 0.60 million ha with no root stock. These two categories of forests which has limited root stock or no root stock has to be restocked by under taking plantation and soil and moisture conservation works on large scale.

The dense forests are the best cost effective mechanism available to mitigate the climate change impact and hence the emphasis is given to carry out tree plantation works on large scale. United Nation Frameworks Convention on Climate Change have been signed by 197 countries and ratified by 167 countries. Paris Agreement was adopted in 2015 and entered into force on November 4, 2016 mandated emission reduction of greenhouse gas through commitments of countries in Nationally Determined Contribution. The earth temperature which has already exceeded by 1.3 degree C from 1880 to be limited to 1.5 degree C of preindustrial level and it should not exceed 2.0 degree C. The estimated greenhouse gas emission of China is 29.4% of total, USA 14.3% and India 6.8%. China has to reduce it to 20% and India to 4.1%. The reduction requires the large scale plantation as the trees absorb carbon di oxide, a greenhouse gas and also stored the carbon in the form of wood. The cooling effect of a full grown tree is equal to 10 normal AC running for 20 hours without adding any greenhouse gases to the environment. The growing stock in India is estimated 5,768 million



cubic meter; 4,193 cubic meter within forests and 1,573 cubic meter outside forests and this growing stock stored 7,044 million tons of carbon (2015). The carbon stock in country's forests is estimated to be 7,204 million tons in 2022 and there is increase of 79.4 million tons as compared to the estimation of the year 2019. It is matter of proud for every forester that the carbon sequestration has been gradually increasing in India in spite of all the biotic pressure and diversion of forests land for various reason. The carbon sequestration is to be further increased by 50 to 60 million tons to mitigate climate change impact and to meet international commitments. The loss of soil from the denuded lands is also a major concern as soil also stored carbon. The estimated soil loss in the



world is around 5,334 million tons /year and India contributes 5 to 8 million tons /year to it and loss to GDP estimated owing to erosion of soil is 150 \$ /ha/which comes around 5% of the GDP.

There is a need to carry out the plantation works on all available land irrespective of its status to meet the growing energy biomass demand of people. There is a huge gap in demand and availability of timber, firewood and fodder in India. The timber requirement is estimated around 40 million cubic meters against production of 15 million cubic meters and of 200 million tons fuel-wood against 86 million tons production. India is a net importer of wood and paper. India is predominantly an agrarian country as more than 60% of its population directly dependent on agriculture for livelihood.

The land under agriculture in India is around 17.96 lakh sq. km. i.e. around 54.63% of its geographical area. **Agroforestry** may be a panacea for all our ecological and environmental problems and a game changer for our farmers as far as the doubling of their income is concerned. Government of India has come up with its Agroforestry Policy in 2014 however, State governments has not given the desired attention to the issue and yet to formulate their policies. The market and financial institutional linkages to Agroforestry may help the country in fulfilling its international commitments on climate change. This will also help in achieving the Sustainable Development Goals of UN. The forests and trees in general have ecological, cultural and traditional importance in India and forester of India will keep on celebrating **International Forests Day and Vanmahotsav** with increasing flavor and fervor every year for our sustainable development.

**Ex IFS, Ex PCCF (Social Forestry), Maharashtra State*

Can INC-1 promulgate us from the slough of plastics?

Dr. Arvind Kumar*

Without a common international regulatory framework, we will not be able to address the global and increasing challenge of plastic pollution. There is an urgent need for change. The shocking photos we see of shores flooded with plastic waste should be a wake-up call. It will be up to us in the following years to turn off the tap to stop plastic pollution, so that there will be no further harm to those most affected by unsustainable patterns of production and consumption.

A report from the OECD found that plastic production is on track to nearly triple by 2060. Less than a fifth of the plastic used in the world would be recycled, and nearly two-thirds of it would be single-use items. Like the climate and biodiversity crises, the plastic pollution problem is an example of how dominant social and economic systems are out of step with a liveable Earth. A 2022 study found that plastic and chemical pollution had exceeded the planetary boundary for “novel entities” added to Earth’s ecosystems. The UN Secretariat’s document titled Summary of plastic pollution science noted that plastic pollution was an offshoot of the linear take-make-dispose economy. It said the current trends needed to be replaced by a circular economy which forms the basis of the solutions to the plastic pollution problem facing the world.



