"Revisiting Ancient Wisdom: Bharat's Historical Water Management Systems as a Blueprint for Contemporary Solutions"

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आपो हि ष्ठा मयोभुवस्था न ऊर्जे दधातन ।
महे रणाथ चक्षसे ॥

यो वः शिवतमो रसस्तस्य भाजयतेह नः ।
उशतीरिव मातरः ॥

तस्मा अरं गमाम वो यस्य क्षयाय जिन्वथ ।
आपो जनयथा च नः ॥

O Water, because of your presence, the Atmosphere is so refreshing, and imparts us with vigour and strength.
We revere you who gladdens us by your Pure essence

O Water, this auspicious Sap of yours, please share with us,
Like a Mother desiring to share her best possession with her children

O Water, when your invigorating essence goes to one affected by weakness, it enlivens him,
O Water, you are the source of our lives

(आपः सूक्तम् - संध्यावंदन मन्त्रानां भागः)
From the Aapah Suktam – a part of the Sandhyavandana Mantras)

From Antiquity to Advancement: Bharat's Water Management Revisited

Water held a revered position in ancient Bhartiya culture, playing a critical role in daily religious and social practices. Even today, Ganga and other rivers are considered divine and purifying. Ancient scriptures dating from 6500 BC to 500 AD extensively praise the role of water in rituals and ceremonies. At the same time they also touch on scientific concepts like hydrology, engineering, conservation, etc.

The Indus Valley civilization, from around 3000 to 1500 BCE, well-known as the Harappan civilization, stands as one of the earliest and most sophisticated civilizations. It not only was vast in terms of geographical scope but also proved to be a pioneer in technological and societal development in the peninsula. People of the Indus civilization were particularly devoted to water, with a daily practice of praying to rivers and attributing divine significance to them. Their urban centres showcased modern architectural and civil designs, highlighting advanced drainage and wastewater management systems.

In ancient Bhartiya culture, water always held profound significance, being equated with life itself. Water, considered as Divine by the ancient scriptures, and known as *Aap* in Sanskrit, is considered to be as old as the Universe itself, having emerged from an egg out of which everything else issued.

Thus, this ancient and rich civilization advocated the conservation of every type of water in the universe, with a special emphasis on preserving river water. Rivers, crucial for irrigating agricultural fields, were deemed vital for the survival of all living beings. The flowing waters of rivers were considered pure, underscoring the necessity to avoid pollution. The Seven Sindhu Rivers, namely the Saraswati, Satluj, Ravi, Vyas, Jhelum, Chenab, and the Indus were revered deeply like the mother.

India's hydrologic knowledge spans millennia, through the Vedic Period which is around 1500-500 BC. Like other ancient civilizations, water management provided the foundation for the development of hydrologic science in ancient Bharat. Until recently, much of this knowledge remained obscure.

Recent explorations unveil extensive engineering insights vis-à-vis hydraulic functions, and with evidence found in the Vedas—especially the Rigveda, Yajurveda, and Atharvaveda. These texts discuss everything pertaining to water be it nature-based solutions for water management, water cycle, its quality, or hydro-structures and machines.

Ripples of Wisdom: Bharat’s Historical Water Management Unveiled

The Indus Valley civilization exemplifies advanced water sciences, showcasing advanced waterworks and sewerage systems with both consolidated and distributed concepts. Additionally, they possessed various creative techniques for treating wastewater. The Mauryan Empire (322-185 BC), widely accepted as the first "hydraulic civilization” had a comprehensive understanding of hydraulic science, on the basis of which were constructed dams, reservoirs, channels with spillways, and more. They demonstrated a remarkable understanding of various hydrological processes, water pricing systems, water balance, rainfall measurement, and knowledge of various hydrological processes. This historical legacy positions Bharat as a pioneer in the ancient wisdom of hydrology, with recent discoveries shedding light on its depth and sophistication.

Highlighting the intricate connection between the management of water and societal aspects, the ancient civilization excelled in the field of water resources. Agriculture was their primary economic activity, leading to the creation of extensive canal networks, ways to store water, various designs of wells as a resource and storage, and sustainable, cost-effective water-harvesting methods. Their ability to manage both water and wastewater included planned sewerage networks through subterranean conduits and the world's earliest known flush toilets.

