

Study of Ancient Stepwells in India

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Abstract: The stepwells define the beauty of subterranean architecture of Western India. The basic architectural aspects of a monumental well consist of a long corridor of steps leading to five to six storey below the ground level defines the term stepwell. Western India from 7th to 19th century comprises of stepwells as an integral part. This research paper aims to bring forward the significance of the unique typology of stepwell and conserving water related architectural monument.

Keywords: Subterranean architecture, Monumental well, Sculptures, Carvings, Water conservation, Restoration

1. Introduction

Stepwells are one of the most unique and very less known parts of the Indian architecture, especially the beautiful carvings of walls of these water sources. Stepwells are basically deep dug trenches or rock-cut wells or ponds of water reached by a winding group of stairs or steps and are variously known as 'bawdi', 'baoli', 'vav', 'vavdi', 'vai', 'kalyani', or 'pushkarni'. The Sanskrit Silpa-Shastras and ancient inscriptions refer to them as 'Vapi' or 'Vapika'.

2. Related work

A. Literature review

1) *The stepwells of Gujarat; 1981*

Stepwells plays an important part of the main current of architectural activity in western India. This unique form of underground well-architecture remains constant from the 7th century in the existing monuments in Rajasthan and Gujarat, but attained unparalleled monumentality in Gujarat alone. This work refers to the general architectural features of the stepwells. Stepwells are monuments of which the major examples resembling subterranean temples. Many of the times these stepwells are highly carved and richly decorated with sculptures. The three major constituents of stepwells are namely the vertical well with an arrangement for hauling up water by buckets, the stepped corridor leading down several storey into the earth and the numerous intermediate tower like pavilion built as open halls in the stepped corridor. The stepwells of Gujarat can be divided into five main types. This classification is based on the differentiating features of the architectural ground plan and structure. (Jain-Neubauer, 1981).

2) *Bawdi: The example of ornamental architecture; 2016*

One of the main concerns for a developing and developed urban civilization for Harappans is water exploitation and

management. The hydrolic structures from Mohenjo-Daro are excellent examples which attain extreme accuracy. Stepwells were excavated to reach the underground water level. The majority of stepwells were originally served as laser, religious and ceremonial purposes as well as providing the water. (Pandey, 2016)

B. Case study

1) *Chand Baori, Abhaneri, Rajasthan*

Chand Baori is the famous and most attractive stepwell found in the village of Abhaneri, near Jaipur, Rajasthan. It is one of the oldest and deepest stepwells in the world. It was built between 800 and 900 AD by King Chand of the Nikumbh dynasty. This stepwell is located just opposite to the temple of Harshat Mata, the goddess of joy and happiness to whom it was eventually dedicated. It is one of the finest example of stepwells with 13 storey and 3500 narrow steps making it one of the largest stepwells in India. (Chandra, 2015).



2) *Rani-ki-vav, Patan, Gujarat*

The Rani-ki-Vav in Patan, has been declared World Heritage Site by UNESCO. The Vav having classic multistoried pavilions and is a great example of ornamented architecture of 11th Century A.D and its located on the bank of river Saraswati. The architectural style of this stepwell explains the complex system and the design form with more than five hundred sculptures and carvings which shows the excellent style of craftsmanship. Most of the sculptures are in devotion of Vishnu, in the forms of Dashavatar, with an attractive image of Varaha, Narsimha, Ramaand Kalki. There is particularly elegant statue

of Mahishasur-Mardani the Mother Goddess slaying the demon Mahishasur. Till 2001, the visitors were allowed right up to the end of the stepwell touching the water. But after the earthquake in Bhuj the ASI has blocked entry beyond a point. (Pandey, 2016)



3) Adalaj, Ahmadabad, Gujarat

It is the fusion of Hindu and Islamic architecture and was built by Rani Rudabai, wife of Veer Singh the chief of Vaghela dynasty, this five storey stepwell was not just used as a cultural space but also as a religious utilitarian space. There is an opening in the ceiling above the landing which allows the light and air to enter the well-shaped like an octagon. However, direct sunlight does not reach the flight of step or landings except for a brief period at noon. The ambience inside this stepwell is cooler than the outside. Another exceptional characteristic of this stepwell is that, out of many stepwells in Gujarat, it is the only one with three entrance stairway. All the walls carved by ornamentation and mythological scenes. (Pandey, 2016) (Chandra, 2015).



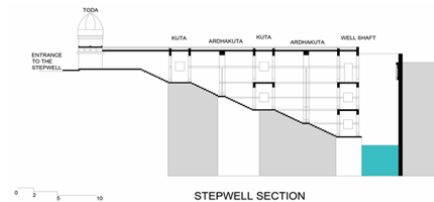
3. Scope of study

- Considering the recent water scarcity scenarios, stepwells are the good source of ground water enriched with minerals and give life to billion. So we have to understand the necessity of maintaining these stepwells.
- Considering water conservation and sustainability of village water supply systems in many parts of the country, the stepwells concept can be replicated in rest of the country especially in water scare rural areas.

4. Elements and structural systems of a stepwells

All stepwells share combinations of the following elements:

1. *Toda* - A pair of ornate pillars at the entrance of a stepwells to mark its locations. They can be very heavily embellished or very plain depending of the style and scale of the stepwell. They typically contain a small niche to place an oil lamp.
2. *Kuta* - A landing between sets of steps in a stepwell to provide a place to stand and rest. Kutas are typically covered by stacked pavilions divided into levels corresponding to previous Kutas. Number of Kutas divides the types of stepwells.
3. *Ardhakuta* - A supporting arch, like a Kuta, but without a pavilion or landing.
4. *Well shaft* -The circular shaft provided at the end of the stepwell giving access to underground water can be claimed as the well shaft. (Joshi, 2017).



5. Concept of stepwells

The concept of stepwell was actually originated in India. It is popular for its architectural perfection and water engineering. Stepwell provides water for drinking, washing, bathing, water harvesting and other water related activities. Actually they were originally used as reservoirs and storage tanks and also functioned as Hindu temples elaborated as stylish stone carving on columns and pavilions. The tourists, explorer and the caravans stay here during sunny day or overnight. (Pandey, 2016).

6. The function and use of stepwells

- The main function of stepwell is to supply water. In north- western region, the climate is hot and dry. Water is available in plenty only for few months during rainy season. Manmade ponds and reservoirs cannot keep their water for a long period. Moreover, the water becomes stale after a time. Stepwell sunk deep into the earth and not exposed to heat and sun too much, are the only source of water. Stepwells fetching their water from underground springs, receive a constant flow of fresh water filtered through earth.
- Stepwells not only supplied water for household use and for personal needs like washing clothes and bathing, but also for watering animals and agriculture purpose.
- The location of stepwells within the village is good because stepwells not only serve as a water source, but also as a cool and fresh retreat for the villagers in the summer season.

- The stepwell made with platforms, galleries, stone benches and the numerous additional spiral staircases, the occasion existence of passages around the well and also the beautiful ornamentation with sculptures, niches, friezes and designs.
- Another interesting feature of stepwell is provided by the soil ingredients. The minerals, salts and other substances of the earth mixed in the water. (Jain-Neubauer, 1981).

7. Conclusion

In a semi- arid region there was a need to construct stepwells to meet the drinking needs of people. They also serve as a cool and refreshing meeting place for women to meet and also, in some cases, serve as a place for worship. These stepwells are well-known for their ornamentation, sculptures and carvings.

Today, after many years of neglect, many of these stepwells have been restored by the Archaeological Survey of India, which has recognized the importance of conserving them as a part of country's rich historical monument and also take interest in restoring and maintaining the stepwells to their original state.

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