Picture Credit/Courtesy: Fenceline Watch & Break Free From Plastic

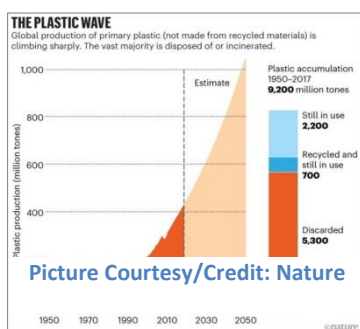
To address this menace member States decided to develop an international legally binding instrument (ILBI) on plastic pollution, notably in the marine environment, during the United Nations Environment Assembly’s fifth session in March 2022. The first session of the Intergovernmental Negotiating Committee (INC-1), tasked with developing an international legally binding instrument to end plastic pollution, concluded in Uruguay’s Punta Del Este December 2, 2022. Meeting for the first time, the intergovernmental negotiating committee (INC) with representatives from more than 160 countries was prepared to address organizational as well as to hammer out the details of the substantive matters. An ambitious deadline of 2024 was set for the conclusion of the discussions.

The ultimate question, however, remains the same: will the resulting agreement suffice to stem the planet’s mounting plastic tide? If yes, then how? International environmental cooperation has a chequered history. The Montreal Protocol was successful in lowering the levels of refrigerants and

other chemicals that were destroying the ozone layer, but the UNFCCC is still lagging in its efforts to stabilize greenhouse gas emissions sufficiently to avert the worst effects of the climate crisis.

Contrasting interests around the negotiation table

Although the majority of delegations appear to concur that plastic pollution has harmful impacts, it is obvious that they have not yet reached agreement on the specifics and content of important substantive topics that will establish the scope and direct the execution of the ILBI. Although it became clear that the treaty needed to include the entire lifecycle of plastics, a definition of “lifecycle” has not yet been established. Divergent viewpoints were also expressed in discussions of



downstream control mechanisms and how to recycle plastic in a safe way due to chemicals present in them in abundance. The now-familiar distinctions between required and voluntary aspects in the future treaty were another area of disagreement. By the end of discussion, it appeared that this topical discussion still had more questions than answers such as will the cornerstone of the execution be national action plans? Will national action plans have a basis for ambition? Who will determine what this is, how it will be measured, and who will keep an eye on it?

The phrase “form follows function” was repeated throughout the negotiations, indicating that it is important to grasp the core challenges before choosing the format of the instrument. This indicates that there will be a treaty, albeit the specifics are still up for discussion. Some nations, like the US and Saudi Arabia, expressed a preference for the Paris Agreement-style bottom-up approach to the instrument with domestically defined activities. Numerous other countries, notably small island developing governments, favored distinct control mechanisms.

At INC-1, developing nations demanded two things: those who are accountable for the issue must pay their fair share, and because plastic pollution is a global issue requiring global cooperation, even small states must join in, but “only if this doesn’t mean they have to carry unfair burdens by doing so.” In addition to other forms of assistance, many developing nations demanded the creation of a special fund for the ILBI.

How India is addressing plastic pollution?

The trio of petroleum, petrochemical, and plastic industries continued to manufacture plastic at an increasingly alarming rate in India. Plastic had gradually replaced the alternate forms of packaging like metal, paper and glass, leaving consumers with the option of buying utilities packaged in plastic. Most of the plastic used in India today was for packaging and an increasing amount of crude oil was being converted to plastic every year. Most of this was single-use plastic and might not be recyclable. The EPR legislation, which exists in European Union, North America, Latin America, and OECD countries, had been introduced in India in 2022 for plastic packaging. However, the implementation and enforcement of the EPR policy will be a major challenge for the authorities as the policy is weak and has gaps that will need to be plugged. The informal sector was the workforce that made recycling possible in India. Most of the waste flowed to recovery systems through the informal workforce.



Picture Courtesy/Credit: Getty Images

Companies had been imposing the responsibility of collection of non-recyclable waste on the waste pickers, thus affecting their income and operations. Most of India's plastic waste was leaked in the environment or dumped in open dumpsites (67 %). The country burnt (20%) more plastic waste in specialised facilities than it recycled (12%). The potential of recycling was much higher in India due to an indigenous workforce and existing infrastructure. However, production of massive amounts of non-recyclable composite plastic material and promotion of false solutions by existing policies made a perfect cocktail for plastic pollution to thrive. We have to identify short-term, mid-term and long-term measures that should be taken to tackle plastic pollution in the country. Like strengthening India's plastic waste production, consumption and recycling inventory; making brands disclose the amount of plastics produced, collected, recycled and burnt each year; including the informal sector in the formal plastic management value chain; designing product packaging keeping 'end-of-life' stage in consideration and making petrochemicals accountable.

