UNIT 6 DISTRIBUTION AND MORPHOLOGY OF HARAPPAN SETTLEMENTS*

Structure

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6.1 INTRODUCTION

In this Unit, we will first plot the Harappan settlements on a map and try and understand the pattern of their location. We will also attempt to see the physical characteristics of urbanism, in other words, how urbanism may have been reflected in the archaeological record. Physically, criteria such as size of settlements or presence of monumental structures are often projected as urban features with implications of population growth and the organisation of labour. We have also assumed that density of population was more significant as compared to size of settlement.

6.2 DISTRIBUTION OF HARAPPAN SETTLEMENTS

Harappan settlements are distributed over the northwestern part of the Indian subcontinent (Figure 6.1). The majority of settlements are concentrated in the river valleys of the Indus and its tributaries in the Punjab, as well as in the Sutlej-Yamuna Divide. A large number of settlements are distributed along the stretch of the now dry Ghaggar/Hakra river. The southern extensions of the civilisation are in the Kutch and Saurashtra parts of the modern state of Gujarat. As the Indus Valley was the centre, the need for large stretches of cultivable land could be fulfilled but several required raw materials were just not available in an alluvial zone. Thus, a few settlements lie in outlying areas and were specifically located for procuring required raw materials or for exchange purposes. In the north, Ropar in Punjab was located near the foothills perhaps for obtaining materials such as Himalayan timber. Shortughai, in northeastern Afghanistan, is another isolated settlement located far from any other. Its location seems to have been specifically to obtain the locally available semi-precious stone, lapis lazuli. In the Pakistani Makran, the location of two settlements, Sutkagendor and Sotka Koh seems to have been dictated by the need for water and food supplies by boats plying the sea route along the Makran coast. There seems no other reason why settlements would have been located in such inhospitable stretches of land. Similarly, settlements in Kutch have been considered as located in a frontier region as most of them are fortified.

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Certain areas within this broad sub-tropical semi-arid tract were more favoured for occupation. Settlements seem to have preferred proximity to rivers obviously for their water needs. Given that, it is interesting that there seem to have been very few settlements in the area around Mohenjodaro. This could be because a settlement as large as Mohenjodaro could only have had much smaller settlements (like villages) nearby. Many of these may have disappeared due to the annual floods and ensuing deposits of silt in the floodplains. We do know that valleys were favoured areas for settlement by the distribution of sites on the Ghaggar/Hakra river. About 174 Mature Harappan sites were located along the Ghaggar/Hakra, seemingly presenting a picture of maximum distribution of Harappan settlements. However, this is primarily because the Ghaggar/Hakra is a river that anciently dried up allowing good preservation of settlement remains.

Archaeologists such as Gregory Possehl (1979) had hypothesized that the scarcity of settlements in the vicinity of Harappa on the Ravi river may have been due to the area being more favoured for animal herding and pastoralism rather than agriculture. But more recent exploration work by Rita Wright has brought to light hitherto unknown settlements in this region. Similarly, Pakistani archaeologists have explored several new Harappan settlements in the hilly areas of Sind (the Sind Kohistan) to the west of the Indus river. Thus, to some extent, the distribution map of Harappan settlements may somewhat change with more exploration, particularly in remote areas. Even so, population...
density can be noted through the marked increase in number of settlements in the Mature Harappan period as compared to earlier periods (compare Figure 6.1 with Figure 5.1 in Unit 5).

Another feature marked the Mature Harappan period from its predecessor, the Early Harappan. This is that roughly the same area occupied by Early Harappan cultures were now under a single archaeological culture. New areas being settled were clearly in the southern region, in Kutch and Saurashtra. As mentioned in the previous Unit 5, many Mature Harappan settlements were in new locations and several Early Harappan ones were abandoned. There are also now numerous large settlements that are 50
hectares and above in size, such as Mohenjodaro, Harappa, Ganweriwala, Judeirjodaro, Rakhigarhi and so forth. Some of these settlements have been excavated revealing that they were in fact highly complex and multi-functional, what we would call urban. This is completely in contrast to the earlier period. Some of this complexity will be explored in the next section, where we will look at the morphology of Harappan settlements, as well as in Units 7 and 8.

