

Bhartiya Science of Architecture - with Special Reference to Dholavira

Dr. Sejal B. Patel

Adhyapak Sahayak,

Department of Economics,

Anand Commerce College, Anand – 388001

Introduction

Among the five most significant Indus Valley civilization cities found to date is Dholavira. The city was inhabited for 1500 years, from the third to the second millennium BC. When searching Harappan pavements from Sindh to Kutch in 1967, it was found. In the later part of the 1990s, excavations began in this area. The discovery and information gleaned from the Dholavira excavations have expanded our knowledge of the Indus Valley Civilization. The city provides proof for the development and collapse of the Indus Valley Civilization.

Location of Dholavira

The Dholavira site is situated in Gujarat state's Kutch district's Khadir Beyt hamlet. The 120 acres of the property are located near the northwest corner of Khadir Beyt village. Khadir Beyt is situated among the huge salt field known as Rann of Kutch. According to geological research, the Rann of Kutch spent three millennia below sea level. Khadir was a marine island. Instead of settling on the mainland, the people of Dholavira chose to settle on an island. The island's strategic location and relative resource wealth could be the cause. The port city of Dholavira improved economic ties with the Gulf nations. Even now, Khadir Beyt's land connection to the mainland is disrupted by intense rainfall during the monsoon season. Dholavira, the city, was built between two river streams. They were located in the city's north and south, respectively, as Mansar and Manhar.

Science of Architecture in Dholavira

What is more fun than reading history to see it, to feel it, to know it and to assimilate it. In history, not only wars or men have been given importance. Space is also very important in history. In this place there were Mahalayas. This royal spent his childhood in this place. History is always made by humans. As important as the forts are in history, so are the ruins. Also, when it comes to the historical period, our curiosity increases. This is a living specimen of an ancient civilization. Dholavira located in Kutch.

The remains of the Harappan civilization in Gujarat were first discovered at Rangpur in Limdi taluka. After that, during 1954 to 1958, Lothal's tomb was found in Sargwala village of Dholka

taluk of Ahmedabad district. As this research continued, in 1967, evidence was found of how advanced the Harappan culture was at Dholavira in Kutch.

The credit for the discovery of Dholavira goes to Dr. J.P. Joshi of the Archaeological Survey of India, but its large-scale excavations in 1990-91. It was led by R. K. Visht. Kutch Mandus know Dholaweera as Kotda. In terms of area, Dholavira has been found extending 775 meters from east to west and 600 meters from north to south.

Dholavira is an endangered town of ancient metropolitan culture, situated in Khadirbet area of Bhachau taluk of Kutch. This civilization is five thousand years old and it is estimated that around fifty thousand people lived in this metropolis at that time. The whole town, the water system, the structure of the Rajmahal or the provincial palace, the habitation of the people, etc. are worth seeing.

Entrance Gate

Ten letters inscribed at the northern entrance to Dholavira. An entrance slab has been found with ten letters from the period. It seems that for some reason the plank may have fallen from above and one of our ancestors may have picked it up and kept it aside. Its ten letters are intact.

Other

According to the bones and other objects found here, the people of this town were very happy and prosperous. There were both vegetarian and non-vegetarian types of people. Some used to perform cremation after death, and some made graves and buried them or kept things along with the bones in the graves.

Place of Religion

It is surprising that nothing like a religious place has been found in the whole town. Two large round stones have been found in the province palace, but may also have been the supports of the palace's great pillars. Local people call Dholaweera as Kotdo (Mahadurga). Originally, the archaeological site was named Dholavira due to its proximity to Dholavira village. In 1967, archaeologist Jagatpati Joshi visited the site and disclosed its information for the first time.

Mohen-jo-dado and Haddapa are constructed using raw bricks. While this in Dholavira is constructed of almost square and rectangular stones and the stones are quarried from the side a little. Dholavira has a wall surrounding the town.