The indications and way forward

Keep an eye on climate change, all available data, and the actual disasters that are occurring around the world as a result of our slow response. That should not happen in case of plastics as well. Therefore, in order to keep the promise to stop plastic pollution, INC-1 got the negotiations off to a good start but to proceed, INC-2 will need to strike a balance between participation and context as well as between the high expectations of the whole world and what negotiators can actually

accomplish in light of the competing interests they must take into account. We require a resolution that is as extensive as the problem. This calls for a global accord that addresses every aspect of plastic manufacture and disposal. We need a strong international plastics treaty that significantly reduces plastic production by establishing legally binding global control measures and eliminating dubious solutions, like chemical recycling and incineration, also some grey areas regarding the participation of non-governmental stakeholders in future negotiations should also be clarified. The participation of all civil society actors must be guaranteed. It is essential so that scientists, workers' representatives, women, youth, local authorities, NGOs, but also indigenous peoples can bring the fundamental knowledge to move in the right direction. This treaty must be ambitious, set binding targets, and put the protection of human and environmental health and social justice at the center of the decisions. An Ambitious agreement together with ambitious actions is the key to ensure that future generations can have a planet without plastic.

**President, India Water Foundation*

Combating Influence of Climate Change on Urban Water Supply

By, S.K. Sharma^{8*} and Lalit Gupta⁹

ABSTRACT

The water-related stresses and calamities are severely influencing the water supplies of cities and townships. The defendable & supportable management of urban water resources and supplies remain critical and pivotal for climatic resilience. Paper describes the impact of climate change vulnerabilities and risks to urban water supply infrastructure & operations. Adaptation and alleviation techniques, strategies, and possible measures to address climate risks to urban water health and environment and its management are discussed, all with the ultimate objective of promoting urban water use efficiency and safety.

1. Introduction: Urbanization and in-migration in India is putting water stress that has caused imbalance between water availability and demand scenarios. The situation is being further worsened due to vulnerable impacts of climate change. In coastal areas, saline intrusion in fresh water aquifers has resulted from sea-level rise and saline ingress. Temperature rise and variations are causing reduction in water supply availabilities. Vulnerable water supply infrastructures and communities need resilience to survive the impacts of changing climates.

2. Notions of Climate Proofing: Notionally, the climate proofing hypothesis, in essence, is the weather proofness. The water resource availability, water quality, water distribution network, and related water infrastructure components are all susceptible to and endangered by the impacts of changing climates. It therefore demands timely actions to mitigate and reduce the negative consequences of climate-change events.

3. Changing Climate Scenarios in India: These include:

- i. Areal temperature has increased over an extended period of time in different area sectors in the country.
- ii. Also, sea-level rise and storm upsurge have increased over the years
- iii. The changing climate events of drought and floods have affected water supply infrastructures.
- iv. Both temperature and resultant surface water evaporation have decreased water supply availability in various regions of the country.
- v. The climate-changing events have variously deteriorated various components of water distribution network systems, necessitating mitigation and improvements.

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4. Urban water Calamities: As a result of vulnerabilities of climate change, some more cities and towns of India are expected to face water stress situations in future. Leakage of water from age old water supply infrastructure will impact water supply and demand situation in urban areas. Drought & flooding events due to variability of climate change is bound further worsen water supply position of urban areas. Urban organizations are required to prepare water management plans such as Water harvesting and Water Conservation projects to compensate for loss in water supplies and degradation of water infrastructures due largely to growing impacts of climate change events.

5. Inferences of Climate Change to Urban Water Supplies: The urbanization remains the exclusive critical factor of water stress. Water demand is projected to increase and water sanitation & hygiene will remain under pressure in the country. Both drought & floods events would aggravate position of urban drinking water supply and its quality if timely measures are not taken to address them.

Priority addressal areas shall be Health Impacts of Climate Change as well as impacts of climate change on Non-Revenue Water Reduction (NRW) management.

Innovative digital application techniques are desirable exercises adopted in reducing physical water losses from water supply systems.

6. Climate – Risk Management: Various climate-risk management measures are required to be taken at various stages of Water supply project construction, beginning with project preparation stage and ending with project implementation stage.

