

# Water Governance

*Bharat Lal*

*It is fascinating to observe how Gujarat and the Indian water journey have been invaluable in showing the world how water management can be reinvented to make it sustainable and restore our environment. These initiatives, centred on people partnering technology aiming at sustainability, pave the way for affordable, scalable and reliable models for the entire world.*

**T**he State of Gujarat, today considered as the growth engine of India, witnessed a turnaround from being a water scarce State to water secure State in the first decade of the 21<sup>st</sup> century. The State transformed by adopting environment-friendly policies, climate-resilient engineering, and strengthening grassroots leadership stand out as an example of sustainable development and offers a path to follow. This article throws light on the steps taken in the State at the national level and has the potential to achieve Sustainable Development Goals and prosperity.

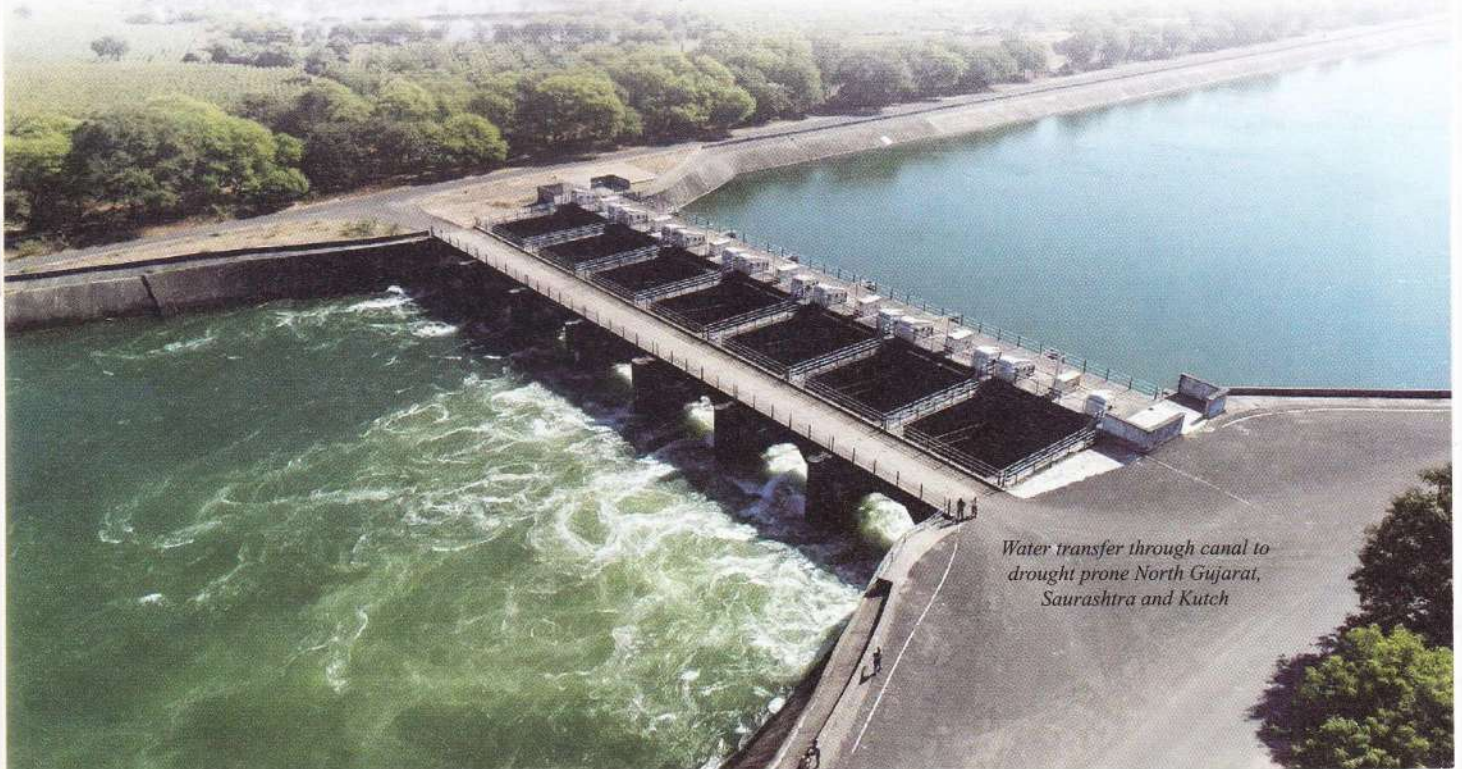
Two decades ago, the region was prone to repeated droughts and water scarcity, damage to life and livelihood due to devastating earthquake with epicentre in Kutch

on 26 January 2001, and resultant economic crisis with shrinking economy. With the realisation that the paucity of water contributes negatively to socio-economic development and economic growth led to policies and practices to achieve long-term water security. Also, the critical relationship between water, environment and ecosystems was acknowledged, built upon, shaped and transformed in a sustainable way to meet the challenges without compromising on the health of the natural world.

