UNIT 7  HARAPPAN ECONOMY AND OCCUPATIONS*

Structure

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6.1  INTRODUCTION

In this Unit, we will see what people did in the past in an urban milieu. We are specifically interested in discerning what it is that economically distinguishes an urban centre from a non-urban one. Multiplicity of occupations seems to be the key factor demarcating urban from non-urban situations. This emanates primarily from a dense population that can not all be accommodated within agriculture. The need for new products and services necessitated specialisation of production which became a distinct part of the urban scene.

We will, however, start with the base, or the subsistence sphere, which comprises agriculture and allied occupations. This is, contrary to general perception, an integral part of ancient urban centres where agriculturists were a significant proportion of the population. For Bronze Age urban centres, especially the Harappan where the data is primarily archaeological, we may find the evidence for agriculture not only from botanical remains such as burnt seeds but also from certain artefacts. We can also study Harappan settlements (particularly the smaller ones) to see the logic behind their location. Mohenjodaro, for which we have ample evidence, will be covered in detail in Unit 9.

7.2  THE SUBSISTENCE ECONOMY

Farming, animal husbandry, fruit gathering, fishing and hunting comprise the sphere of activities that provide the basic means of survival, which is food. We are, in the Harappan period, dealing with well developed farming regimes that utilized fields year-round. In other words, both winter and summer crops were grown in the Harappan period, the direct evidence for which we have in the form of burnt seeds. The major cereal crops were wheat and barley, both winter season crops. Others grown in the same season were peas and chickpeas, mustard and sesame. A fibre crop such as flax was also a winter crop. Certain other crops were grown in the summer such as cotton. For cotton, a non-food crop, the evidence is in the form of small fibre pieces found on artefacts of silver and metal at Mohenjodaro, suggesting the objects were wrapped in the fibre. In areas such as Gujarat, summer crops included millets. The evidence for rice, a summer crop, is yet unclear as what has been found so far may be uncultivated forms. Fruits

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would also have been eaten and may have been grown or nurtured such as pomegranates, dates and grapes. Gathering of wild fruits such as jujube or ber is also evident from burnt specimens found at sites.

That animals were kept by the Harappans is known from a variety of sources. For one, we have the bones of several domesticated species, such as cattle, buffalo, sheep/goat and pig. Several terracotta figurines of animals have been found from Harappan sites. These are of the bull, ram and dog. The bull is also a popular motif on Harappan steatite seals. Cattle were used for transportation and for ploughing. For the former we have several terracotta carts, cart frames and wheels and for the latter, terracotta models of ploughs that have been found from Shortughai, Banawali and from sites in the Cholistan region of Pakistan. Cattle, sheep/goat and pig would also have been part of Harappan diet, as seen from the cut marks on the bones.

Harappan sites have also given evidence, in the form of bones, for wild animal species, such as deer, boar, and so forth that again must have been part of human diet. These species would have been obtained through hunting practiced either by the Harappans themselves on occasional expeditions or by other communities who traded meat for other produce, such as grains, with the Harappans. Harappan knowledge of wild animals transcended those species used for food. Harappan seals provide evidence of wild animals such as elephant, rhinoceros and tiger that would not have been part of their diet.

Living near water bodies and rivers also meant the possibility of fishing. Excavations have revealed the bones of several varieties of Indus fish at Mohenjodaro. Sea fish were also consumed as is known from a site like Balakot. Marine fish, in fact, were transported as a food source inland to settlements, such as Harappa. Evidence for fishing has also been recovered in the form of tools such as copper fish hooks.

The implications of all the above is that Harappan agriculture provided a well-rounded range of crops with varied cereals, oil and fibre crops. Combined with animal protein, it showed that the Harappan diet was a varied one. Agriculture was also intensive in that the same fields were used for growing more than a single annual crop. The evidence for both winter and summer crops meant the Harappans practiced double cropping. Though plough shares have not been recovered yet, terracotta toy models of ploughs indicate their use. Evidence of a ploughed field, with two different kinds of furrows, at Early Harappan Kalibangan has shown that multiple cropping (the growing of two or more crops in the same field) was also practiced. Among the numerous stone blades that have been found, some may have been used as sickle elements for harvesting cereals.