6.3 **MORPHOLOGY OF HARAPPAN CITIES**

The morphology of the Harappan urban centres is marked by internal segregation and planning.

6.3.1 **Walls, Spaces and Platforms**

One of the most marked morphological features of several Harappan cities seems to be their internal segregation. This could take the form of separately walled units with a gap between them to a single entity internally demarcated by walls. There seems to have been a deliberate attempt to separate either functions or people or both. Mohenjodaro (Figure 6.2) provides the clearest evidence of a divided settlement of the former kind. There are distinctly two mounds, one, a smaller (about 8 hectares) and higher one to the west and the other, a larger (about 115 hectares) and less elevated one to the east, both separated by an area of about 150 meters. These were termed as ‘Citadel’ and ‘Lower Town’ respectively.

Kalibangan in Rajasthan (Figure 6.3) exhibits a similar morphology with a smaller area on the west demarcated from the larger area to the east.

![Figure 6.3: Layout of Kalibangan (After Thapar, B.K., ‘Kalibangan: A Harappan Metropolis Beyond the Indus Valley’, *Expedition*, Vol. 17 (2) Jan.1975, p.19).](image-url)
Of a division of the latter kind, we have a good example in the city of Surkotada in Kutch (Figure 6.4).

The difference, though, is that the settlement at Surkotada is a rectangle divided by a wall into two equal segments. At Lothal, (Figure 6.5), we have a single walled entity within which different areas were spatially demarcated with an elevated area termed as the ‘Acropolis’ and the rest of the settlement the ‘lower town’.
This pattern of separation can be seen at some smaller, provincial settlements too such as Mitathal in Haryana. While several settlements reveal a division into two areas, Dholavira in Kutch (Figure 6.6) shows a different pattern where there are three different segments in the Lower Town and the ‘citadel’ itself is divided into two, called as the ‘castle’ and the ‘bailey’.
The terminology used itself suggests the functions of these spatially segregated units. The use of the terms ‘citadel’ and acropolis’ suggest elevated and defended units, the ‘castle’ and the ‘bailey’ suggest that these were the loci of specialised public functions, while the use of the term ‘lower town’ suggests a residential area for the general mass of the population. We shall see below how excavations have revealed the possible functions of some of these areas.

Most Harappan settlements were walled. Many of these were massive: the walls at Dholavira were 18 meters wide and at least 9 meters high. Even a small settlement with a size of 1.92 hectares such as the recently excavated Bagasra had a wall around it with a width of 5.20 meters. As pointed out earlier, divided settlements had walls around the separate units. In some cases, walls were free-standing walls and in some revetments (or supporting walls) for the baked brick platforms or sometimes were of both types. Physically, large walls around a settlement, implying the involvement of considerable labour, have been considered to be emblematic of urbanism. Walls around a settlement can, however, have diverse functions ranging from defence, protection from natural forces, to reinforcing platforms to exclusion. Whatever their function, walls clearly controlled access into and out of the city.

At Mohenjodaro what were noticeable were the extensive platforms on both the Citadel and Lower Town ostensibly for protection from flood. These platforms on the Citadel were more than 6 meters high and on these the various buildings were constructed. The platforms served sometimes as foundations or sub-structures for an entire area or for single buildings or even part of single buildings. At Harappa, masses of sun-dried brick
comprised similar platforms to protect the city from floods. Both categories of architecture, walls and platforms, as also the use of burnt brick for structures, illustrate the extensive utilization of labour in the ancient cities. On the assumption that a labourer can move about a cubic meter of earth in a day, Gregory Possehl (2002: 103) suggested that the Mohenjodaro platforms would have taken about 4 million days of labour to construct. That would mean 10,000 labourers working 400 days or a little over a year. 2,500 labourers would have taken 1,600 days or 4 years and 4 months ‘just to put the “foundations” in place.’