Whereas climate – risk screening shall be necessary to be considered at project concept stage, the risk assessment & adaptation assessment shall need its addressal during project preparation stage. The project implementation stage is required to focus on monitoring and evaluation activities.

6.1: Climate Change Adaptation & Mitigation Activities: With a view to coping up with adverse effects of climate change, important measures for mitigating impacts of climate change would be:

- Improving energy efficiency & conservation of energy
- Promoting hydro & renewable energy
- Retro-fitting buildings to withstand hazardous events
- Using of Climate Expert Tools((CET) to combat climate change impacts
- Tool (CRST) developed by GIZ.
- Resorting to water loss reduction measures & plans such as Audit of water metering etc.

7. Climate Proofing Actions: Principally the first desirable action is to create public awareness to climate events that put pressure & stress on urban water supplies.

Proofing action would also need capacity building at various levels in Urban Govt. Organizational set-up including policy planners & managers in addition to operators. The stakeholders would need to be incentivized to adopting innovative climate-change mitigation solutions.

8. Climate Proofing Framework: Climate proofing action plan should relate to and involve Sectoral activities and Implementation Institutions: These to include are:

- Developing climate change awareness and climate change early-warning for stakeholder communities
- Establishing insurance schemes for Transport & ICT sectors
- Setting up of Climate-resilient Urban Centres fo legal and institutional works
- Govt. Organization –in-charge of water supply to design & plan climate-change resilient water supply and sanitation system.
- Reducing Carbon- footprint of water supply infrastructure during operation and Implementation stage

9. Path Forward: Township and city areas impacted by variability of climate-change events should immediately resort to resilient action to increasing and or restoring the efficiency of the water supply distribution network infrastructure particularly where water losses in water transmission systems have occurred. Besides this the urban organization should also undertake water-audit exercise to evaluating water losses and taking measures to reduce such losses. Precision efficient–innovations with use of solar energy is also the demand of time. Summarily, it is imperative for urban organizations to resort to reducing carbon-footprint of water supply particularly during project implementation & operation stage.

*Principal Advisor, India Water Foundation

BLOGS

Friday Potential Prospects for G20 India

India's G20 Presidency: Relevant or Rhetoric for the Global South?

The world faces multiple challenges of war, energy, food shortages, viruses, and recession therefore a global response is needed. The impacts of Covid and the ripple effects of the crisis in Ukraine foretell extreme economic stress and ecological disaster. The developing countries have to come together to redesign global political and financial governance that can remove inequalities and enlarge opportunities. For the south it assumes greater urgency because it, more than the developed world, will be affected more severely by these ill winds.....Click here- <https://www.facebook.com/drarvind.kumar.3/posts/pfbid06Fb1KxgyZ1zihJEwgiLoKYcnXbWqRQHEmA8KBjZNmXMS2g4ePnegGasZUCdhFSyFl>

Is Deep Tech a giant leap towards Sustainability?

As inevitable climate hazards worsen, the rate of global warming is outpacing attempts to protect billions of people. Get ready for a growing wave of emerging technologies developed and scaled with the ultimate goal of solving a social or environmental challenge. Deep tech lays one of the most promising pathways towards mitigating climate change. And this creates an encouraging synergy: startups from the climate tech landscape that are deploying deep tech technologies to enable a zero carbon economy. Complex solutions are required for complex issues.....Click on the link ahead to read the complete blog- <https://www.focusglobalreporter.org/is-deep-tech-a-giant-leap-towards-sustainability/?fbclid=IwAR3UrgNz9UF3d17xqOcDU11FEOYSLih4x5aQiV-kqlmJtLRIIYdR86C2bwE>

Will Mission Green Energy alchemize India into a Global low Carbon Economy?

The main asset in the modern period is energy and unquestionably necessary for a developing economy like India because it is the backbone of production, transportation, construction, communication, and mobility. India has the chance to direct the G20's discussion on the energy transition on its own terms. The Prime Minister's personal commitment to the Lifestyle for Environment (LiFE) principle may serve as a solid foundation for India to persuade the other G20 members of the legitimacy of a transition that is fair to both the present and future generations.....Click on the link ahead to read the complete blog- https://www.focusglobalreporter.org/will-mission-green-energy-alchemize-india-into-a-global-low-carbon-economy/?fbclid=IwAR3_ON_pW2RSYW3unIyjXpQ3M63RCqdNGhIUO7m4QBDrEDPvhRcJkNI_x-U

Is G20 India the Window to Strengthen Resilience for Disaster Risk Reduction?