## Transformation

In the late 1990s, no one had imagined what Gujarat could look like. The western and northern parts were dried up due to severe droughts and the inflating desert of Kutch had left terrible impact on the livelihood. There were cases of mass migration of pastoral communities like

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*Water transfer through canal to drought prone North Gujarat, Saurashtra and Kutch*



Maldharis, who had to move eastwards from Kutch and Suarashtra in search of fodder and water for their livestock. During this period, Gujarat was facing a skewed annual rainfall with Central and South Gujarat receiving 80-200 cm while areas like Kutch were receiving less than 40 cm. On an average, every third year was marked as a drought year leading to uneven distribution of water. Annually, thousands of tankers were deployed to mitigate drinking water scarcity and make water available to people. There were also times when special water trains had become the new norm for delivery of water. The State and district administration had devoted considerable resources and time to manage scarcity of water through such temporary fixes, but the emptying aquifers and damage to environment remained unattended.

To address these challenges once and for all, water was placed at the centre stage of the State's developmental policy. Viable solutions were explored to conserve water and achieve an ecological balance whilst resolving to ensure adequate and assured availability of clean water in every home became the top priority. A series of policy decisions, including the integration of the overall water sector to manage demand and supply, coherently ensured accountability at all levels. The long-term goal, however, was the sustainability of water sources, as it was rightly seen to be intricately linked with public health and people's livelihood.

A great value was placed on water as a 'finite resource' that needed to be replenished every year. As all water is received from precipitation during limited rainy days in the State, the focus was on making the State open-defecation free with emphasis on rainwater harvesting and efficient use of water. It led to an early realisation that water must be consumed wisely without polluting the sources.

A component of drought-proofing was adopted in building climate-resilient water infrastructure. The



*In 2002, Gujarat was the first State to plan clean tap water to every rural home*

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**The 'Saurashtra Narmada Avtaran Irrigation' (SAUNI) Yojana was also taken up under which, during monsoon, surplus water from Narmada is transferred and stored in about 115 reservoirs of Saurashtra. This Yojana is expected to benefit 8.25 lakh acres of farm land in Saurashtra.**

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'State-wide drinking water supply grid' was planned to provide clean tap water free from chemical and bacteriological contamination. The groundwater sources were protected by transferring surface water from a distance through bulk water pipelines of about 2,000 km and distribution pipelines of over 1.15 lakh km along with numerous hydraulic structures, storage sumps, water filtration, treatment plants, etc. Simultaneously, undivided attention was given to complete the Sardar Sarovar dam on the Narmada River and

the distribution canal network. The existing canal systems were further strengthened. Inter-basin transfer of water from reasonably water-rich South and Central Gujarat to North Gujarat, Saurashtra and Kutch was planned and executed in the form of a 332 km-long Sujalam Sufalam Canal with speed and scale. Not only were the people provided with water of prescribed quality in adequate quantity, but the State also observed a drastic reduction in the pumping out of groundwater from tube wells. This grid is providing potable drinking water to over 200 Urban Local Bodies and about 14,000 villages.

To promote sustainable agriculture in drought-prone North Gujarat, Saurashtra and Kutch, a unique approach to transfer Narmada floodwater to these regions through a series of the canal/pipeline networks was taken up. Further, to meet water requirements, especially in areas with groundwater salinity, desalination plants were set up. So far, four such plants producing 270 Minimal Liquid Discharge (MLD) water have been taken up in the coastal areas of the State.

#### **Enabling Water-Use Efficiency in Agriculture**

With about 85% of all freshwater being consumed for agricultural purposes, micro-irrigation and Participatory Irrigation Management (PIM) were promoted in an extensive manner to optimise water use in farms. Agriculture extension activities to educate farmers on the concept of 'Per Drop, More Crop' were initiated as a campaign. Farmers were provided financial and technical support to build check dams, farm ponds, bori-bandhs, etc., in and around their farmlands to 'catch the rain where it falls.' As part of the water conservation campaign, about 1.85 lakh check dams, 3.22 lakh farm ponds and a large number of bori-bandhs were constructed to impound water in fields. About 31,500 ponds were desilted and deepened. Over 1,000 stepwells in the State were cleaned, revived and put to use. For a long time, many of these stepwells were left unattended and empty but with the help of rainwater harvesting and aquifer recharging, the traditional systems were restored and rejuvenated.





*Modern engineering marvel to ensure clean tap water in every home*

Realising the potential of mission-mode campaigns in making the State water-secure, ‘Sujalam Sufalam Jal Abhiyan’ was initiated around the twin objectives of deepening water bodies before monsoons and enhancing water storage for rainwater collection. It entails numerous water conservation activities including the cleaning and deepening of ponds, canals, and tanks, check dams and reservoirs, repair of water storage structures, construction of rainwater harvesting structures, etc., through a participative approach.