The technology of protecting the settlement from floods through the use of platforms has been noted at smaller settlements too. At both Lothal and Rangpur in Gujarat, mud-brick platforms were constructed as a probable flood protection measure.

### 6.3.2 The Issue of Planning

As mentioned in Unit 5, there are two approaches to urbanism: the ramp approach and the step approach. The former envisages a slow organic growth within the settlement from a village to a town where the settlement often gradually grew around a centre which could have varied in nature from political (the ruler), or economic (the market place) or ritual (the temple). The latter, in contrast, conceives of an abrupt development of an urban centre, in many cases the creation of a new urban centre. In an early discussion of planning, Harold Carter (1983: 10) suggested that the conception of a planned city came from a notion where there is a distinct and formal organisation of space, also implying control by a centralized authority whereas unplanned cities suggest that development was perhaps a fragmented and individual process.

An important implication of the foundations or platforms mentioned above is that they would have formed part of a plan for a Harappan city before it was built. Another way in which the issue of planning can be physically investigated is through the roads and streets within the settlements, particularly the so-called grid plan. The best example is Mohenjodaro though Kalibangan and Nausharo can also be included. At Mohenjodaro, the north-south roads (First and Second streets) are clearer than the east-west ones. In some cases, the streets have not yet been excavated but are assumed so because of the gullies that are present on the site. Possehl writes that the layout is regular but not perfect. ‘The regularity itself suggests that the founders of this city started with a clean plate, virgin soil, on which they began the construction of their metropolis.’

Other indications of planning can be seen in the provision of civic facilities. One of the features is the extensive system of burnt brick drains that ran along the main avenues of a city such as in Mohenjodaro and connected public drains with house facilities. Within individual houses, drains were of the horizontal type as well as vertical pipes in the walls. Every single house had to have at least one wall along a lane or street so as to access the street drains. This factor itself speaks for great planning and forethought. The provision of sullage pits and manholes into which solid waste would collect and would have had to be regularly cleaned was an important feature of the system. Such drains can be seen at numerous other sites, such as Harappa, Kalibangan, Nausharo, Chanhudaro, Allahadino, Dholavira and Lothal. At sites, such as Lothal, where the architecture was mainly of mud-brick, it is interesting to note that the drains were constructed of baked brick. Evidence of the consciousness to provide civic amenities were also revealed by garbage dumps, one of which was found north of the city of Mohenjodaro.

Wells for drinking water are noted at Mohenjodaro and Harappa. On the basis of the distribution of excavated wells at Mohenjodaro, Jansen calculated that about 700 wells
The Earliest Cities in the Subcontinent probably existed at the site in antiquity. These varied in size, with an average diameter of 1 meter and most were located within individual houses. However, wells were often found near entrances, implying that they were accessible to outsiders. At Harappa, the 6 wells recovered during excavations were all located in public areas. The high density of wells at Mohenjodaro suggests that the mean distance between wells was quite low. In the Lower Town, the mean distance between wells ranged from 36-39 meters which may also imply that their locations were planned at the outset.

Another aspect of planning in architecture can be seen in the use of a standard brick size. The standard brick size at Mohenjodaro was $28 \times 14 \times 7$ cms with a ratio of 1:2:4. Burnt bricks were used at Mohenjodaro while other sites used mud-bricks in the same ratios. The advantage of uniformly sized bricks was in the ease of construction. Walls were generally constructed using a bonding technique known as ‘English bond’ where bricks were laid in alternate headers and stretchers. Usually mud mortar was used to bind bricks together while very rarely the use of mud and gypsum or lime and gypsum were noticed.