Irrigation was also a necessary requirement in farming. Were the annual floods of the Indus river used to grow crops? Sites which are in the floodplain, however, would have been in danger of not only losing their crops but also their houses. The evidence of periodic flooding at Mohenjodaro indicates the danger of the Indus for nearby settlements. Canals or channels from rivers would have been more useful for irrigation and the technology was known as can be seen from drainage channels in cities, but there is no evidence for their use for irrigation in the Indus plains. The only evidence of canals has been recovered from the site of Shortughai in Afghanistan. It is possible that the archaeological evidence for channels from rivers may have been submerged under years of silt deposition. However, another plausible method of irrigation may have been through wells. The technology of building wells for drinking water was known to the Harappans and it is quite possible that lift irrigation through wells may have been used to water crops.
7.3 THE NON-SUBSISTENCE ECONOMY

Let us put the following bits of evidence together:

- Harappan agriculture was intensive
- The area available for fields around a city was limited due to constraints on travelling too far between the home and the field
- Thus, not every household would have had its own fields
- Numerous individuals/households would have had to move to other occupations.

Hence, while farming would have been one of the occupations in a Harappan city, a city was actually known for varied occupations, requiring other kinds of skills. The demand too for different kinds of work, such as construction, maintenance, ritual, and so forth, would have meant that these were performed by individuals specialised in them. In some cases, these skills were the accumulation of several generations of expertise such as potting, in some new skills were developed such as of constructing drainage channels or the carving of steatite seals. One of the distinctive features of urbanism rests in the diversity of occupations, a situation that we can clearly see in the Harappan cities.

Non-agricultural occupations that provided the means of livelihood for several individuals were unusual in another sense in Bronze Age cities that functioned without coinage. This meant that individuals who provided various services for other individuals, households and communities had to be compensated for their labour in ways without money. For example, brick makers who made the millions of fired bricks for building houses at Harappa and Mohenjodaro, the masons who built the monumental architecture of the cities, those who cleaned the streets and drains had to be provided with their subsistence. Bronze Age cities are known for this large scale use of labour for varied purposes.

7.4 CRAFT PRODUCTION

Some of the major non-agricultural occupations in Harappan cities comprise craft activities. The Harappan period is known for considerable virtuosity and skill in crafting artefacts out of a varied range of materials. Like other human activities, craft production is also understood to leave certain archaeological traces. Maurizio Tosi (1984: 25) had suggested a list of archaeological indicators for craft production. These consist of:

- facilities
- tools for manufacture
- residues or by-products of manufacture
- broken tools
- semi-finished products
- raw materials such as masses of stone kept for further processing
- stocked or unworn products as well as
- materials kept for recycling.

The co-occurrence of indicators would furnish a clearer picture of craft production in contrast to isolated finds of indicators. Similarly, tools (chisels, drills, saws, etc.) and facilities (such as dye-vats, kilns or furnaces) were considered as more reliable indicators than stored or unworn products. The last, in fact, need not indicate production but rather distribution.
If we use indicators such as these, we find that at some settlements, no evidence for production has been found. This could either mean that production was not undertaken at such places or that craft working areas within these settlements have not yet been excavated. However, during excavations, representative areas within a site are probed providing a reasonable picture of activities at that settlement. Hence, absence of production indicators at a site may just well suggest that no production took place there.

Numerous crafts were practiced by the Harappans. These were pottery and terracotta production, metalworking, bead making, faience production, shell working, stone working, and so forth. One can also look at Harappan crafts from the point of view of material as various materials were used to produce a varied range of artefacts. Thus, stone working implies the making of stone tools, stone vessels, beads, seals, weights and so forth. One cannot equate all of these as the technologies, skills and demand would differ. Thus, the number of settlements at which stone tools were produced too shows a difference from those where weights were made. Practically 50% of sites with stone tools give evidence for their production while the corresponding figure for weights is only 15%. This kind of difference does not arise from technology. Much the same flaking techniques would be used for making stone tools as for weights. The difference comes from the requirement of such objects. Weights were made for the specific purposes of weighing which needed verification and standardization unlike tools such as blades which were required for basic cutting and slicing operations. Thus, weights were made at very few settlements and probably under supervision while blades were made often by the users themselves. However, here again we must remember that there were different kinds of blades. The most superior blades were the long ones made by a material, chert, the best quality of which was available only from Rohri in upper Sind. It is quite possible that long chert blades were made at Rohri and transported to consumers at other settlements.

