

EVALUATION OF WATER SUSTAINABILITY THROUGH ABUNDANCE AND JUDICIOUS USE

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ABSTRACT

World water day is celebrated every year on March 22 and theme is aptly titled “Valuing Water” as it has enormous and complex value for households, the economy and the environment. With the growing water crisis and Covid-19 pandemic around the world, it is definitely time to rethink the value of water and how we can efficiently manage it. Valuing water needs to begin as its source, through its distribution as well as usage and finally on how it is treated and reused. An accurate appraisal and overhaul of water policies, infrastructure and processes will also go a long way in emphasizing the need for conservation and efficiency.

Introduction

Water is extremely important for the continuation of life. Therefore, every step and decision to be taken on water is vital and important. Water is an essential substance not only for humans but for all living things. Life without water cannot be considered. Raising awareness of the people on this issue is of great importance. At this point, environmental education is a key concept. Water is considered as God’s gift to humanity for meeting its drinking requirement as well as provides raw materials for the production of goods and services.

The development of an economy depends on the various uses of water. For families, kids in schools and in offices, water is symbol of health, hygiene, dignity and productivity.

Water is one of the prime elements responsible for life on earth. Civilizations owe their evolution to water ever since the beginning of humankind. Water influence where people lived as our ancestors formed small cities around water for agricultural reasons. Today, water is under extreme threat from a growing population, increasing demands of agriculture and industry, and

the worsening impact of climate change. The annual per capita water supply in India is declining. Pressure on water resources generate risks especially for company's and municipal bodies and these have the ability to affect the cost and revenue as well as assets. Hence, it is necessary to make a proper valuation of water. Use values of water should include "direct use value" which is the cost incurred in water production, consumption and sale, and "indirect use value" which refers to values associated with regulating and supporting services provided by water ecosystem. In addition there are "option values" which refers to the value of preserving ecosystems for potential future direct or indirect users. The sum of these should be referred to as full economic value of water. Commoditization of water recognizes prices, efficiency, cost of production and distribution. Community value of water incorporates its spiritual, aesthetic and environmental dimensions. Both aspects should be taken in to account for total valuation of water.

It is a vital component not only for agriculture, industry, transportation but also for forestry, recreation, and environment. However contrary to the past, modern society has become apathetic towards this miracle of life. Rivers, seas and oceans are being exploited, mistreated and contaminated leading to water becoming a scarce commodity in almost every part of the world. Precious man-days or rather woman-days are lost in searching for water for household purposes in villages. In urban areas too there are frequent fights over water. Severe scarcity of water during droughts affects agriculture and farmers' welfare leading to loss in agricultural output and quite often suicides by desperate farmers. At the same time excess of water during floods also results in immense loss of life and property year after year. This dichotomy has become a regular feature of our economy.

Realizing the gravity of the situation, experts world over are busy finding newer ways to conserve water. Governments are busy formulating policies to deal with water related issues. Indian Government has been taking a number of steps to mitigate the problems caused by floods and droughts to both the farmer and the common man. Improved irrigation practices have been introduced to farmers through awareness campaigns, Pradhan Mantri Sinchai Yojana being one such programme. Water conservation methods like rainwater harvesting and flood water management are being introduced in a big way all over the country to address the looming crisis.

Challenges

As per the virtual summit 2020, in addressing water scarcity by the panel analysis (included Head of SATO, Erin McCusker, Anup Pandey, former Chief Secretary Government of Uttar Pradesh State, Ankit Gupta, Chairman of CII in Uttar Pradesh State, VK Madhavan, Chief Executive, WaterAid India and Dr. Rajendra Singh - the "Water Man of India") the availability

of water deeply affects economic, social and human development. India has over 18% of the world's population, with only 4% of the world's renewable water resources and 2.4% of the world's land area. India is also one of the 10 major water users in the world, in terms of volume, using 646 cubic kilometers of water a year. One of the challenges is the fast rate of groundwater depletion in India, which is known as the world's highest user of this source due to the proliferation of drilling over the past few decades. The alarming rate of groundwater depletion is also cause for serious concern. Declining water tables mean increased cost of pumping, salty irrigation water as a result of over abstraction leading to crop and revenue losses for farmers, and long-term consequences for water availability. Poor water quality and lack of adequate access to sanitation are also major causes of disease and poor health.

