

Revering Water

Learning from Intelligent Traditional Systems

NISHANT H. MANAPURE¹

Faculty of Architecture, Manipal University, India
nishant.hm@manipal.edu

Abstract: Water always has been one of the most fundamental resource for all civilizations, especially for human consumption. Yet, it is the most critical resource in contemporary times with an unfortunate situation of both, widespread lack of water and widespread lack of respect for remaining available water. The situation would come across as quite the contrary, if explored are bygone times, especially in historically rich civilizations of India. Traditional wisdom always respected water and developed intelligent inter-relationship with nature, people, culture and architecture. A symbiotic design language of built environment, incorporating design creativity and scientific reasonings, was discernible and efforts to stimulate respect for water was evident.

Traditional knowledge systems for water resources, covered a broad spectrum of built environment - from settlements to built form, from macro level layouts to micro level detailing. Regrettably, the contemporary design processes have disrespected water resources, related traditional systems and the reinforcing cultural ethos. At the same time, understanding the intelligent traditional systems and their contextual essence could facilitate an effective synergy with the contemporary situations. Public participation in the design process could become the underlying current for reviving respect for water. They could be rediscovered, reinvented and integrated into the contemporary design processes.

Key words: Water Resources, Indian Traditional Wisdom, Intelligent Systems, Cultural Ethos, Contextual Sensitivity, Social Response, Public Participation, Appropriate Built Environment, Rediscover, Reinvent, Integration.

Water in trouble. Or is it mankind?

Wisdom, is in learning by exploring the past, realizing the present and preparing for the future. It is all the more pertinent when societies have to cope with a resource as vital as water. To be thriving and rising, society needs water. Yet it has become one of the most distressed resource on the planet. Scarcity and quality of naturally available water is an issue which needs immediate attention. As informed by the United Nations, the current crisis with respect to resources for natural water has already reached catastrophic proportions². Today, settlements at all levels need to urgently work to-

1. Nishant H Manapure, Director and Professor at Faculty of Architecture, Manipal University, India

2 UNWATER 2013

wards a society with reduced water stresses and better living conditions. As the United Nations expressed its concern during the International Year of Water Cooperation 2013 – “... Water is critical for sustainable development, including environmental integrity and the eradication of poverty and hunger, and is indispensable for human health and well-being and central to achieving the Millennium Development Goals.”

The fundamental concerns affecting this vital resource are – exponential growth of population and its activities which is expected due to the continuous developments taking place in all domains of societies; insufficient, uneven and inconsistent water availability which is the outcome of unprecedented and unregulated growth, and the resultant climate change; abuse of existing water resources which is an unfortunate reality as the essential need of water has far outgrown its easy availability, leading to its severe exploitation; and absence of strategies for management and restoration of the resource which is aggravating the unabated abuse of the remaining available resources of water. With short term self-seeking benefits through ‘growth and development’ becoming the driving force of the society, the long term sensitivity of caring for water seems to have been seriously overlooked. These concerns are existent across all societies and nations across the world, although at varying scales. It is now imperative that conserving available resources, restoring lost resources and developing new resources for natural water become integral components of all societal initiatives.

Uncontrolled on the Edge. India.

India too is experiencing this crisis, with water availability becoming a concern in all regions of the country. This can be considered a grave situation considering the fact that India is a country with very intense monsoons! The emergencies are felt in all three sectors of primary water consumption, namely, domestic, industrial and agricultural; but it is first and most felt in the category of domestic consumption, where the harmful impacts are immediately experienced. Different states, the central government and now even the courts are expressing their anxieties towards availability of water. Various steps are proposed and some implemented to overcome the crisis. The efforts are not adequate and/or appropriate resulting in undiminished water stresses. Access to clean water remains a continued concern for the citizens of India.