The Vedic period saw a shift in understanding water dynamics. The invaluable texts of that period recognized that water wasn't lost but transformed within the water cycle. Texts such as Arthashastra and Ramayana referenced hydrologic processes like infiltration, interception, flow, and geomorphology. Development of groundwater and issues regarding water quality gained attention during the Mauryan period, evident in texts like Brihat Samhita of 550 AD. Ancient Bharatiya literature, including Brihat Samhita, Meghamala, and others, delved into

topics like plant water absorption, evaporation, cloud attributes, and forecasting rainfall through natural phenomena observation.

Flowing Through Time: Rediscovering Bharat's Water Heritage

The Vedas contain the highest of wisdom and knowledge, extensively highlighting the significance and relevance of water sources, its role for all living organisms, water quality, and the imperative need for conservation. Out of the five basic elements of nature, called the Panchamahabhuta, namely Ether or Space (Akash), Air (Vayu). Agni (Fire), Water (Aapah), and Earth (Prithvi), Water is seen as the foremost element and one that spawned the evolution of the Universe.

The Rig Veda exquisitely detailed Heaven and Earth (Dyava Prithvi) as "*decorated with ornaments of water, abundantly blessed with love of water, and conservator of water*". It further beautifies this most important element, "*the straight-flowing, white coloured, bright-shining river moves along with her ample volumes through the realms; the inviolable river, most efficacious and speckled like a horse, is beautiful as a comely maiden*".

The sages in Yajur Veda pray "*O Water! thou art the reservoir of welfare and prosperity, sustain us to become strong. We look up to thee to be blessed by thy kind nectar on this earth. O Water, we approach thee to get rid of our sins"*

The Atharvaveda eloquently pays obeisance to the sacredness and importance of water, thus: *"The ability to see, hear, and speak, are useless in the absence of adequate water. Water is the very basis of life. Most life forms are born in water and live in it. O! Water stream, come near me. You are the elixir of immortality".*

The Vedas also attribute medicinal significance to water. Acharya Charak, in Charak Samhita, elaborates on the valuable properties of groundwater. Several verses in the Vedas not only speak of rain as the vehicle of fertility but also describe the healing power of water.

"May excellent waters be helpful for our bliss and drink. May they flow all around for curing our ailments and preventing us from falling prey to them".

"In water lies the capacity to heal all ailments and digestive power which is the carrier of all sorts of happiness. O Waters! Grant me medicine to keep my body free from harm, so that I may see the sun for long".

Ancient Bharat, from the Harappan era to the Vedic period, showcased a remarkable evolution in ways to manage water and hydrological understanding, seamlessly integrating science with socio-cultural and economic dimensions.

The ancient texts of Rigveda extensively addresses importance of the water cycle and its related processes. It describes how the Sun, strategically placed by the divine, illuminates the universe, extracting water as vapor, converting it into clouds, and releasing it as rain. Various verses detail the process of water's journey from the Earth to the atmosphere and then influenced by the Sun and wind, the fragmentation of water into small particles, conversion into vapor due to sunlight, and subsequent rainfall. The idea that water is constantly in

motion, evaporating and remaining imperceptible due to its small particles, is also emphasized.

Emphasizing the importance of water conservation, the Rigveda beautifully intones, *"Water should make us powerful and excellent as does Ghee (clarified butter). Such water needs to be protected in whatever form it is present and wherever it is present".*

It, also through another verse, says about rain water and flowing water, *"O Human! Rain water and water obtained from other sources such as wells, springs, and ponds, contain many nutrients. You should know this and you should become energetic and powerful by using such nutritious water".*

Atharvaveda, dated approximately between 1200-1000 BC, aligns with Rigveda by attributing rain and evaporation primarily to the Sun's rays. Explaining the value of rain water, it says *"rain water should be conserved because it is the purest form of water. Water should be protected from pollution and efforts should be such that water is not contaminated".*

Interestingly, nine types of water have been cited in Atharvaveda, namely:

1. Parichara – Water flowing from natural waterfalls
2. Hemwati – Water flowing from mountains covered with snow
3. Varshaya – Rain water
4. Sanishyada – Water moving rapidly
5. Anuppa – Water of such place where there are many marshes
6. Dhanvanya – Water of desert land
7. Kumbheybhiravaratta – Water present in e3arthen pots
8. Anbhrayah – Water of wells
9. Utsaya – Water of source

The Yajurveda, from a similar period, explains the transfer of water from clouds to the Earth, followed by channelling, storage in oceans, and subsequent evaporation. During this Vedic period in Bharat, the country displayed a mastery of hydrological concepts, that included percolation, water movement, retention, and evaporation.