From COVID-19 pandemic to violent conflicts, forced displacement and climate change, humanity is badly affected. We have to work towards achieving disaster risk reduction goals and further enhance global preparedness against disaster. The world has been talking about increasing investments in DRR, but only a small fraction of disaster management funding goes to risk reduction, most of the fund is allocated to disaster response.....Click on the link ahead to read the complete blog- <https://www.focusglobalreporter.org/is-g20-india-the-door-to-strengthen-resilience-for-disaster-risk-reduction/?fbclid=IwAR0CbcwGO4kb4Jvx8C1qYz9bE3R1EwAJrgGUG8IKXK85Vt2erZY9cSrw0Oc>

Is G20 India the opportunity to upturn healthcare?

There are significant lessons that must be learned in order to navigate the future as the globe recovers from the challenges that the Covid-19 pandemic brought with it. India is currently in charge of the G20, and as such, digital health innovation, achieving universal health coverage, and improving healthcare infrastructure and delivery will continue to be the key driving forces in 2023 along with the One Health approach. There is a strong economic case for One Health because the global estimate of prevention costs guided by One Health principles ranges from \$10.3 billion to \$11.5 billion per year.....Click here- <https://www.focusglobalreporter.org/is-g20-india-the-opportunity-to-upturn-healthcare/?fbclid=IwAR3NhdUvqHrYqEyBJK7BVEdr1tRkssNeJXUfymXl2ccHJRkuEQerE2ymkw4>

G20 India: Salience of CSOs globally

Why Civil Society Engagement matters? Civil society engagement within G20 India matters because we are only 7 years away from the 2030 deadline to achieve the Sustainable Development Goals, and the gap between the actions taken by governments and the measures that need to be taken to achieve them is immense. Most of the challenges we face – political polarisation and extremism, human rights abuses and civic space restrictions, extreme inequality.....Click on the link ahead to read the complete blog-<https://www.focusglobalreporter.org/g20-india-salience-of-csos-globally/?fbclid=IwAR2RyZx3bFYIFTVeFTNzAyx6EnPk5I9YCAyVn3g19R0R4pxEtECahQJxTtY>

Shaping the Inclusive Green Growth Narrative through G20 India

The G20 has no parallel among intergovernmental forums that comprises of major developed as well as developing economies, thus offering a unique platform. The accession of India to the

Presidency coincides with a turning point in world affairs. The political and economic challenges that the world community is confronting are numerous. The crisis in Russia and Ukraine has strained relations between Russia and the affluent Western nations, the majority of which are G20 members.....Click here https://www.focusglobalreporter.org/shaping-the-inclusive-green-growth-narrative-through-g20/?fbclid=IwAR0r3SySWMQd0KCUyfgcqA9yj44gz_c2RP-rRiAK6-QH8l1HV5_FIWI2Yc

Friday Blogs for CBD COP-15

Will the Montreal GBF Agreement achieve biodiversity targets by 2030?

The unprecedented feat achieved at the Convention on Biological Diversity COP15 which concluded at Montreal Canada this early December was bringing international attention on the interconnectedness and interdependence of climate change and biodiversity. Restoring nature is crucial for adapting to climate change. It was commendable that climate commitments included calling for nature-based solutions that foster positive impacts of climate action on biodiversity.....Click here- https://www.focusglobalreporter.org/will-the-montreal-gbf-agreement-achieve-biodiversity-targets-by-2030/?fbclid=IwAR2GyPFn81CRvY_K1cCgXRihuUdgyjruE6si8zeF1hJtrZevKRU7luUng24

Warming Oceans and Biodiversity Loss: An Interlinkage?