Water in Time. Doable. Currently in India, regions which never had any water stress in earlier times are also now in the critical zone. But in actuality, perennial sources of water are very few across the Indian landscape, primarily because of the climate, geology and topography. With majority of the country being dependent on the seasonal monsoons, any region could potentially face water stress at any point of time. Yet India has always been a fertile arena for prosperous societies through history. It is a matter of veneration that these societies could tackle the stress so effectively in time and space. They established themselves in some of the toughest regions, ensured survival, initiated growth and confidently developed into some of the most admired societies. Water was always a scarce resource for the settlements, yet it was ensured that it was always available for the citizens. It has been aptly expressed by Agarwal³ –

3. AGARWAL 1997

“As social intelligence grew, people realised that human society cannot grow without extending the bounties of monsoon water from the wet months to the dry months.” The situations were acknowledged by the people of this regions and solutions were established for their own benefit, ensuring successful resolving of the water stress through effective and long term measures. This was correspondingly reinforced by – understanding of nature, the strongest element of context. Intelligence was developed by the traditional societies in understanding itself, its needs, its capabilities and its resources. These values were then interwoven into the design domain of the built environment, which is the primary expression of the achievements of any society. The integration between nature, culture, water and built environment was seamless. Based on his studies of traditional wisdom, Mishra⁴ has recommended – “Encourage the establishment of intelligent water systems that respect nature’s laws.” As indicated by Agarwal⁵ – “Depending on the resources available to them, Indians, over centuries, developed a range of techniques to harvest every possible form of water – from rainwater to groundwater, stream to river water, and floodwater.” It is to be noted here that these intelligent traditional systems, evolved in the bygone times when there was no modern technology, industry, energy or machinery. In hindsight, the availability of technical resources to address the situations of water stresses appear to be limited. Yet the success of the systems suggests that the handiness of intelligence to resolve the situations was indeed praiseworthy. Pande⁶ has concluded that the water harvesting tradition started several thousand years ago and sustained human survival and growth in the region over a millennia. What is evident through the studies done by the CSE⁷ is that the fundamental intelligence applied by natives for water resources involved extensive detailing at three levels – individual household, local neighbourhood and whole community. The demonstration of the systems was primarily witnessed in the innate built environment. The fundamental process revolved around involving the public in developing and implementing the systems. People, as individuals as well as a community, were involved in thoughtful efforts of designing, building and then managing their water harvesting systems. For one special type of water harvesting structure, the Stepped Wells and Ponds, Beach⁸ has remarked that these structures are for community use, as in India people gather around water. He has further commented that these elaborate structures can be found even in small towns and villages, suggesting spread of wisdom far and wide, amongst all societies. In his in his studies on the traditional water management systems of India, Jacob⁹ observed three principal qualities – “firstly, the sheer diversity of water wisdom as reflected in the types of water management structures; secondly, the depth of knowledge that the ancients had about constructing water structures; and thirdly, the extent to which water was respected as the giver and destroyer of life.” The integration of the water management strategies

4. MISHRA 2004

5. AGARWAL 1997

6. PANDE 1997. A multi-millennial mission. Cited in Agarwal, A. and Narain, S. (eds.).

7. CSE 1997

8. BEACH 2002

9. JACOB 2008

into the intrinsic design of their buildings as well as settlements was perhaps the foremost reason for success of the efforts. Furthermore, there were concerted efforts on the part of the rulers, the patrons and donors alongside the subjects. The involvement was total, and the principal endeavour was – respect for water.

Strategy for Systems. Wisdom.

With the urgency of the issue, the immediate challenges today for all direct and indirect stakeholders are – to arrest the further degradation of the resource through best and sensitive practices in design of the built environment; to search for intelligent, contextual and effective methods of conserving as well as reviving the resource; and to sustain the resource in the future through continuous sensitization and participation of the citizens in the management processes. It is also acknowledged that civilizations and their built environment have become exceedingly different from the era as are the needs and concerns regarding water resources. The contemporary world has got a plethora of technical and human resources, but the crisis related to water still remains unresolved; in fact it is getting more daunting, being unable to keep pace with the rest of the activities growing in the societies. There remain some key issues to address with respect to the contemporary built environment, settlement patterns and availability of natural water for domestic consumption, namely – rapid urbanisation and infrastructure development, which are the main drivers of growth in the domain of built environment in India, are increasingly harming available water resources; climate change and environmental degradation have become is further adding to the water crisis; currently, there is lack of understanding, and consequently initiatives, regarding best practices with respect to the built environment for achieving effective water resource management; context, culture and people, with respect to water are being disregarded by insensitive design processes; and the significance of traditional wisdom in water management is being unrecognised or obliterated.