In Gujarat, on an average, only 24% of the storage capacity of reservoirs and dams in North Gujarat, Saurashtra and Kutch used to be filled annually during the rainy season. The criticality of water storage can be gauged from the fact that the day the local reservoir in Bhuj city known to be as Hamirsar lake, overflowed, district administration used to declare it as a holiday. This day used to be celebrated as a festival. The ‘Saurashtra Narmada Avtaran Irrigation’ (SAUNI) Yojana was also taken up under which, during monsoon, surplus water from Narmada is transferred and stored in about 115 reservoirs of Saurashtra. This Yojana is expected to benefit 8.25 lakh acres of farm land in Saurashtra.

Taking full advantage of the expanding solar power availability in the State to address the electricity issues, solar pumps were commissioned significantly. Subsequent comprehensive energy audits for various group water supply schemes have also resulted in energy savings leading to an overall reduction of the carbon footprint in the water supply sector.

With the integrated water management approach and groundwater table continuously improving, the total irrigable area in the State increased by 77%, and the agriculture production in

the State also increased by 255%, leading to a green economy. This has paved the way for a sustainable and environment-friendly model.

Following Gujarat’s footsteps, a groundwater conservation plan was designed at the national level to carry out community-driven efforts to achieve water security. Under Atal Bhujal Yojana, a unique policy initiative was undertaken to empower local communities by ensuring their participation and improving their sense of ownership among all other stakeholders. The agricultural demand for water being the highest in India requires water-efficient practices like micro-irrigation. Under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), farmers are

encouraged to adopt water smart irrigation technologies to improve productivity with reduced water wastage. One of the crucial measures undertaken is on improving rainwater harvesting under ‘Catch the Rain’ campaign.

Following the success of the transformative Clean India Mission and inspired by the success of an integrated approach to water management in Gujarat, the PM integrated the two water sectors – drinking water supply and water resources – forming a single Ministry of Jal Shakti in 2019. Soon after that, ‘Jal Shakti Abhiyan’ was launched as a campaign and mission-mode initiative to make the best of the monsoons and enable water conservation, especially in the 256 identified water-stressed districts. The effort was to make it a ‘Jan Andolan’, a movement of the people. These steps were in the right direction towards truly making water ‘everyone’s business’ and achieving water security for all. The Abhiyan not only accelerated asset creation but also raised extensive awareness on building source sustainability.

Treating river as living entities and taking all the measures to make sure that they continue to breathe and live healthy was another transformative step in the same direction. ‘Namami Gange’ was launched for rejuvenation of the river Ganga and its tributaries by adopting a multi-level and multi-agency approach in four broad categories of pollution abatement, improving flow and ecology, strengthening people-river connect, and research, knowledge and management. With the success of Namami Gange, 13 more rivers have been taken up for rejuvenation and pollution abatement.

#### **Jal Jeevan Mission–Har Ghar Jal**

On 15 August 2019, in his address to the nation from the ramparts of Red Fort, the Prime Minister announced Jal Jeevan Mission (JJM) with the promise of tap water supply to every

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Women struggling for drinking water during summer of 2002 in Gujarat – No more such drudgery

rural home in the country by 2024. This mission was designed in partnership with States and aimed to ensure long-term assured water service delivery rather than mere infrastructure creation

Under JJM, Pani Samitis/VWSCs are being set up across the 6 lakh rural villages of the country, where they are being empowered to plan, implement, manage their in-village water supply systems by adopting an end-to-end approach involving the four key components, viz. source sustainability, water supply, greywater treatment and reuse and operation & maintenance.

The Swachh Bharat Mission 2.0 focuses on reducing waste production and its suitable treatment, reuse or disposal. The key impact areas of this mission are bio-degradable solid waste, greywater, plastic waste, and faecal sludge management.

India, being the biggest user of groundwater on the planet, plays a significant role in influencing decentralised, demand-driven and community-managed programmes where local communities especially those involving women, are engaged in scientific water management for long-term water security in villages. In today's climate-risked world, especially this decade where more rain is predicted in fewer days, it is crucial more than ever to speed up the work to catch and store the rainwater, use it judiciously and make the most through treatment and reuse. The Government of India, over the last eight years, has taken multiple initiatives towards the circular economy of water in the spirit of people-driven programme.

The National Project on Aquifer Management (NAQUIM), one of the world's biggest programmes of its kind, envisages the formulation of aquifer management plans to facilitate the sustainable management of groundwater. So far, more than half the total area of the country has been mapped.

### Way Forward

The socio-economic development and economic growth, especially in drought prone and desert areas depends upon how wisely water resources are utilised. Water, being a finite resource, plays a key role especially in arid and semi-arid regions in restoring and sustaining the environment including flora and fauna. Its vitality for reducing the burden of disease and improving the health, welfare and productivity of human populations and keeping other life forms on earth possible cannot be underestimated or ignored. □

*Views expressed here are personal.*

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