Yajurveda provides insights into water management, highlighting the important need for transporting water to arid regions through wells, canals, and ponds. It advises people to anticipate natural calamities like droughts and floods, taking preventive measures accordingly. Atharvaveda emphasizes the prosperity derived from using rainwater for navigation, agriculture, and other uses. The text instructs kings to construct aqueducts over and connecting mountains to ensure water supply for their subjects.

Additionally, Atharvaveda discusses drought control by effectively using available water sources, emphasizing the prudent utilization of water to mitigate drought severity. Specific verses provide guidance on managing different kinds of water bodies, such as streams, wells, and pools, to reduce the fall-out of drought and water scarcity. The Vedas have also foretold the significance of water conservation for social welfare and referred to the use of rains, wells, ponds, and rivers for agriculture, domestic use, etc. Besides they have stressed on the importance of using these various measures effectively and with wisdom.

There is substantial praise of the Holy Ganga and the Yamuna in the 2000 years old Sangam Tamil literature. The powerful Chera King Chenguttuvan of the 2nd century AD came all the way to Ganga twice in his life just to wash the stone for sacred sculptures.

The Tamil epic Silappadikaram describes the rivers Kaveri of Choza country and Vaigai of Pandya country in beautiful verses. Paripatal, part of Sangam literature has lengthy poems in praise of River Vaigai. There are ample Tamil proverbs that stress the value of preserving water and its optimum utilization.

Tiruvalluvar, the famous and revered Tamil poet, says in the Tamil Veda Tirukkural,

"Even as life on earth cannot sustain without water, virtue too depends ultimately on rain".

Bharat's Hydrological Heritage: A Guide to Modern Sustainability

The field of Water cycles and related techniques have been collectively explored by Rigveda, Atharvaveda, and Yajurveda. They specifically reference principles such as evaporation, cloud formation, water circulation, infiltration, river currents, and the cyclical nature of these processes. Rigveda even references water-lifting devices like Asma-chakra and Ghatyanta, while Ramayana and Mahabharata contribute by mentioning the water cycle, artesian wells, and explaining the rainy season and transpiration.

Ancient Bharatiya knowledge of water cycles and their various related characteristics are thus evident in our Vedic scriptures, where they have described the water cycle, emphasizing the function of the Sun in evaporation and rain formation. The Mahabharata further details transpiration during the Bharatiya summer monsoon. Puranas like Matsya, Vayu, and Linga elaborate on processes like evaporation, cloud formation, and rainfall potential.

The Ramayana's Kishkindha saga delves into hydrological aspects, discussing cloud formation, rain, and river overflow. The Brihat Samhita, composed by Varahamihira around 550 AD, provides extensive meteorological insights, including cloud formations, rainbows, and thunderstorms. Varahamihira also explains the connection between soil characteristics and the quality of water.

In Brihat Samhita, certain ancient Sanskrit works like Dakargalam, explore groundwater exploration, using biomarkers to find water sources. Termite knolls are normally considered as indicative of the presence of underground water. The Jainist literature, particularly Prajnapana and Avasyaka Curnis, has come up with many citations of different wind types and kinds of precipitation.

Dated around 700 BC, the Arthashastra mentions rain gauges used during the reign of the Mauryas. The text details the techniques of Kautilya for classifying rainfall areas, showing an advanced understanding of rainfall distribution. The Arthashastra also delves into rainfall forecasting based on planetary observations and describes cloud classifications and their water-holding capacity.

Thus, ancient Bharatiyas demonstrated advanced knowledge of all aspects of water sources and resources from the Vedic to the Mauryan times. They understood cloud development, prediction of rainfall, groundwater structures, and water quality, showcasing expertise comparable to modern water science.

Lessons from History: Reviving Bharat's Water Wisdom

Moving on to water management, establishing a distinct connection between humans and water became possible through the formation of sociocultural communities and enduring settlements.

The Harappans pioneered urban sanitation systems, boasting complex sewage systems and drainage connections. Cities like Mohenjo-Daro featured soak pits, outdoor latrines, cesspools, and drainage channels showcasing early wastewater treatment efforts. The use of Terracotta pipes for wastewater disposal, demonstrates an early attempt at treatment.