The challenges in devising methods for effective water management can be addressed by understanding existing methods. This can be best acquired from the contextually developed and time tested traditional knowledge systems about water management. It would be rational for the contemporary societies to explore the methods devised by the traditional societies. Many systems have unfortunately gone out of use in the modern era due to various social, political, environmental and health issues. Yet the principles ingrained into the systems have a potential for rediscovery. Reasons behind the success of the traditional systems during their intensive period of use will give an insight into possibilities in the contemporary societies. Traditional water management systems were devised as suitable solutions for the needs of the then societies.

Exploring Traditional Achievements. Precepts.

Direct application of traditional water systems in the contemporary situation is not an appropriate solution. It is unrealistic, and impracticable, to replicate the systems for today. Hence the immediate challenge is to understand the traditional knowledge systems and the fundamental design logic behind the designs for water resources. The first action of exploring traditional wisdom would be to grasp the design quality of the systems studied. The second action would be to understand the functional effective-

All the images are drawings of the author



Fig.1. A layout to enhance respect for the water body through positive responses between people, water and built environment. (Drawing: Author)

ness of the systems in the respective contexts. The third action would be to derive key guidelines founded for those systems of water management. These actions can assist in developing effective fundamental tenets for water management systems in contemporary built environment and urban design. The tenets will include measures for - respecting the existing, reviving the impaired and reinventing the lost systems for integration into the design processes.

The relevant facets from the traditional wisdom for water management in the built environment have to be grasped with respect to the then context and the three basic levels of implementation - the macro level settlement layout, the middle level neighbourhood design and the micro level building detailing. The relevant facets would incorporate studies related to the following aspects of:

1. Culture, with its principles of religion, rituals and remembrances
2. Society, with its features of structure, enterprise and strata
3. Architecture, with its concepts for spaces, techniques and details
4. Environment, with its elements of climate, geography and context
5. Resources, with its availability as natural, manmade and regulated

To explore the traditional water management systems based on these criterias, two diverse examples are taken up for studies. Through the studies, the wisdom behind the systems are ascertained and conclusions to enlist the fundamentals are derived. These conclusions will then lead to guidelines for adapting the fundamentals to the contemporary built environment. They will further establish the purpose for additional exploration and studies of the traditional wisdom.

Historical Example 1: Spaces and Forms to Respect Water. Ambala Kund at Ramtek,

Maharashtra, India – A Sacred Kund for Rituals

Developing and respecting the sacredness of water is one of the strongest methods for sensitization of citizens towards this vital resource. This has been successfully practiced throughout the country, through history, in the form of temples and their ghats (stepped spaces along the water edge) at kunds (Kunds, lakes) and rivers. The designs had experiential spatial quality enhanced by good aesthetic character and iconic value. At the same time they also incorporated robust activity patterns of culture and rituals on a regular basis with many varieties. Mythology and conjectures added to the value of these water features. These settings were developed at all scales of settlements, from small communities to large cities. Within the varying scales of design for water, the basic principle was to integrate the routine lives of the citizens with the iconography of water. The respect for water across a wide spectrum of populace was achieved through a comprehensive integration of access, activities, built form and spaces, activities. People were always directly connected to the total built environment. A unique example for the scenario is the Ambala Kund at Ramtek, Maharashtra. Ramtek is a small religious town with a strong religious significance. Its significance is that it is considered to be one of the places where Lord Rama, one of the most prominent Hindu gods rested during his exile. The historic temple, dedicated to the Lord, is situated 500 ft atop the Ramgiri hill. It is designed in the Yadavas style of architecture and built in 1300 AD during the Wakataka period. Alongside are temples for Laxman, Varaha, Hanuman and Ganesh. The place has many a mythological events attached to it and worship at the shrine is said to have been happening for