The issue of planning is perhaps best seen at a site like Lothal (see Figure 6.5). In its earliest occupation, Lothal was a small village which in its next phase was levelled and built anew on an apparently pre-conceived plan. The well-thought out plan can be seen in the allotment of space to different functions within the settlement. The warehouse was located near the dockyard with the Lower Town with its houses of crafters on the other side. Between the Lower Town and the warehouse and in an elevated overseeing position was the so-called Acropolis.

6.3.3 The Use of Space: Non-Domestic

The use of space at Harappan urban centres can be broadly grouped into two categories: domestic and non-domestic. While one may imagine that the terms ‘citadel’ and ‘lower town’ embody such a segregation of domestic and non-domestic, it is by no means clear at a site like Mohenjodaro. The ‘citadel’ does appear to have specialised public architecture and thus largely appears to have been non-domestic in nature, but the ‘lower town’ was not the locus of only domestic structures, as we shall see below. Let us begin with the non-domestic use of space.

Specialised architecture (Gordon Childe’s large monumental architecture) may provide evidence for differentiated functions in an urban context. Structures such as the Great Bath at Mohenjodaro, the granary at Harappa and the workmen’s quarters with circular platforms and furnaces, also at Harappa, are clearly loci of specialised functions. These are found on the respective ‘citadel’ mounds. But apart from these obvious specimens are certain more ambiguous structures, interestingly, found in the ‘lower town’: for example, House 1 in Section HR-A of Mohenjodaro has been suggested to have been a temple on account of its size, access through two monumental stairways, the ‘tree-guard’ in the courtyard, as well as finds of stone statuary within and in the vicinity of the structure. Similarly, in the northern part of Mohenjodaro, in the DK-G area, a large building termed as a ‘palace’ was uncovered. This alerts us to the possibility that many of the large structures may have had specialised functions. Yet, apart from size, there is often little contextual evidence to indicate non-residential use of these structures.

What were these specialised public functions taking place on the ‘citadels’? These seem to have ranged from large-scale storage facilities to places of assembly and ritual. There seem also to have been living arrangements for a very small section of society.

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1 The Great Bath will be discussed in more detail in the separate Unit on Mohenjodaro at the end of this Block.
perhaps ritual practitioners. On the southern half of the ‘citadel’ at Kalibangan were found a series of mud-brick platforms with oval pits lined with mud plaster or bricks that have been considered as ritual in nature and have been termed as ‘fire altars’. At Rakhigarhi too a row of fire altars has been found on a podium or platform on the Citadel. Similarly, the ‘Acropolis’ at Lothal, too, has fire altars located on it.

Public or non-domestic space was also taken up by the roads and streets that passed through various settlements. These were arteries in many cases allowing access between different parts of the city. This is very clear at Mohenjodaro where the different excavated localities, such as HR or VS or DK, were in fact connected through the roads and streets. These roads and streets were also important for providing avenues for the public drains. At Lothal, streets and lanes in the citadel (called the Acropolis) were paved with mud bricks and covered with a layer of kanker, while those in the lower town had a base of terracotta balls or kanker.

Other non-domestic usage of space can be seen in the cemeteries uncovered at a few Harappan sites. Prior to the Harappans, the tradition seems to have been to bury the dead within the living space, that is, the house. The allocation of a separate space near the settlement for burying the dead can be seen particularly at Harappa, Kalibangan, Lothal, Ropar and Rakhigarhi. However, at many settlements, including a major one such as Mohenjodaro, cemeteries have not been found. There are significant implications involved in the use of space for cemeteries: clearly, the most important is the change in attitude regarding disposal of the dead, but another aspect involves the keeping aside of space for burials, particularly in an urban situation. Because space would have been at a premium within a city, it makes sense that at Harappa, the cemetery labelled R 37 is located about 250 m to the south of the high mound AB while at Kalibangan the cemetery lay about 300 meters west-south-west of the habitation. Just like these two sites, the cemetery at Lothal too lay outside the walls but about 10 m away and due west of the settlement. At all these three sites, the cemeteries were situated outside the walled areas demarcating the living spaces. The significance of these burial spaces lay in the clear demarcation between the living and the dead. At the same time it can be seen that it was necessary to allot space outside the settlement, yet not too far away, for the dead. In an urban context, this was valuable space that could have been used for various other purposes.