Shouldn't the negotiations held during the Conference of the Parties meetings present an opportunity to adapt existing agreements to better capture topics of rising importance to both biodiversity and climate change, such as ocean carbon protection? A substantial opportunity exists now for a joint effort to expand the basis for integrated climate and biodiversity governance. This could deliver necessary steps toward developing policies to safeguard ocean carbon as it is important to remember that the ocean binds us all together.....Click here <https://www.facebook.com/drarvind.kumar.3/posts/pfbid02VHY5joWu8ACGcnmSwFZiTECdQqomnKJfNML1PyALqxt0Bmc3zJC2WyBiUFCdoi9il>

Moving Towards Indigenous Wise for Climate Sustainability

Now more than ever, the topic of climate change has been receiving global attention and is at the forefront of many conversations. In addition to altering environments, it also has a social impact. Extreme weather events have been happening more than ever in recorded history, disrupting both ecosystems and livelihoods for people across the globe. However, marginalized communities.....Click here https://www.focusglobalreporter.org/moving-towards-indigenous-wise-for-climate-sustainability/?fbclid=IwAR3tG4SWv-G0E3Far--REPwnrt5nYpGPDryHqEpiRcs-BkITma_2NLc9KzE

Friday Prospects for COP-27

Was COP 27 A COP Perfect?

Set against a difficult geopolitical backdrop, COP27 resulted in countries delivering a package of decisions that reaffirmed their commitment to limit global temperature rise to 1.5 degrees Celsius above pre-industrial levels. The package also strengthened action by countries to cut greenhouse gas emissions and adapt to the inevitable impacts of climate change, as well as boosting the support of finance.....Click here-

https://www.focusglobalreporter.org/was-cop-27-a-cop-perfect/?fbclid=IwAR3lDdTNrpw_4wF2y7_FQwKBmPxAXIT2bBi5uz1C1NMHUhRuPbkohR1gHs

Forests: From Commitments to Action

The significance of forests in the tackling climate change is becoming abundantly evident to the world. In addition to helping with climate change adaptation and mitigation, forests are crucial to the global carbon cycle. The Declaration on Forest and Land Use at COP 26 in Glasgow reaffirmed an accelerated and increased.....Click here https://www.focusglobalreporter.org/forests-from-commitments-to-action/?fbclid=IwAR2GyPFn81CRvY_K1cCgXRihuUdgyjruE6si8zeF1hJtrZevKRU7luUng24

Circular Economy: Enthusiasm to Realism?

Estimates suggest that the global population will reach close to 9 billion by 2030 – including 3 billion new middle-class consumers. This places unprecedented pressure on natural resources to meet future consumer demand. The circular economy is a redesign of this future, where industrial systems are restorative and regenerative by intention. This ensures the maximum value is extracted from items with minimal impact and minimal waste.....Click here

https://www.focusglobalreporter.org/circular-economy-enthusiasm-to-realism/?fbclid=IwAR0iXSvkUzvWcCnJKmr6oAaEAIbRRT2SiP_vBjnYWk9LnmBtgRoMMwmb8FM

Disaster Risk Reduction in a Tottering World

The climate emergency continues to challenge existing norms and ways of working. The recent IPCC reports and the Global Assessment Report made it clear that climate impacts will further intensify, requiring us to transcend beyond conventional institutional silos and recalibrate governance beyond the current confines of climate change adaptation (CCA) and disaster risk

reduction (DRR).....Click here <https://www.focusglobalreporter.org/disaster-risk-reduction-in-a-tottering-world/?fbclid=IwAR1MA0NbmSdXgLVqeSpGolkxnVK78MfNsX4WmXe5Vmbq0j4o6ttxfuHpG4U>

Sustainable Energy: Tool to Combat Climate Change

India's decision to achieve 'net zero' by 2070 has been hailed globally as a game changer. But do you think India's commitment is realistic? India accounts for only 7% of global emissions and has made reasonable progress by reaching nearly 110 GW of RE by the end of March 2022. The government has also supported green hydrogen, with the recent release of Green Hydrogen Policy, which provides the initial support for production of green hydrogen and ammonia in the country.....Click here <https://www.focusglobalreporter.org/sustainable-energy-tool-to-combat-climate-change/?fbclid=IwAR3byCXrbd8qV696na2D8NDsOUu9D5o7WOW1TWRdaFtRBarCGlu5H4V0TXQ>

No Coherent Climate Action without Mainstreaming Biodiversity

Biodiversity is vital to life on our planet. It is essentially the life support system for humanity. The biodiversity we see today is the result of 4.5 billion years of evolution, increasingly influenced by humans. Governments around the world recognized this at the Earth Summit in Brazil in 1992 and established the Convention on Biological Diversity to protect and conserve biodiversity. But the situation has become.....Click here https://www.focusglobalreporter.org/no-coherent-climate-action-without-mainstreaming-biodiversity/?fbclid=IwAR104qUniJkZnAS3Rn6iNYnI_6TRATshj09Dr5OdLCKdFrEEes7ig3JFAJw