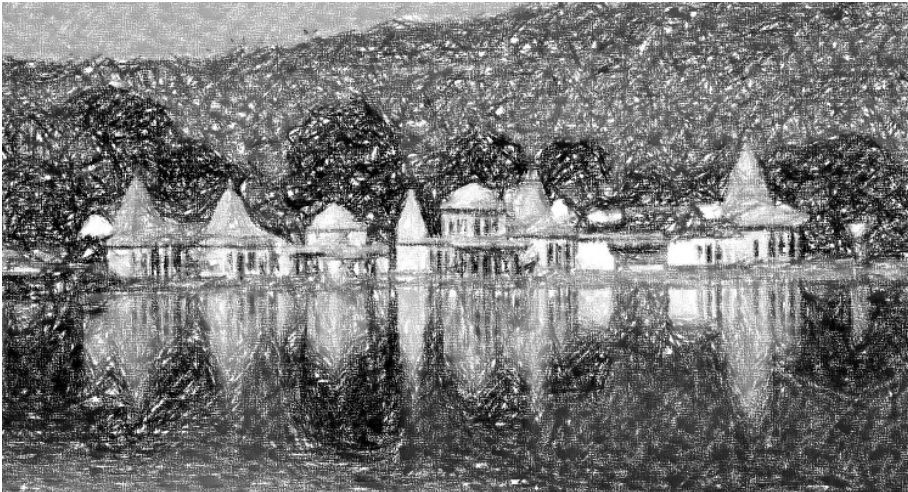


Fig.2. Ambala Kund environs with the Ramgiri Hills and the Lord Ram temple atop the hill in the background. Design sensitivity of the whole setting is an embodiment of respect for nature, spirituality, activities, water and builtform.

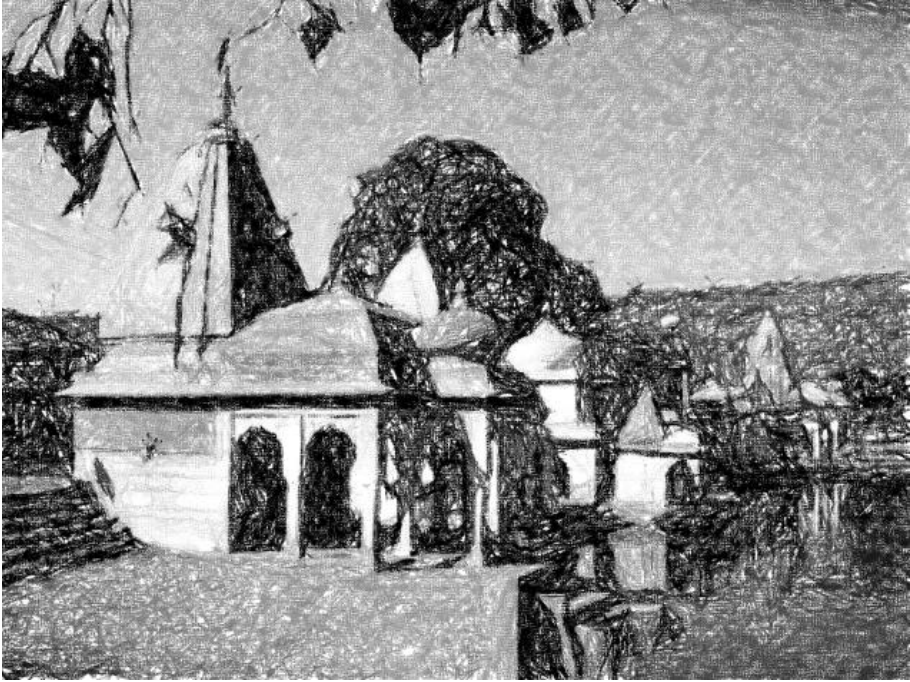


Fig.3. The response at the water edge at Ambala Kund induces positive engagement with water.