A marked feature of Harappan crafting is that most raw materials were found outside the Harappan occupied area. For copper, the Harappans may have used various sources, such as Khetri in Rajasthan, small scale sources in Baluchistan as well as from Oman. Good quality stone, such as carnelian, for beads came from south Gujarat outside Harappan influence. Steatite used to make seals and beads also may have come from sources in south Rajasthan and north Gujarat, again in areas with no Harappan settlements. But the Harappans devised methods to obtain these materials as we shall see later. Other materials like chert and shell came from the Harappan zone.

Often it is thought that it makes economic sense to locate production at raw material source areas but this largely does not seem to have been true in the Harappan case. While shell was worked near the source area (the coast), it was also worked way inland at other settlements. The main reason why it was thought worthwhile to transport raw shell inland or other raw materials far from their source areas was because several craft specialists lived and worked within urban centres. In a craft working with metal, we rarely find metallurgical activities, where smelting of ore is done. Often, we find that the ore was smelted at source areas and ingots of metal transported in to production centres. However, there are still sporadic cases where ore has been recovered from Harappan sites.

Where were crafts practiced within a settlement? Were there separate locations for separate crafts? Several settlements such as Mohenjodaro have given evidence for pottery production taking place on the outskirts or periphery. This could be due to the heat generated from the kilns but probably more because of requirements of space for
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potting. This is a picture that we see from several other Bronze Age contexts, such as from Shahdad in ancient Iran.

We have one concrete example of a work area for a potter from a Harappan settlement at Nausharo in Baluchistan, roughly dated to about 2500-2400 BC. In the working area of the potter were found tools such as four unused flint blades, a fired clay scraper and a bone spatula that was shiny with use. There were also two grinding stones, perhaps for crushing pigments and a clay coil measuring 40 cm in diameter. What was important, was that more than 200 scraps of unfired clay probably left from the scraping of vessels while they were being made were discarded and scattered in an area near the grinding stones. These were residues from the manufacturing process, one of the indicators for craft production. The southwestern part of the workshop was used to store the vessels after they had been formed. Some 25 unfired clay vessels of various shapes were found in a heap almost 15 cm deep. By the appearance of the heap, it seems the vessels had been originally standing on a shelf that must have collapsed. The vessels were complete except for the painting and firing. It seems the work area was abandoned, which is why we find the vessels were left incomplete.

There seem to be roughly three patterns for crafting in the Harappan period. In one, we find centres dedicated to crafts in medium-sized settlements, such as Chanhudaro and Lothal. In the second pattern, we find small settlements set up at raw material source areas, perhaps specifically to exploit certain raw materials, such as Nageshwar and Balakot for shell and Shortughai for lapis lazuli. In the third pattern, we find crafting taking place within large cities where multiple crafts were just some of the occupations among several others. We will briefly discuss these three patterns.

In the first pattern, Lothal is an interesting case of a deliberately established settlement. Period I at Lothal is a non-Harappan village where a micaceous red ware was the primary ceramic being used. In the following period, the village was levelled over and a new planned settlement was established. As we have seen in the previous Unit 6, this settlement had demarcated specialised areas for various activities. The houses in the lower town which give evidence for crafts such as shell working, metal working and bead making are spaced apart and show little organic growth and were linearly laid out along streets. In an elevated position was the so-called ‘Acropolis’, with baked brick drains and fire altars on it. The elevation of the ‘Acropolis’ served to differentiate it from other areas within the settlement as well as enable it to have a supervisory role over other activities taking place in the lower town as well as the warehouse and the dock area. The significance of Lothal also lies in its location. Close to the Gulf of Kambhat for exchange purposes by sea and proximity to raw material sources such as carnelian and steatite meant that the settlement may have had both production and distribution tasks for the Harappans.