Ancient Bharatiya cities like Kalibangan and Banawali exhibited decentralized sewage systems, showcasing variations in wastewater collection methods. The Harappan Great Bath and the Dholavira reservoir system exemplify advanced hydraulic engineering. Jain and Buddhist literature, along with texts like Charaka Samhita and Atharvaveda, provide additional citations to water quality, emphasizing the importance of preserving forests and soil-water relationships.

Around 500 BC, Ujjain implemented a very refined drainage system, while around 300 BC Taxila replicated Mohenjo-Daro's drainage setup. This reveals that ancient Bharatiyas of the Indus Valley civilization and subsequent periods had a deep understanding of sanitation and wastewater management technology.

In the past, residential locations were determined by water availability, leading to efforts to harness limited resources. Ancient civilizations, like the Harappans, showcased knowledge of very advanced water management techniques. This is seen in structures like the Great Bath and Lothal's dockyard. Rock-cut reservoirs at Dholavira demonstrates effective rainwater collection strategies.

During the Mauryan period, dynasties like the Mauryas invested in irrigation systems, exemplified by the Sringaverapura tank. The Sudarshana Lake in Girnar, dating back to the 3rd century BC, underwent restoration over centuries, as seen in inscriptions. Various rulers, such as Kharavela and Ushavadata, contributed to water infrastructure.

In the Gupta and Post-Gupta periods, well-based irrigation and devices like the Araghatta were prevalent. Rainwater, crucial for agriculture, was collected in ponds, with tank irrigation becoming standard in peninsular India.

Early medieval Bharat saw a concentration on water resources, evident in Aparajitapriccha and Brihatkalpasutrabhashya. Remarkable projects, like Kashmir's damming of the Vitasta by King Avantivarman, showcased innovative solutions to prevent catastrophic floods. Lalitaditya Muktapida's system at Laksadhara and Gujarat's irrigation projects during the 11th century highlighted diverse approaches.

Rajasthan's kings and queens, such as Mularaja I and Jayasimha Siddharja, undertook extensive water-related projects, including building of reservoirs and tanks. Technical devices, like water-drawing tools mentioned in Desinamamala, reveal the ingenuity of water management. Southern Rajasthani inscriptions and the Pallavas and Cholas' tank excavations,

with detailed sluice systems, further emphasized sophisticated water distribution methods. The Cholaganga tank, as described in the Tiruvalangadu copper plate, featured 74 sluices, showcasing the advanced engineering of that time.

Sustainable Waters: Bharat's Historical System For Contemporary Needs

Ancient Bharat, with its rich heritage, boasts of numerous innovative contributions, amongst many domains, in water conservation. The wisdom of our ancestors in addressing water-related challenges remains relevant today. Notably, the progressive water harvesting and drainage infrastructures of the Indus Valley Civilization serve as a blueprint for modern structures. Among these, Talabs, or medium-sized reservoirs, played a crucial role in storing water for households and preventing flooding. The grandeur of Lake Hirakud in Odisha, spanning 750 sq.km, attests to the mastery of ancient water management.

Stepwells, known as Bawari, were intricately designed around reservoirs to minimize water loss through evaporation. Chand Baori in Rajasthan, with its 3,500 narrow steps over 13 stories, stands as a testament to the effectiveness of this technique. The Taanka, a cylindrical underground pit used for rainwater harvesting in the Thar desert, exemplifies indigenous water storage solutions, providing a reliable water source during dry seasons.

In South Bihar, Ahar Pynes, reservoirs with embankments, harnessed floodwater, averting disasters and creating reserves for irrigation. Johads, naturally occurring elevated regions turned into earthen storage pits, formed a resilient network, channeling water to rivers or streams. Panam Keni, cylindrical wells crafted by the Kuruma tribe in Wayanad, Kerala, using toddy palm stems, supply abundant water even in the hottest months.

The 15th-century Khadin irrigation method, pioneered by the Paliwal Brahmins of Jaisalmer, harvested surface runoff water for agriculture. In 1607 AD, Kunds, saucer-shaped catchment areas designed for rainwater harvesting, were developed and proved crucial for providing drinking water. Baoli, another stepwell structure with arches and carved motifs, served diverse purposes depending on its location.