Groundwater from over 30 million access points supplies 85 per cent of drinking water in rural areas and 48 per cent of water requirements in urban areas. (JMP 2017). The ultimate aim of UNICEF's work in water, sanitation and hygiene (WASH) is to ensure that all children fulfill this right, and that no child is left behind.

Water Abundance

Consistent and sustained efforts can lead to drought proofing and creating water abundance. It can also help alleviate the challenges posed by climate change. But it required cooperation from all stakeholders. The first step in water management would involve in taking comprehensive, consistent and constant campaigns to re-establish the relationship between people and water.

The government policies and programmes has also undergone a series of transition ever since independence. To begin with, the emphasis was on setting up physical infrastructure in the form of hand pumps. Thereafter one has seen a transition from technology measures to a Socio technological approach seeking close participation of people. A national water policy was drafted in 1987 which was subsequently revised in 2002. For ensuring sustainability of the systems, steps were initiated in 1999 to institutionalize community participation in the implementation of rural drinking water supply schemes through the sector reforms project. *Sector Reform* ushers in a paradigm shift from "Government oriented supply driven approach" to "People oriented demand responsive approach".

Phases of water supply: Early Independence (1947-1969)

1949: The Environment Hygiene Committee (1949) recommends the provision of safe water supply to cover 90 per cent of India's population in a timeframe of 40 years.

1950: The Constitution of India confers ownership of all water resources to the government, specifying it as a state subject, giving citizens the right to potable water.

1969: National Rural Drinking Water Supply programme launched with technical support from UNICEF and Rs.254.90 crore is spent during this phase, with 1.2 million bore wells being dug and 17,000 piped water supply schemes being provided.

Transition from technology to policy (1969-1989).

1972-73: Introduction of the Accelerated Rural Water Supply Programme (ARWSP) by the Government of India to assist states and union territories to accelerate the pace of coverage of drinking water supply.

1981: India as a party to the International Drinking Water Supply and Sanitation Decade (1981-1990) declaration sets up a national level Apex Committee to define policies to achieve the goal of providing safe water to all villages.

1986: The National Drinking Water Mission (NDWM) is formed.

1987: Drafting of the first National Water Policy by the Ministry of Water Resources. Restructuring phase (1989-1999).

1991: NDWM is renamed the Rajiv Gandhi National Drinking Water Mission (RGNDWM).

1994: The 73rd Constitutional Amendment assigns panchayati raj institutions (PRIs) the responsibility of providing drinking water.

1999: For ensuring sustainability of the systems, steps are initiated to institutionalise community participation in the implementation of rural drinking water supply schemes through sector reform. Sector reform ushers in a paradigm shift from the 'Government-oriented supply-driven approach' to the 'People-oriented demand-responsive approach'. The role of the government is envisaged to change from that of service provider to facilitator. Under reform, 90 per cent of the infrastructure is funded by the government, with the community contributing 10 per cent of the remaining.

Consolidation phase (2000 onwards)

2002: Nationwide scaling up of sector reform in the form of Swajaldhara.

2002: The National Water Policy is revised, according priority to serving villages that did not have adequate sources of safe water and to improve the level of service for villages classified as only partially covered.

2002: India commits to the Millennium Development Goals to halve by 2015, from 1990 levels, the proportion of people without sustainable access to safe drinking water and basic sanitation.

2004: All drinking water programmes are brought under the umbrella of the RGNDWM.