Public space was significantly used in a strikingly different manner at Dholavira in Kutch. Here, several massive reservoirs or water storage tanks were constructed along the inner side of the outer wall. In one case, one of the reservoirs was cut into the bedrock while in another case stone blocks were used in construction. Flights of steps provided access into the reservoirs, which were probably excavated for the storage of rainwater. At Lothal too a large construction for holding water but for a possibly different purpose can be seen immediately to the east of the settlement. This has been called as a ‘dockyard’ suggesting that small boats could reach the site from the Gulf of Kambhat through the nearby river. Yet another large water body, the Great Bath, was constructed at Mohenjodaro, in this case perhaps for ritual purposes (for more details see Unit 9).

At Dholavira, another kind of public space has been noted to the north of the Citadel (or between the Citadel and the Lower Town). This is an area of about 100 × 275 meters and has been interpreted by the excavator as a “ceremonial ground” or “stadium” or an area for “holding bazaars”. Except for the Lower Town, which is built up to the outer wall, there are also considerable open areas to the north and the south (between the Citadel and the outer wall and the ‘Middle Town’ and the outer wall) (see Figure 6.6).
6.3.4 The Use of Space: Domestic

There is plenty of evidence for the domestic use of space, with houses having been recovered at practically every excavated Harappan site. The considerable variety in house forms within as well as between sites is particularly interesting. Numerous houses at Mohenjodaro were built using the courtyard as an open space generally surrounded by other rooms. Open spaces may also have been used to separate individual structures or house units as seen from several parts of Mohenjodaro. A method to study individual house types was devised by Jansen's team at Mohenjodaro where rooms were distinguished on the basis of their location and means of access. They distinguished entrance rooms from transit and terminal rooms (see Figure 6.7). Transit rooms were those with more than one entrance. Terminal rooms were those such as the toilet and bath and had only one entrance. Classifications on the basis of this kind of access system enabled labelling of rooms as public and private (Jansen, 1984: 40). In many houses, a second storey could be accessed from one or two sets of stairways. Most houses had at least one paved room functioning as a bathing area, from where drains connected with the street drains.

![Figure 6.7: Terminology of Rooms within a House (XIX), VS Area, A Section, Mohenjodaro.](image)
Variations, in some cases highly localized, can be noted at other sites. At Banawali, for example, a house, measuring 52 × 46 m, has an interesting plan (see Figure 6.8). There are several rooms within the house but what marks the house apart are the small cubicles that have been built into its thick western wall. These cubicles measure 1 x 1 m or sometimes 1 × 2 m and are too small to enter. The excavator has speculated that these could have functioned as vaults or storage cells for valuables or grain. The courtyard in the house is to one side. Access to the other rooms is from the courtyard and the courtyard itself opens onto the street. But what marks this house at Banawali, considered as one of typical plan at the settlement, as different from Mohenjodaro houses is that at the latter settlement, the courtyard did not have direct access to the street. In fact, archaeologists have speculated that Mohenjodaro houses were planned so as to ensure the private nature of the courtyard. This house at Banawali was also surrounded by roads and lanes on all four sides ensuring its independent location. In contrast, Mohenjodaro houses were in blocks but in both cases the need for access to a street was necessary for the house drains to enter the street drains.