Nadis, located near Jodhpur in Rajasthan, are village ponds, strategically chosen, based on catchment and runoff characteristics. It is heartening that the Mewar Krishak Vikas Samiti (MKVS) addresses water quality issues by promoting afforestation and implementing silt traps in Nadis.

Bhandara Phad, a popular water conservation method, involves building check dams across rivers. This century-old community-managed irrigation system operates in Maharashtra, mitigating crop failure risks in drought-prone regions like Vidarbha.

Kuhls, essential surface water channels in Himachal Pradesh, bring glacial waters to fields. The Kangra Valley's 715 major Kuhls, maintained by designated individuals called Kohlis, irrigate over 30,000 hectares.

The Zings, guiding channels in glacier-dependent regions like Ladakh, ensure equitable water distribution. Water officials, called the Chirpun, oversee this process.

Zabo, observed in forested hilltop areas like Nagaland, combines water conservation, forestry, agriculture, and animal care. Pond-like structures collect runoff rainwater, supporting fish rearing and medicinal plant growth.

Bamboo Drip Irrigation, practiced for over two centuries in Northeast Bharat, diverts water from springs to terrace fields using bamboo pipes. This method efficiently supports crops requiring less water, such as black pepper plants.

Jackwells in Great Nicobar islands are planned pits encircled by hardwood bunds, collecting runoff water. Interconnected Jackwells handle overflow efficiently.

The Ramtek Model in Maharashtra conserves 60-70% of runoff by creating a network of tanks connected by canals. Water flows from hill tanks to plains, creating small waterholes.

The Pat System diverts water from hill streams in Madhya Pradesh's Bhitada village. Stone-lined diversion bunds, aqueducts, and ditches form an irrigation system.

Among the lesser-known techniques is Jhalara, rectangular stepwells with tiered steps constructed around 550 AD to bridge water supply gaps during scanty monsoons. These structures, efficient and aesthetically pleasing, highlight the incredible ingenuity of ancient water management systems.

The Eri system in Tamil Nadu prevents soil erosion and recharges groundwater. It has variants fed by river water channels or solely by rain, reaching the farthest villages.

Unearthing the Past: Bharat’s Ingenious Water Management

The importance of groundwater recharge and rainwater harvesting has grown due to population increase and climate change. There are several companies that combine ancient and modern methods for effective water conservation.

These, and many more, water conservation techniques from ancient Bharath showcase a remarkable understanding of environmental challenges and effective solutions. Our ancestors' innovations continue to inspire and offer valuable insights into sustainable practices for the modern world.

Ancient texts provide insights into early Indian agricultural practices, water management, and the significance of rain in farming.

Sushrita's Ayurvedic text, between the 2nd and 3rd century, delves into water for human consumption. It classifies water sources, prescribes purification methods, and recommends drinking water based on seasons. The text also connects soil types to the taste of water.

The Krishi-Parashara text of 4th century BC emphasizes the vital role of rainwater in agriculture. Maharishi Parashara goes beyond Vedic rituals, advocating the need for predictive knowledge about rainfall, including planetary influences. A text closely resembling Krishi-Parashara, Krishishasana, devotes an entire chapter to rain forecasting. It echoes Parashara's views on the indispensability of rain for agriculture, incorporating astrological elements into its theories. Kautilya's Arthashastra, of 4th century BC, stands out for its comprehensive treatment of water management, aligning the interests of both rulers

and farmers. It marks a shift from individual efforts to state involvement in water-related issues, addressing economic, political, and social dimensions. Kashyapa's treatise written between 700-800 BC, focuses on alternative irrigation schemes, complementing Parashara's emphasis on water management. It provides detailed guidance on constructing water reservoirs, canals, wells, and safety measures.

Varahamihira, a scholar of mathematics and astronomy of 6^{th}AD, through his treatise Brihatsamhita, explores clouds, rainfall, and groundwater. He connects rainfall predictions to planetary movements, offering detailed theories on cloud formation and characteristics.

Attributed to Surapala, around 10^{th} century AD, Vrikshayurveda is the first Sanskrit work on plant life. It classifies land based on irrigation methods, emphasizing surface vegetation as a sign of the presence of groundwater. This aligns with Varahamihira's earlier models.

All this collection of ancient literature lay the foundation for scientific inquiries into weather forecasting, water management, and agriculture. They reflect a transition from viewing rainfall as a divine phenomenon to a subject for systematic study, marking a significant step in early Bhartiya scientific thought.