Dholavira town is divided into three main parts:

1. The palace of the ruling officer,
2. The residence of the other officials,
3. The residence of the common citizens.

The Palace of a Ruling Officer

The palace of the ruling officer in the town is on a high ground. It was strongly fortified all around. There were four gates in this fort.

Accommodation of Other Officers

Other officers' quarters were also surrounded by a protective wall. Two to five room houses were found here.

Housing of Ordinary Town's People

The dwellings of ordinary townspeople were made of hand-made bricks. A large factory for making pearls has been found in this town. Copper smelting furnaces were found among the remains recovered here. Tens of km away from Dholavira is the Wood Fossil (tree trunk fossils) Park created by the Forest Department. Thorns and thorns were visible on small hills everywhere. Somewhere even the piludi trees wept. The opposite hill is known as 'Chhaparia Rakhal'. The area lies on the edge of the desert north of Khadir Bet, hence the white desert can be seen far and wide.

Big stones of various shapes are seen around. Fossils of millions of years old tree trunks have been found here. After the tree dies and its trunk falls to the ground, the surrounding soil begins to freeze over it. Soil also contains minerals. In chronologically made stone, the trunk of the tree falls and it seems that the trunk is made of stone! Two fossils of tree trunks found here are 16 million years old, 8 to 10 meters long and half to one-meter-wide, around which a wire mesh is kept. Small fossils are placed in a closed glass cabinet nearby.

Kutch, I don't know why the eyes sparkle just when speaking this two and a half letter word. This word itself is such a scale that there is no need for any further identification. The parched land, the vast desert spread all around, the slap of nature, the Kutch region, which is alive despite the fear of the enemy country, and the roots of the people overflowing with yeast and yeast are nothing of today, but about four and a half thousand years old. About 40-45 years ago J.P. Joshi traces its glorious past from the parched land of Kutch. As of today, Dholavira is the most visited destination by foreign tourists than domestic tourists visiting Kutch.

Dholavira can be reached by road by alighting at Samkhiari railway station. This region is popularly known as "Kotda Timba" in the history of Bhachau taluka and has forced everyone

to note Kutch on the world map. One may be surprised to know that the original name of this region is not Dholavira, but because of the Dholavira village located at a distance of about one km from the site, it has also come to be known as Dholavira at the global level.

The idea that such a magnificent heritage is preserved under the sandy soil of Kutch was realized in the year 1967-68 when a stamp of the Harappan civilization was found here, and after that, the Archaeological Survey of India has been continuously excavating here since the year 1990. The area spread over about 250 acres has been excavated about 13 times, in which E. S. From 2650 BC to AD. S. 100 BC and AD. S. Remains of a town that was inhabited and deserted several times until 1450 BC have been found. Each excavation has brought to the surface facts full of excitement.

Dholavira is counted among the eight major cities found in the Harappan civilization. How was the lifestyle of our ancestors thousands of years ago? The ruins and town structure here give a clear picture of it. The town planning here thousands of years ago makes even today's experts think. Pearls, gems, shells, gold, silver, copper vessels, metals, ornaments etc. were stored here.

Everything has been found carrying with it a history. Considering the prosperity of Dholavira, historians believe that Dholavira had a special commercial importance among the cities of Harappan civilization extending to South Gujarat, Sindh, Punjab. Developed in a rectangular shape, this town was 771.1 meters long and 616.85 meters wide. The houses and town of Dholavira stand out in particular when compared to those of Mohenjo-dado and Harappa. How At Mohend-jo-dado and Harappa, mud-brick houses are found, while at Dholavira, dwellings with completely planed cut-to-cut square or rectangular stones are found. For the construction of this town, stone has been extracted from the quarries located next to Dholavira. Of course, the architecture of this town leaves one's mouth open in amazement.

A defensive wall is seen around the town. The royal palace of the rulers of this town has been built on a high place. Around 120 acres of the fort around the Rajmahal and the fort had entrances on all sides. We are now talking about the concept of two or three-bedroom hall kitchen, but this concept is also found in Dholavira, a town of about four and a half thousand years ago. Other officers' houses in the town were of two to five room concept. Of course, its asp also sees the presence of a defence wall. The construction of this fort gives an idea of how precautions were taken against enemies even four and a half thousand years ago.