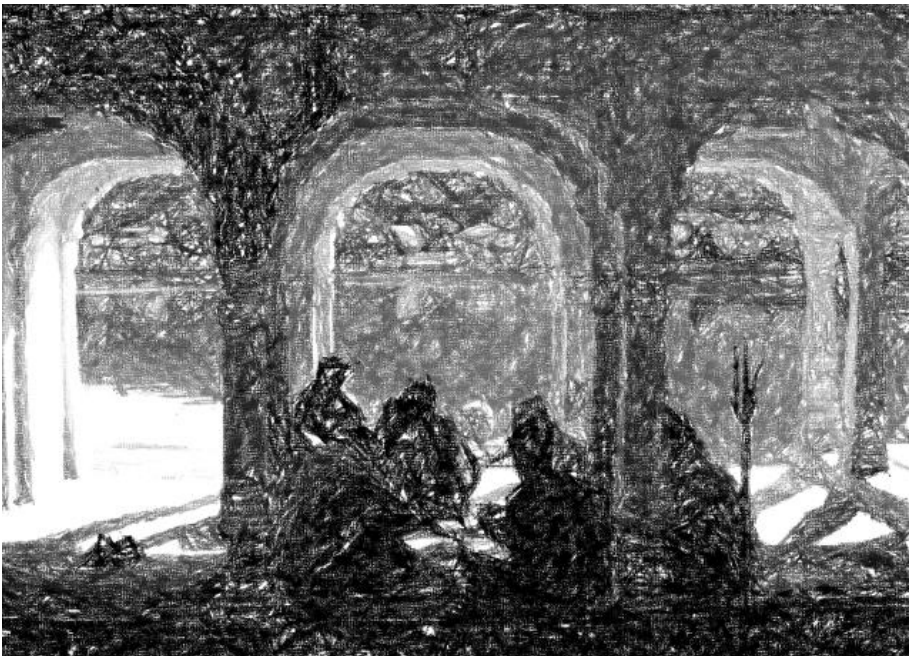


Fig.4. The character of Ambala Kund invites people to be responsive to the total environment - built and unbuilt.

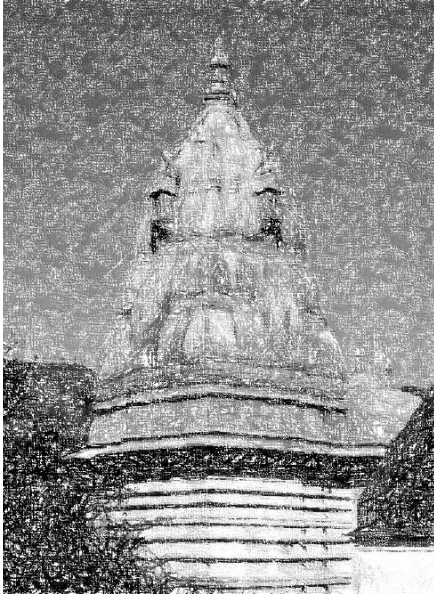


Fig.5. Aesthetics at Ambala Kund had a vibrancy to match the activities.

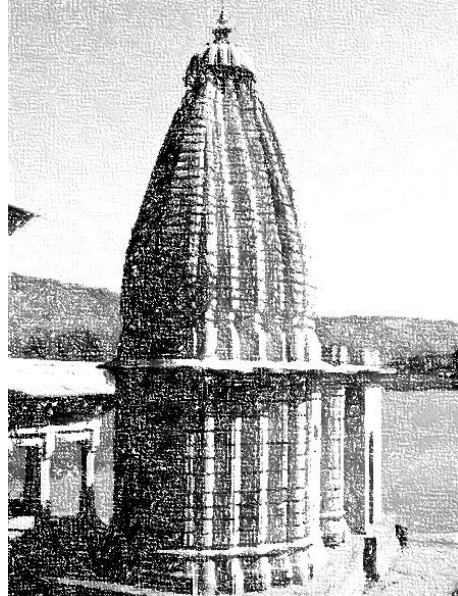


Fig.6. Ambala Kund is a canvas of many temple forms and styles.

centuries. Also significant is the relation of the place with one of the most celebrated sanskrit poet in Indian history, Kalidasa. He is said to have written Meghadoot, the famous piece of literature, at Ramtek on being inspired by the beauty of the hills and its pristine surroundings. The Ambala Kund is situated at the base of the Ramgiri Hills and has a number of temples built around it. Lord Vishnu is credited to have created the lake crater. The main source of water to the water body is acknowledged as an underground river by the name Patal Ganga. The Kund is named after King Amba, who is said to have been cured of a terrible disease after taking bath in the lake water. Incidentally, the region has a huge presence of minerals in its geology. The shore temples are dedicated to many gods such as Jagannath, Narsimha, Suryanarayana, Panchmukhi Mahadeva, Nagaraj as well as Jainism. King Raghuji Bhonsle of Nagpur, in the 18th century AD is credited to have renovated the Kund and many of the temples. The settlement in itself was a small cohesive community which evolved with the lake environs, but was secondary to the temples along the water edge (Fig.1). The Kund was a sacrosanct place for rituals for the dead, for immersion of the ashes of the dead in its waters and purification of the descendants after the death in the family through bathing in its waters and prayers on its banks. These rituals are very important in the Hindu culture and have been practised at Ambala Kund for centuries. Currently too it is regularly visited and the rituals are still being practised with quite a robust intensity. The temples are exquisitely designed giving them iconic value (Fig.2). The temples and public spaces have direct interface with the water edge, ensuring the much needed connection between people, water and structures. The private settlements came up away from the water edge making the whole settlement pattern more people-centric. In spite of modernity related problems, ancient rituals are still conducted on its banks