Mainstreaming Wetlands

The world has witnessed climate change impacts in the form of rising temperatures, receding glaciers, drying rivers, reduction in wetlands and aberrant and untimely weather conditions causing natural calamities and loss of biodiversity. Scientists worldwide are looking at the ecological and hydrological impacts resulting from climate change and this in turn has amplified the need for awareness about conservation of nature and wetlands in particular. Wetlands include mangroves, peatlands and marshes, rivers and lakes, deltas, floodplains and flooded forests, rice-fields, and even coral reefs; they exist in every country and in every climatic zone.....Click on the link ahead to read the complete blog- <https://www.focusglobalreporter.org/mainstreaming-wetlands/?fbclid=IwAR10RAf3g9RfQCfqQvJfZjBRXGhiESnIkRZ6s5ODv9RKWWFPdYex2rzCwf0>

Sustainable Cities: Prism of Possibilities

By 2050 the number of people living in cities will have nearly doubled, from 3.6 billion in 2011 to more than 6 billion. Yet the world's urban areas are already overcrowded and, particularly in

Page 86 of 91

developing countries, who suffer from shortages of clean water, electricity, and other resources essential to the support of their exploding populations and fragile economies. At the same time, cities are a key contributor to climate change, as urban activities are major sources of greenhouse gas emissions.....Click here https://www.focusglobalreporter.org/sustainable-cities-prism-of-possibilities/?fbclid=IwAR1uGupWjn5UO2JdOna_3HaYTj9XH-muOrXBRKHwUKmqslcDodyMcyX-ZhM

Addressing ‘Black Cloud’ of air pollution: Detrimental for Health and Climate

Air pollution harms our health, economies and the planet and is a global scale problem and one of the biggest contributors to climate change. The Climate crisis gets attention whenever people experience extreme weather conditions or face natural calamities. This year, the scorching heat in Europe with rivers drying up, wildfires and flash floods in South Asia have brought more global discourse.....Click here <https://www.focusglobalreporter.org/prospects-for-cop-27-addressing-black-cloud-of-air-pollution-detrimental-for-health-and-climate/?fbclid=IwAR0GJmayMHICLvBNB3VoAzrSyyYuZV5UB88XFmR7v6vopHnVhMehHjBhjsq>

Water and Climate Change

Water scarcity has particularly emerged as a highly critical and contentious issue within South Asia, one of the world’s most dynamic regions and home to nearly 1.9 billion people. It sits precariously on the front lines of the global climate crisis. Partway through 2022 and this is already shaping up to be a year of devastating climate impacts affecting lives and livelihoods around the world from disastrous flooding in Bangladesh to Pakistan, scorching heat waves in South Asia and Europe. As per UNDP estimates, around 2.5 billion people in South Asia alone, will be affected by water stress & scarcity by 2050.....Click here <https://www.focusglobalreporter.org/prospects-for-cop27-water-and-climate-change/?fbclid=IwAR07UarmeVoOWHfdAd8W5gg1gIvctQpbCtsoydHywYZN8-OIwGDSpnaigUA>

Friday Prospects for COP 27 – Agriculture Sector

South Asia has faced the brunt of extreme weather in the recent years – with the recent floods in Bangladesh and Pakistan and heat waves in India jointly impacting the region and its stability. This bout with hostile climate conditions is not new for the region. In fact, more than half of all South Asians – or 750 million people across Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka – were impacted by one or more climate-related disasters in the last 20 years, according to the World Bank.....Click here <https://www.focusglobalreporter.org/friday-prospects-for-cop-27-agriculture-sector/?fbclid=IwAR0LIhSeicGR9A-S11o9oGwL4w6lnZEaWB0M3X1KvdebW1FsF1bOF55fmUg>