Many people may not be very interested in these stones, but if you try to listen to each stone, you will hear the stories of our ancestors and benefit from their foresight. How could the villages-towns of thousands of years ago be? We don't have to wait long to see that. Dholaweera

is a perfect example. There was also a plaque at the northern entrance to the town. For some unknown reason, the tablet may have fallen down and our ancestors may have taken care of it, that's why the tablet has been found by archaeologists in intact condition. Ten letters have been found on this plaque. However, experts have not yet been able to decipher the letters. The language the people of the Harappan civilization spoke and the script they wrote in is still unknown today.

Of course, it is known from the texts found so far that their language will have around 400 alphabets. Of course, not as we write from left to right, but from right to left. Most of the text is found on rock inscriptions. At some places, the clay mudra also shows engraved impressions of mudras. Experts opine that these mudras were used for trade or even for official proceedings. During the excavations, the researchers have also found that there was sea traffic between Dholavira and Lothal. This traffic is believed to be for trade.

Dholavira means a place where you have to spend three-four hours to go. In haste, one cannot even reach the first level of it, let alone enjoying a culture that is thousands of years old. If there is one feature of Dholavira that is most striking, it is the water management practiced four and a half thousand years ago. It is jaw-dropping to know that people were actually so advanced 5000 years ago. So much development has not happened now, we feel that the word "development" is in vogue, how could such preparation, such engineering knowledge have come in this time, I have a question in my mind. History means culture and place. Will our culture be so rich? Dholavira is a living example of this, it is indeed the pride of Gujarat. There is no doubt that such excavations have kept our history alive and well!

Dholavira's Architectural Features

1. Similar to other Indus Valley Civilization settlements, Dholavira has a quadrilateral form. The city was laid out in a grid.
2. Roads were cutting each other at right angle.
3. The city of Dholavira was multivariate. The Dholavira site exhibits a remarkable display of the three divisions of Indus valley architecture. The Citadel, Middle Town, and Lower Town were the three sections. The citadel used to be home to members of high society. The position of the citadel was comparatively higher than that of the middle and lower towns. 13 meters separate the upper and lower parts.
4. Numerous water reservoirs were constructed in the northern and western regions. They were carved out of rock.
5. In Dholavira, there's also a ceremony site encircled by a series of water reservoirs.

6. There were 16 large water reservoirs in the city of Dholavira. Their collective storage capacity is 2.5 lakh Km². Stairs were also built in the reservoirs to enable people to access water level.
7. The city was built entirely on a platform and surrounded by fortifications on all sides.
8. Scientific principles of mathematics, geometry, and building were applied in the town planning process.
9. There are particular ratios between the dimensions of the various constructions in the city of Dholavira.
10. The dimensions of the city walls are discovered to be 5:4. North to south and north to west absolute measurements are 616.85 and 771.1 meters, respectively.
11. The interior walls of the castle measure 114 meters in length and 92 meters in width, respectively. Their ratio is also 5:4.
12. The outer walls of the castle are 151 meters long and 118 meters wide which is again 5:4.
13. The ratio of length and width of ceremony ground is found to be 6:1 which are 283 m and 47 m in absolute number.
14. The dimensional ratio of middle town is 7:6.
15. The city's main road had a width of 9 meters. The additional routes that connected to the main road had particular measurements. The sidewalks outside the houses ranged in width from 1.5 to 5 m.
16. There were 17 gates identified in castle's wall of Dholavira. Larger gates were discovered in northern, eastern and western walls.
17. Drainage system of each residence was emptied in to a common sewerage tank.

Construction Material

Dholavira's structures were composed of baked bricks, dry wood, stones, and dried dirt. There were stone coverings on brick structures.

