

Water Conservation as a National Movement

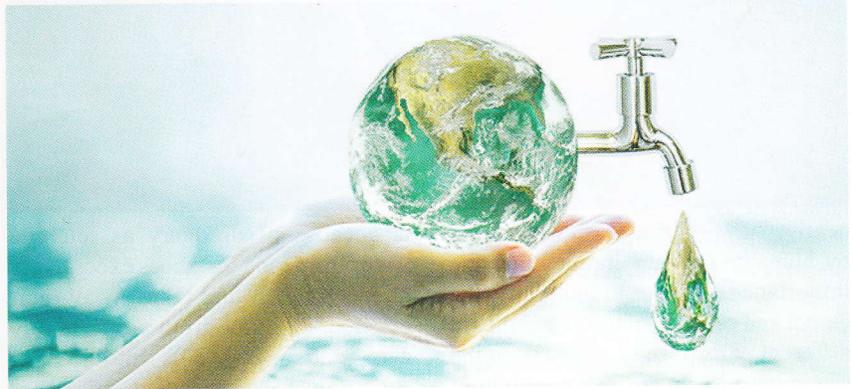
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India is changing to a country when the whole world is recognizing it as a 'New India'. The world's largest democracy is now fast transforming into a rich, self-reliant, developed, net exporter of food, transparent and vibrant country, while having well-developed infrastructure, skilled and dynamic youth, up-to-date communication, advanced health and educational systems, improved governance and growing economy. Notably, India in recent times has become a globally recognized hub of IT industry, health tourism, space research & use of satellite technology and several other sectors.

Further, India is not only committed to fulfill its international obligations towards biodiversity conservation, environmental management, climate change mitigation, human rights, social justice, equity as well as peace but at the same time it is fully geared for planned accomplishments essential for nation building and meaningful contribution towards global agenda on sustainable development. Indeed, India is fast moving towards pro-people, participatory, visible and responsive economic prosperity while aiming to safeguard its long-term interests of ecological security by protecting the country's diverse and unique natural heritage.

Water Crisis - A Major Impediment

India has just 2.4% geographical area of the world while harbouring nearly one sixth of the global population and the world's highest owner of livestock (512 million



heads). Therefore, despite having made above cited notable progress and accomplishments in different sectors, India faces several limitations and global challenges in order to realise dreams, expectations and ever rising aspirations of its people. Amongst them, interrelated water crisis and food insecurity attract special attention as these attain highest risk values owing to burgeoning population, rapid urbanization; industrialization and infrastructure development; expansion and intensification of agriculture; loss of wilderness and degradation of natural resources (forests, grasslands, wetlands including rivers, marine and coastal ecosystems); large gaps between supplies and demands of various sectors and implications of climate change.

Signs of water scarcity by way of limited access, declining quantity and deteriorating quality are evident. Everyone realizes that water is not only essential for all life forms but it also connects every aspect of life. Human body is made of 'Panchtatvas' – five elements: Water, Air, Fire, Earth and Space, where about 72% per cent of the body weight is due to water content. Water is the driving force for nature.

Although the mother Earth is predominantly (70%) covered by water, only 2.5% is freshwater. India harbours only 4% of world's freshwater resources. Less than 1% of the freshwater is easily accessible in lakes and rivers. Disproportionately, agriculture sector alone consumes

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nearly 70% of the freshwater used by humans. Despite appreciating the importance of water to humanity, the extent and severity of water scarcity in different parts of the country is on the rise owing to increasing population; enhanced runoff due to deforestation and loss of green cover; urban 'grey' environment; changing life styles and enhanced consumption patterns; expansion of irrigated agriculture and resultant exploitation of depleting ground water; creation of physical barriers leading to storage of water in large reservoirs/barrages and diversion of water by canals; wastage of water by leakage and neglect; inadequate facilities for recycling and rainwater storage; and more importantly, pollution of water by sewage and dumping of urban wastes and unchecked flow of industrial effluents. While there is a growing focus on all-round rapid development in the country, availability and access to freshwater imposes restriction on development works. The country is expected to become 'water stressed' as per capita surface water availability is on the decline. Several metropolis and rural areas face acute shortage of even drinking water. Several parts of the country are prone to water-borne diseases and human health is a major concern in such pockets. Water crisis in many remote rural areas, particularly in the Himalayan region,

is a cause of drudgery as fetching water from long distances excessively affects women and takes away their considerable time from work, family care, and also results into loss of economic opportunities. Demand for water is expected to increase multi-folds in next few decades. At this juncture, when the country faces accelerated consumption, enhanced environmental degradation and the multi-faceted impacts of climate change, comprehensive science-based pathways, innovations, technologies are the need of the hour and also to ensure participation of all concerned so as to efficiently manage scarce freshwater resources of the country and competing demands.