2005: The Government of India launches the Bharat Nirman Programme for overall development of rural areas by strengthening housing, roads, electricity, telephone, irrigation and drinking water infrastructure. The target is to provide drinking water to 55,069 uncovered habitations; those affected by poor water quality and slipped back habitations based on 2003 survey, within five years.

2007: Pattern of funding under the Swajaldhara Scheme changes from the previous 90:10 central-community share to 50:50 centre-state share. Community contribution is now optional. The approach paper for the 11th Five Year Plan calls for a comprehensive approach which encompasses individual health care, public health, sanitation, clean drinking water, access to food and knowledge about hygiene and feeding practice. It also states the need to upscale more schemes related to community management of water reducing the maintenance burden and responsibility of the state. It is envisaged to provide clean drinking water for all by 2009 and ensure that there are no slip-backs by the end of the 11th Plan. UNICEF has been the 'development partner of choice' for the Government of India and has played a key role in the revamping and implementation of the Government of India's flagship National Rural Drinking Water Programme.

- Thanks to UNICEF's continued advocacy, technical assistance and engagement with Ministry of Jal Shakti, safe drinking water and sanitation remain high on the agenda of India's new government. UNICEF is currently working closely with the Ministry of Jal Shakti on the Jal Shakti Abhiyan and Jal Jeevan Abhiyaan.
- On 15th August 2019, Prime Minister Shri Narendra Modi launched the Jal Jeevan Mission and the vision of the JJM is "Every rural household has drinking water supply in adequate quantity of prescribed quality on regular and long-term basis at affordable service delivery charges leading to improvement in living standards of rural communities". Since the inception of the Jal Jeevan Mission, the percentage of rural

household having access to safe drinking water increased from 18 percent to 28.41percent.

- The programme also implements source sustainability measures as mandatory elements, such as recharge and reuse through grey water management, water conservation and rain water harvesting.
- Ministry of Jal Shakti also launched the Jal Shakti Abhiyan on 1st July 2019, in 256 water stressed districts across the country as a mass movement to bring all the stakeholders under one ambit of water conservation drive.
- Atal Bhujal Yojana (ABHY) envisages sustainable ground water management, mainly through convergence among various on- going scheme, with emphasis on demand side measures through active involvement of local communities and stakeholders. ABHY also play a key role in drought proofing, thereby improving climate resilience in select water stressed areas, create better job opportunities through improved skill development, etc, all leading ultimately to sustainable management of ground water.
- Keeping in view the criticality of water for life, Aayog has developed a composite water management index (CWMI). The CWMI as a yearly exercise is an important tool to assess and improve the performance of water resource.
- “Pani Bachao paisa Kamao” (PBPK) by Government of Punjab to encourage farmers to save electricity and reduce the use of ground water.
- Government of Maharashtra has also taken an innovative step by launching the Draft Maharashtra Water Resources Regulatory Authority Water Entitlement Transfer (WET) and wastewater Reuse Certificates (WRC) platform regulations, 2019.
- The main aim of the regulations are to encourage wastewater recycle and reuse in large water consuming industrial and urban centres that go beyond the stipulated water reuse targets set-forth in the state water policy and creation of a transparent water accounting process with the use of IOT metering at the water consumption, reuse and environmental discharge points with a repository of water consumption maintained under a regulated process.

Conclusion

Awareness, surveillance, monitoring and testing, mitigation measures, availability of alternate water sources and adoption of hygienic practices continues to remain roadblocks. There is a need to promote sanitary inspection along with the community based water quality monitoring and surveillance at the grass root level as a mechanism to identify problems and to take corrective measures. Water quality is affected by both point and non-point sources of pollution. These include sewage discharge, discharge from industries, run-off from agricultural fields and urban run-off. Water quality is also affected by floods and droughts and can also arise from lack of awareness and education among users. The need for user involvement in maintaining water quality and looking at other aspects like hygiene, environment sanitation, storage and disposal are critical elements to maintain the quality of water resources.