Just as at other settlements, there is no uniform pattern to houses at Lothal. Some houses at Lothal were unusual in that they were linearly aligned with what appear to be a double row of rooms. One house has eight rooms in a double row and one of the rooms has been labelled by the excavator as a verandah even though it looks exactly like the rest of the rooms. An adjacent house has ten rooms in two rows with walls extending outwards from the two rows to make a possible courtyard. This has been labelled as a merchant’s house. Both houses are aligned in a linear fashion along a main street. In other cases, such as House 159, the pattern is very different with a squarish structure of a very large front room backed by two smaller rooms of different sizes (see Figure 6.9).
As mentioned earlier, Lothal provides an excellent example of a planned settlement. This can also be seen in the spacing provided between houses that were also living and working places of crafters. The spacing between houses at Lothal is different from large urban settlements such as Mohenjodaro where houses were built up against each other with party walls (or shared walls), showing organic growth. The lack of party walls between houses at Lothal instantly sets the settlement in a separate category. This probably emanates from the settlement being completely planned and built for very specific functions that included production and distribution. Much more on this issue will be dealt with in the following Unit 7.

At both Lothal and Rangpur in Gujarat, houses were constructed of mud bricks in the usual ratio used by the Harappans. This may indicate a shortage of fuel for firing of bricks. However, where required, baked bricks were used, such as in the construction of drains. Both Harappa and Mohenjodaro, however, were marked by the use of baked brick for housing and public architecture. But at other settlements where perhaps clay for bricks was in short supply, construction was undertaken in what may have been locally available materials such as stone, as at Surkotada. Floors were sometimes paved with mud-bricks and in other cases made of rammed earth or lime and kanker. Holes in the ground, called as postholes, suggest that posts or poles were embedded in them and used as supports for the roofs which may have been of bamboo or wood. While we have little evidence that walls were decorated with paint, they were plastered with lime. Sometimes walls of rooms had several niches all along their length perhaps
for keeping things. At cities like Mohenjodaro, sizes of rooms may have dictated the presence or absence of roofs. Large rooms would have been difficult to roof over as large wooden beams would have been required. Thus, either these would have been left unroofed (such as courtyards) or in some cases supported mid-way across the room with wooden supports. Much of the light in these houses, in fact, would have come from the open courtyard as outer walls of houses had few windows, which if available, were very small.

Construction patterns also differ. Structures with more massive walls are found which could indicate the need to carry further storeys or to combat heat, or could suggest economically wealthier inhabitants. The change from thicker to thinner walls over time as happened in Harappan cities may be because of more flimsy walls being built in the later periods of decline. At Harappa thatched huts were found near the working platforms on Mound F. What does this differentiation indicate? It may reflect variable degrees of wealth where larger, better-built structures may have belonged to wealthier sections of society. Wealth, as determining house sizes may not be very useful, as other explanations could also suffice, such as nuclear households as opposed to joint patterns of living. As may be expected in a true urban conglomeration, there is no spatial concentration of large as opposed to small houses. However, it is possible that in large cities, spatially extensive structures may have been multi-functional in nature rather than purely domestic.

6.4 SUMMARY

Urban life involves a complexity of social, economic and political relationships that are reflected to a great degree in the physical infrastructure. We are completely dependent on archaeology to explain to us some of the patterns of daily life that took place in the Harappan cities. We get a picture of a remarkably resilient material culture that survived for about seven hundred years. The next Unit will focus on the variety of occupations of Harappan city dwellers.

6.5 EXERCISES

1) How are the spatial aspects of urbanism reflected in the archaeological record? Comment taking the case of the Harappan civilisation.

2) Study Figure 6.1 to analyse the possible reasons for the location of Harappan settlements.

3) Discuss the internal morphology of Harappan towns.

4) Discuss the evidence for planning in Harappan cities.

5) What was the general pattern of the non-domestic use of Harappan urban spaces? In what ways did public space utilisation differ at Dholavira and why?

6) Assess the nature of domestic use of spaces of the Harappans.

7) Compare and contrast the house patterns of various Harappan settlements. What are the distinguishing features of houses at Lothal and Banawali?