Chanhudaro is a similarly sized settlement as compared to Lothal but is located in the Indus Valley, on the left bank of the Indus. Originally probably a single mound, the site now consist of three mounds (see Figure 7.1). The major excavations here were conducted on Mound II by Ernest Mackay. He found substantial evidence for varied crafts, such as metal working, bead making, shell working, weight and seal making, in the form of raw materials, unfinished and finished objects, debitage or waste, tools and facilities. A high number of unfinished seals suggest this was a major seal production centre for the Harappans. Another artifact, long barrel-cylinder beads made from the red carnelian, was clearly made here as suggested by the number of broken and unfinished pieces. Unfortunately very little of the actual structures within which crafts were practiced survive. What still remain are a few walls and paved areas for bathrooms and toilets as well as the baked brick drains running along the streets to suggest the locations of
houses. The settlement appears to have been a well-laid out town built on huge mud brick platforms, perhaps as a protection against flooding from the Indus. The location of Chanhudaro on the left bank of the Indus suggests its location was to obtain raw materials and craft artefacts from them rather than transport raw materials across the Indus.


In the second pattern, we have the case of small settlements deliberately set up near raw material source areas. Unlike in the above case where we find a range of crafts being practiced at small centres, here we find settlements focused on a single craft utilizing locally available raw material. Nageshwar is a small (1.4 ha.) site located in the northwestern tip of the Saurashtra peninsula on the southern coast of the Gulf of Kutch. The site had peculiar locational characteristics. The mound was close to a sweet water lake in an area of brackish water. The site was also close to two shallow bays, Pindara and Poshitra, from where shell was easily available. However, the area was rocky and apart from the lake, inhospitable, as soil available for cultivation was restricted to a narrow margin near the lake. It appears that the main sustenance of Nageshwar was provided through manufacture and exchange of artefacts of shell. Another interpretation made by the excavators was that locally available tough grasses in the lake were used to make raft-like vessels to fish for shell further out in the bays where less damaged specimens would be available, as also to transport the manufactured artefacts out of the area.

Nageshwar is a single-period site, confined to the Mature Harappan. Thus, it was established in the Harappan period for a specific purpose which was not required in subsequent periods. It seems that production was geared for outside consumption. The clearest evidence for this was the complete absence of finished ladles (or spoons) at the site as contrasted with the recovery of considerable quantities of ladle-manufacturing waste or debitage. Even apart from ladles, it is unlikely that a 1.4 ha site could have consumed such quantities of bangles or inlay of shell either. Its deliberate establishment
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indicates the demand for shell in the Harappan period. Balakot is another case of a small settlement concentrating on a local resource, shell. Balakot, however, differed from Nageshwar in that at the former site there was an Early Harappan settlement which was succeeded by the Mature Harappan one. Interestingly, at Early Harappan Balakot, the manufacturing of shell objects was not noted. In fact, the exploitation of marine resources for both dietary and craft purposes began only in the Mature Harappan. Shortughai in north-east Afghanistan is a case of a Harappan site completely outside the distribution area of Harappan settlements. Again the rationale for its location was the proximity of outcrops of a prized and high-quality semi-precious stone, lapis lazuli. Evidence for the manufacturing of beads of lapis lazuli and carnelian was recovered from the site. Shortughai, like Nageshwar, was established in the Mature Harappan period.

How are we to understand these two patterns of production? The production behaviour seems “economizing” where it was probably considered suitable to locate settlements near the source of raw material. Thus, instead of carrying the bulky shells inland, artefacts such as bangles, ladles and inlay were made at settlements which obtained the raw material and worked them. However, we are dealing with periods when such “economizing” behaviour did not entirely prevail. This can be seen in the third pattern of production.