Archaeological Findings in Dholavira

The location of Dholavira is home to the greatest Harappan inscription yet uncovered. It was discovered next to the apartment building in Dholavira City's northern gate. It had a hardwood strap and was composed of opaque glass. The size of the inscription is 27 cm wide and 37 cm long. The inscription's letters have not yet been decoded. This writing, according to archaeologists, was on a sign board.

There was also discovered in the city a circular building that is thought to be a cemetery. Remarkably, coffins in Dholavira were discovered facing east and northeast, in contrast to all other Harappan sites. They faced north at other Harappan sites. Since nearly every coffin was empty, some archaeologists speculate that the circular Dholavira construction may be monumental rather than a graveyard. Additionally, a sizable well at Dholavira that is three times larger than the Great Bath of Mohanjo Daro was discovered by archaeologists. The other discoveries include seals, statues, gold, silver, copper, and lapis lazuli stones, among other items.

Achievements of Inhabitants of Indus Valley Civilization

The Harappans had figured out how to harness the natural slope to transport water from reservoirs to cities far before the Romans did. They created a sophisticated hydrological system that allows the locals to grow all year round.

The creation of a sophisticated drainage system guaranteed that floods would not occur in the city and that surplus water would not fill reservoirs.

The Harappans were successful in forging economic ties with the Gulf States. Additionally, the beads of the Indus Valley Civilization were discovered in Mesopotamia, or modern-day Iraq. This suggests that the Indus Valley Civilization exported beads to Mesopotamian civilization. The Harappans' urban planning demonstrates their aptitude for architecture as well as their understanding of geometry, trigonometry, hydrology, geology, and civil engineering.

Conclusion

One of the Indus Valley Civilization's best-preserved cities is Dholavira. In a carefully chosen site, people were able to build a well-planned city more than 5000 years ago. By making the best use of the resources at hand, they converted an area with a water shortage into a livable location. Although the reason for this site's disappearance is unknown, it is thought that an earthquake caused it to collapse. The Ghaggar River may flow more toward the Ganga basin as a result of the earthquake. A Ghaggar River deviance might cause a famine in Dholavira and destroy the priceless, unique legacy.

References: -

1. Aspects of Ancient Indian Art and Architecture, M.A. Semester - 1, Shri Venkateshwara University, Uttar Pradesh-244236.
2. Bharati Vijnana, (2018), "Indian Contributions to Science", Third Edition 2018, Vigyan Bharti, New Delhi- 110 024
3. Bisht R.S., (1989), "A New Model of Harappan Town Planning as Revealed at Dholavira in Kutch: A Surface Study of its Plan and Architecture", in History and Archaeology (Ed.) B. Chatterjee Delhi, Ramanand Vidya Bhawan P. 397-408.
4. Brown Percy, 1971. "Indian Architecture (Buddhist and Hindu Periods)", Printed by K.L. Bhargava & Co. Impression House, Bombay.
5. Michel Danino, (2008), "New Insights into Harappan Town-Planning, Proportions and Units, with Special Reference to Dholavira", Paper Published in Man and Environment, Vol. XXXIII, No. 1, P. 66-79.
6. Possehl Gregory L., (2002), "The Indus Civilization: A Contemporary Perspective", Lanham: Alta. Mira Press.
7. Seema and Shukla Renu, (2024), "A comparative study between Harappan architecture and Vedic Architecture", Journal of Emerging Technologies and Innovative Research (JETIR), Volume 11, Issue 1, ISSN: 2349-5162.
8. Sharma Hrutvik, Rishikesh, Chauhan Krupesh A., (2019), "Ancient Civilisation Study through Dholavira
9. "Archaeological Site in Kutch District: A study", GRD Journal for Engineering, e-ISSN: 2455-7503.
10. Vahia M.N. and Yadav N. (2011), "Reconstructing the History of Harappan Civilisation", Journal of Social Evolution and History, Vol.10, P.67-86.

Websites

<https://www.forindialovers.com>

<https://shareinindia.in>

<https://whc.unesco.org>

<https://en.wikipedia.org>

<https://kvramakrishnarao.wordpress.com>