UPCOMING MAJOR EVENTS

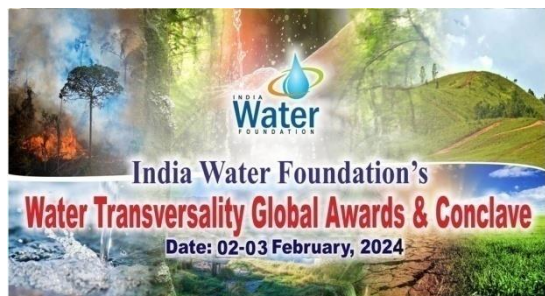
India Water Foundation in partnership with World Water Council is organizing a virtual official side event on 'Accelerating SDG 6 Achievements through Cross Sectoral Partnerships': A High level Policy Dialogue under the aegis of UN2023 Water Conference which will be held in New York from 22-24th March 2023. We are proud to inform that out of 1300 entries only 149 have been approved from the globe. The speakers would be ranging from Ministers, UN Heads, Intergovernmental organizations, Private sector, Civil Societies, Academia etc. Do join on large numbers to make this event a super success. Please share in your networks for wider percolation.....Click here



https://www.indiawaterfoundation.org/un-2023-water-conference/?fbclid=IwAR1vSbHxZ3_J1PZx2VoTSaxi8ni_Kxf2w2uYfmUNUp8UsxeX5_NNMR4BQHQ

IWF's Water Transversality Global Awards and Conclave

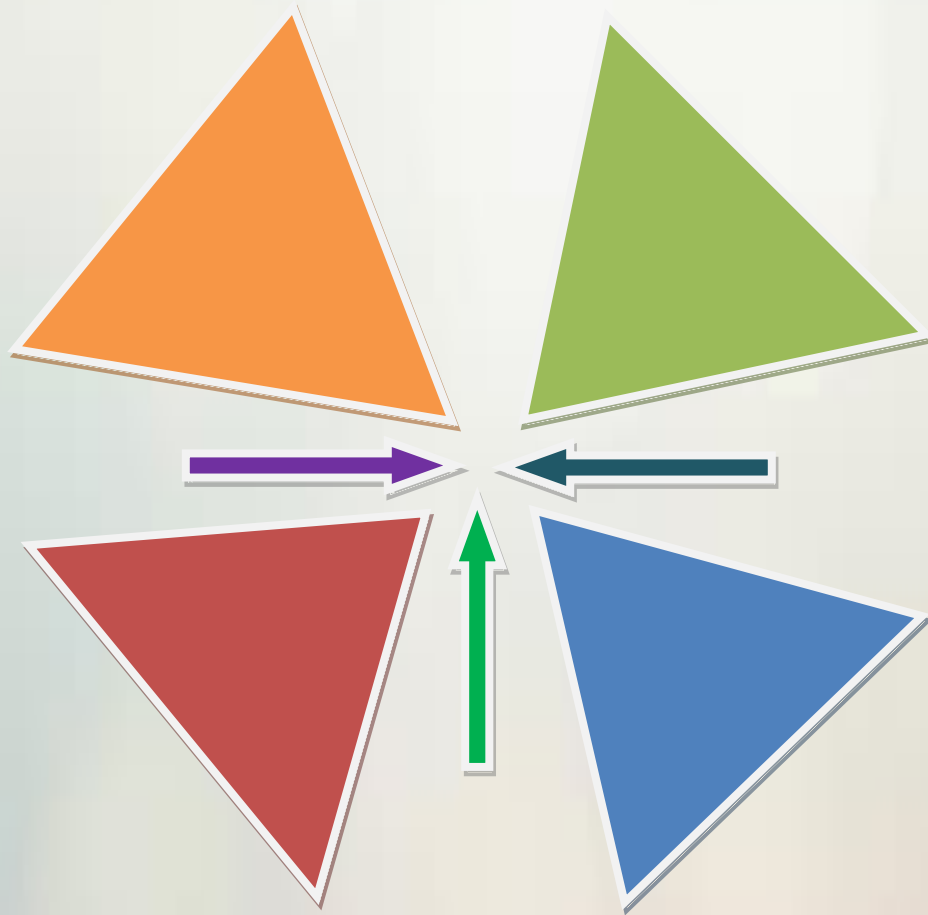
India Water Foundation's Water Transversality Global Awards and Conclave was announced in



January supported by the Ministry of Jal Shakti, Department of Water Resources, RD & GR Govt. of India to be held on **2-3rd February 2024**. These awards are to felicitate leaders in transversality. Considering the fact that sustainable Environment is an integral part of the life's existence on earth, it was felt necessary to institute world's first of its kind globally the IWF's Water Transversality Global Awards and conclave is the first of its kind awards in the globe which celebrates the commitment to

excellence in multisectors, encouraging all the actors in the water and related sectors, to adopt holistic approach, and to bring in synergy towards sustainability, environment conservation and management. Entries are open to become partners, sponsors and apply for the award. To apply click on - <https://lnkd.in/djWvNtb3>





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