Potential Galore; Opportunities Created

The Government of India has understood the seriousness and importance of water conservation in the country and has launched several important initiatives. These have been initiated on the basis of the scientific understanding of facts of water availability which is largely dependent on hydro-meteorological and geological factors, water availability vis-à-vis the population, rainfall, and other factors. Efficient water management is the key and this falls under the jurisdiction of State Governments. In order to supplement these efforts, the Central Government has taken several technical and financial steps to help.

The Government of India launched the Jal Jeevan Mission in August 2019 to provide tap water to every rural home of the country by 2024 while the AMRUT 2.0 scheme will provide 100% coverage of water supply in around 4,700 urban local bodies through 2.68 crore tap connections. Alongside, the scheme will fully cover sewerage and septage in 500 AMRUT cities by providing around 2.64 crore sewer and septage connections.

From 2016-17, the Government of India has been implementing the Pradhan Mantri Krishi Sinchayee Yojanas (PMKSY) to guarantee optimum utilization of water. Under this scheme, the Command Area Development and Water Management (CADWM) program, Har Khet Ko Pani has helped to fully utilize the irrigation potential and subsequently improve agricultural production on a sustainable basis. Similarly, the Bureau of Water use Efficiency (BWUE) will hugely help to improve the use of water usage in irrigation, industrial and domestic sector.

The Sahi Fasal Campaign was launched in 2019 by the Ministry of Jal Shakti to encourage farmers in water-scarce areas to grow environmentally and economically viable crops less dependent on water. In 2022, the Mission Amrit Sarovar was initiated as part of the celebration of Azadi Ka Amrit Mahotsav with the goal of preserving water for future generations.

The Government of India launched the Jal Shakti Abhiyan (Catch the Rain) in 2019 to expedite water conservation efforts nationwide, focusing on strategies like rainwater

harvesting, traditional water body renovation, and watershed development. The Atal Bhujal Yojana, an initiative by the Ministry of Jal Shakti, prioritizes sustainable groundwater management through participatory approaches. The National Water Mission, aligned with the National Action Plan on Climate Change, aims for comprehensive water management, covering surface and groundwater, demand, and governance. Globally, entities like the World Wildlife Fund (WWF) and the United Nations (UN) lead water conservation campaigns, fostering healthy freshwater systems.

In December 2020, a collaboration with Nehru Yuva Kendra Sanghathan (NYKS) led to the launch of an Awareness Generation Campaign. NYKS engaged over 3.82 crore individuals in 36.60 lakh activities as part of the campaign. Public Interaction Programs (PIPs) at the grassroots level aim to share National Aquifer Mapping and Management (NAQUIM) Study results, with 1300 programs conducted nationwide, involving nearly one lakh participants. The Rajiv Gandhi National Ground Water Training & Research Institute (RGNGWTRI) in Chhattisgarh provides training under the Central Board, Department of Water Resources, River Development, and Ganga Rejuvenation. The Department of Water Resources introduced the "Share Your Stories Contest" as part of the National Water Awards and Water Heroes initiative, encouraging good practices in water conservation and groundwater recharge. The Information, Education & Communication (IEC) scheme conducts periodic mass awareness programs across the country to promote rainwater harvesting and artificial recharge to groundwater.

Bharat’s Aquatic Legacy: Ancient Solutions for Modern Challenges

The global water crisis compels humanity to act urgently. Bharat, too, is under enormous water-stress with the fear of having only half-required water, groundwater depletion, and resulting economic losses looming high and close, demanding urgent attention. Despite nature's warnings, modernity often deafens us. Conveying the necessity for adopting ancient practices is challenging. Relying solely on current technology falls short. Integrating modern technology with traditional culture, considering ecology and socio-cultural practices, ensures sustainable water revival. Motivating local youth to join stakeholders in conserving traditional water bodies and citizens in cooperating with the many schemes launched by the Government is crucial. Restoring the social responsibility aspect, where communities collectively maintain water bodies, is essential for long-term sustainability.

Bharath has an established system rooted in ancient principles, offering a viable blueprint adaptable to the present. These enduring water harvesting systems, shaped by diverse factors like social, economic, and political conditions, have proven effective over time. The unique forms they've taken in different Indian regions reflect influences from geography and historical elements.

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