Fig.7. An exquisite Stone Grill in a temple at Ambala Kund. These details reinforce the appreciation for design language.

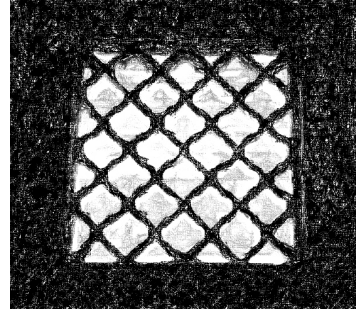
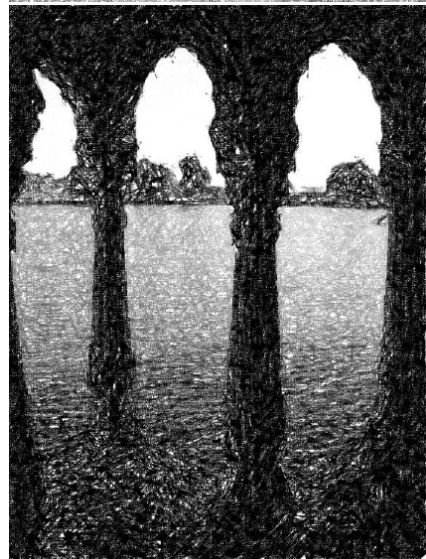


Fig.8. A beautiful niche detail at Ambala Kund

Fig.9. Delicately detailed temple portico at Ambala Kund respond to the water body.



Fig.10. Religious iconography at Ambala Kund to ensure continued reverence.



(Fig.3). The sacredness of the Kund and involvement of people with it has ensured its reverence for 600 years.

Historical Example 2: Design and Details to Enrich Water. Chand Baori at Abhaneri, Rajasthan, India – A Multifunctional Public Building

As Nitya Jacob¹⁰ has said “We have to respect water and not treat it as a commodity or something to be merely consumed. With respect comes the desire to use water wisely, to conserve it and protect its sources. This becomes an almost religious pursuit.”

Bibliography

AGARWAL 1997

Agarwal Anil, Narain Sunita, Dying Wisdom, Centre for Science and Environment, New Delhi, 1997

MISHRA 1995

Mishra Anupam, Rajasthan Ki Rajat Boonden, Gandhi Peace Foundation, New Delhi, 1995

MISHRA 2004

Mishra Anupam, Aaj Bhi Khare Hai Talab, Gandhi Peace Foundation, New Delhi, 2004

BHATIA 2009

Bhatia Sudarshan, Jal Sankat Tatha Samadhan, Janvaani Prakashan, New Delhi, 2009

CHAKRAVARTY 2006

Chakravarty Kalyan Kumar, et al, Traditional Water Management Systems of India, Aryan Books International & Indira Gandhi Manav Sangrahalaya, Bhopal, 2006

JACOB 2008

Jacob Nitya, Jalyatra: Exploring India's Traditional Water Management Systems, Penguin India, New Delhi, 2008

LIVINGSTONE 2002

Livingstone Morna, Steps to Water: The Ancient Stepwells of India, Princeton Architectural Press, 2002

BUNCE 2013

Bunce Frederick W, The Iconography of Water: Well and Kund Forms of the Indian Subcontinent, DK Printworld, New Delhi, 2013

Sitography

www.unwater.org www.worldwatercouncil.org

www.indianwaterportal.org

www.geographical.co.uk/Magazine/Step Back in Time/ Feb08

www.ens-newswire.com/ens/may2008

<http://gilroyhotspringsdesigns.blogspot.in/2011/03>

10- JACOB 2008