Nature, Water and People

Nature, water and people have intricate relationships as nature plays a fundamental and unique role in regulating different features of the water cycle. Nature acts as a regulator, a cleaner and/or a supplier of water. Maintaining healthy forests and other natural ecosystems (grasslands and wetlands) directly leads to improved water security not only for wild denizens but for all.

Landscape features, its dynamic spatial patterns along various ecological processes influence soil formation, erosion, and sediment transport and deposition – all of which can exert major influences on

hydrology and the quality of water and the way it moves through the complex system. While forests often receive the most attention when it comes to land cover and hydrology, grasslands, wetlands and agriculture lands also play significant roles in water cycling. Soils are critical in controlling the movement, storage and transformation of water. Biodiversity has a functional role as it underpins ecosystem processes and functions and, therefore, the delivery of ecosystem services. In order to appreciate causes of water crisis and develop holistic approaches for ensuring water security in the country, the foremost requirement is to understand such interconnections in the country's different regions/landscapes.

Water Conservation

Water conservation is complex and daunting, particularly in a human dominated country like India having several competing demands. The result of excessive use, waste, pollution and allied activities have resulted in the current situation with reduced e-flow of majority of the country's dying rivers and other water bodies, deepening of water table and sites of unmanageable crowds at water distribution points. Water conservation primarily involves the following three objectives:

- (a) **Enhance water availability** – This could be mainly achieved by adopting a mixed strategy focussing on the protection and restoration of natural ecosystems (forests, grasslands and wetlands including rivers), increasing green cover aiming at source sustainability, managing riparian forest buffers, adoption of water efficient diversified agriculture, encouraging rainwater harvesting, undertaking massive soil and moisture conservation efforts, storage in reservoirs, water budgeting, recycling and reuse.
- (b) **Improve water quality** – This means effective law enforcement and stringent regulations, on

pollution control, restrictions on pouring of sewage, urban waste, industrial effluents and even prohibition on use of toxics (pesticides and weedicides) in agriculture, establishment of STPs and water treatment plants and adoption of bioremediation techniques.

- (c) **Reducing water-related risks** – Considerable area of the country is being annually impacted by droughts, floods, long dry spells and different health hazards. Adoption of integrated watershed management programme, flood control mechanisms, climate resilient agriculture, promotion of alternate income generation activities and sustainable livelihoods can minimize risks and disaster management.

A National Movement

Considering the magnitude and complexity of water crisis and also in order to achieve above elaborated objectives of water conservation, it is essential to change from the “business as usual” approach, instead to earnestly work towards an accelerated effort to plan, manage and use the precious water resources sustainably and fairly adopting holistic, evidence-based, participatory and bottom up approaches. In addition, it is essential to optimally revive traditional methods, tools, techniques and best practices for rainwater harvesting and water use efficiency besides building resiliency to face water related risks. Innovative, ‘Nature-Based Solutions (NBS)’ are expected to make significant contributions towards concerted efforts aiming at water conservation. Moreover, current

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efforts demand a national movement.

The Government of India has realised the merit of adopting a comprehensive approach towards water conservation. The unified Central ‘Ministry of Jal Shakti’ has been made responsible for laying down policy guidelines and coordination of programmes for the development and regulation of country’s water resources including dealing with related disciplines, viz. establishment of multipurpose projects, development of ground water resources, river development and rejuvenation, irrigation, flood control, resolving inter-state river disputes and inter-linking of rivers. The Ministry has been asked to develop and adopt a comprehensive strategy. Accordingly, the Ministry launched ‘Jal Shakti Abhiyan’, a campaign for water conservation and water security. The campaign will run through citizen participation while focus of the campaign would be on water-stressed districts and blocks in the country.

Besides, Ministry of Jal Shakti, other identified prominent Central

Ministries, national and State level Governmental and non-governmental Departments/scientific organizations in the country responsible for interrelated fields of environment, forestry, wildlife, agriculture, water resources, hydrology, meteorology, climate change, science and technology, river development, irrigation, rural development and urban development have been working for decades and have made significant contributions by launching various country-wide programmes and schemes facilitating water conservation.

For example, in recent decades, India has made huge investments towards implementation of ‘integrated watershed development programme’ and more or less it has taken a shape of a national movement, particularly in rainfed areas. Some of the other prominent programmes/schemes launched by concerned Ministries are: PMKSY – ‘Har Khet ko Pani’ and ‘More Crop Per Drop’; *Jal Shakti Abhiyan*; River Basin Management; National Water Mission; National Mission for Clean Ganga-Namami Gange, National Mission for Sustainable Agriculture, National Mission for Sustainable Himalayas; Dam Improvement and Rehabilitation Programme; Interlinking of Rivers, Ground Water Management, Flood Control and Forecast, Biodiversity Conservation, Wetland Conservation, Green India Mission, CAMPA and National and State Level Action Plans on Climate Change.

From time to time, the country has enacted various policies and laws relevant to above fields. Day-by-day, law enforcement (forest, wildlife, environment) is becoming evident by frequent judgements pronounced by the Hon’ble Courts, National Green Tribunal and notable interventions by Central/State Level Pollution Control Boards. Despite all odds, the Central Government during the period 2014-19 has implemented the ambitious programme of Namami Gange aiming for Ganga rejuvenation (*Aviral* and





Nirmal Dhara) by way of forestry interventions, establishment and maintenance of STPs, conservation of aquatic life, etc. The programme is now being executed with more insight, experience, vigour and support. Further, the Union Ministry of Environment, Forest and Climate Change has taken an initiative on preparation of Detailed Project Report on forestry interventions for rejuvenating major Indian river systems.

Taking clue from national programmes, several States have also initiated their own flagship programmes related to water management. Some prominent ones are: 'Mukhya Mantri Jal Swavlamban Abhiyan (MJSA)' by Rajasthan Government and 'Green Mahanadi Mission' of Odisha Government focussing on water development in water starved desert region and rejuvenation of Mahanadi River, respectively. Participatory irrigation management backed by the 'Pani Panchayat Act, 2002' in Odisha is flourishing through efficient and equitable supply and distribution of water ensuring optimum utilisation by farmers.

Future Direction

Sustainable management of water resources requires striking a balance between supply and demand, between the immediate requirement during the current/next year and decades into the future, between water quantity and water quality. These are crucial challenges but are not unfamiliar to water management specialists. Water conservation calls for creating

an enabling environment for change, synergy between diverse stakeholders/sectors, suitable legal and regulatory frameworks, appropriate financing mechanisms and social acceptance. On the one hand, developing an understanding on interconnections among nature, water and people pose new hurdles; and on the other hand new vistas open up for sustainable water management, seeking interaction across scientific disciplines and governmental entities. As the 'New India' moves in the direction of sustainable development, due emphasis is to given for formulation of strategies, guidelines and plans for sustainable use of the water resource, in other words, water budgeting.

In conclusion, following six priority actions are visualised for making water management sustainable in the country as a reality through an aggressive national movement:

- a. Institutions and Governance – Institutions working/contributing directly or indirectly towards water management would need strengthening and augmentation of manpower and financial resources and also a platform to bring in their efforts together for synergistic outcome. Governance at all levels would definitely matter to establish judicious water use and prevention and resolution of conflicts.
- b. Participatory Approach–The National movement certainly requires participatory approaches seeking involvement and empowerment of people so they can establish a mechanism to implement and enforce judicious use of water and efficient management of precious water resources.
- c. Knowledge Management–The complex subject of water resource management calls for collaborations/networking and institutionalising synergies

between various entities for development and exchange of evidence-based knowledge on ecosystem functions and development of suitable technologies to improve water resource management to ensure source sustainability. Development of 'Nature-Based Solutions' for various aspects of water management offer better opportunities and would be of immense help.

- d. Ecosystem-Based Management Approach–The move from isolationist approaches to holistic approaches are desirable on a priority basis. Thereby, greater focus on river basins and riverscapes for planning, assessment and interventions are the need of the hour. The awareness and sensitization campaign on massive scale need to be undertaken for educating masses on the significance of maintaining our ecosystem's integrity.
- e. Continuous Care – This aspect seeks concerted efforts towards conservation of existing water sources as well as rejuvenation of rivers/restoration/recharging of depleted water resources. Utmost care is required to be taken for retaining the water sources, making them sustainable and ensuring judicious use thereof.
- f. Capacity Development – The task of water management is tricky. Success towards countering water wastage and degradation of natural ecosystems could be accomplished by creating awareness and appropriate capacity development of various stakeholders. Specialized agencies can be deployed for preparing the blueprint for budgeting the water resource within the framework of the legislation on the subject and then formulate strategies for its successful implementation. ■

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