Thus, from the first two categories of settlements where proximity to raw materials was an important factor in their location, we come to the third category where the opposite was the case. Raw materials were transported into large urban centres such as Harappa and Mohenjodaro. Unlike the earlier cases where the major focus was on craft, at these settlements, craft production was only one among several other occupations. In both the earlier two categories, craft objects were largely produced for consumption outside the settlements but in this case crafted products were used both within the settlement and were perhaps distributed in nearby settlements. With some craft products, as we shall see below, certain crafts were deliberately located at the large urban centres.

Surveys and excavations at Mohenjodaro have shown that craft activities were largely concentrated in the southeastern part of the lower town. Thus, other parts of the site may have been used for other functions such as administration and/or ritual in the Citadel area or residential in other parts of the lower town. Such a picture of craft location also differentiates the larger urban centres from the first two categories of craft centres such as Chanhudaro or Nageshwar where the settlements almost entirely were given over to production.

The above is a short description of the distribution of Harappan crafts at settlements. Harappan technologies were considerably diverse and innovative. The virtuosity of Harappan crafters in dealing with varying types of materials is a distinctive feature of ancient technology. Considerable skill was employed in reworking materials into new forms, such as steatite powder into a type of faience specific to the Harappans, or making miniature steatite disc beads, or manufacturing and drilling the exceptionally long barrel-cylinder carnelian beads, or etching carnelian beads with designs. That these skills were rare is seen from the fact that such artefacts were produced at very few places. Their rarity too indicates their value as luxury products. These were also sometimes carried to distant regions such as Mesopotamia as we shall see below.

7.5 EXCHANGES AND NETWORKS

How does the archaeologist look for exchange? The simplest method is to see where objects crafted by the Harappans are found outside the Harappan occupied area. This is, in fact, what first led to knowledge of the links between the Harappan and the
Mesopotamian regions. It was only when Harappan material like steatite seals, the
typical cubical chert weights and certain carnelian beads were found at Mesopotamian
sites that scholars realized that the Harappan sites like Mohenjodaro were contemporary
to Bronze Age Mesopotamia. Till then, there had been no conception of the antiquity of
the Harappan sites. Similarly, exchanges between the Harappan region and sites in
Karnataka were suggested when micro steatite beads, again typical of the Harappan,
were found in that region.

There seem to have been several levels at which exchanges took place, if we take raw
materials and manufactured goods into consideration. The closest would have been
between cities and nearby villages. It is a commonly accepted feature of urbanism that
cities provided villages with manufactured goods and services while subsistence produce
moved in the opposite direction. This probably was the case in the Harappan period.
Materials, such as subsistence goods and manufactured products, may have been
transported on the head, or on animal back or by bullock carts.

Similarly, certain crafted objects, such as weights and seals, were produced at very few
centres. Even in the case of shell bangles or stone beads or metal tools, we see that
these were not made at every settlement, yet were found at most. Thus, there would
have been networks through which raw materials, crafted objects, grains, meat and
even ideas and people were exchanged between different settlements. In many cases,
rivers may have been the arteries along which goods and materials moved.

Other than these immediate exchanges, there would also have been exchanges between
settlements spaced further apart. From these further areas probably came required raw
materials for Harappan craft working being undertaken in the cities and towns. We
have already seen above that the Harappans obtained several required raw materials
from outside their zone of occupation. This would have meant contact with local
communities. Copper, for example, was possibly mined in the Khetri region, an area
where there are no Harappan sites. However, there was a local copper-using
archaeological culture called by archaeologists as the Ganeshwar-Jodhpura culture.
Thus, either the Harappans organised their own expeditions to mine, smelt and transport
back ingots to Harappan sites or engaged in exchanges with these local communities.
With certain other materials like shell, settlements (such as Nageshwar and Balakot)
were deliberately established to obtain the raw material whereas in other cases like
steatite (south Rajasthan) or carnelian (south Gujarat) or even hard woods (south Gujarat
and the Himalayan foothills) we may postulate that these were obtained through Harappan
expeditions. It must be similar forays into southern India, perhaps to obtain gold, which
resulted in micro steatite beads being found at Neolithic sites in Karnataka. Sumerian
texts refer to expeditions that brought back required raw materials, particularly for
temples and elite purposes, and it is a pity that no such literature survives in the Harappan
case.

From much further away, we find exchanges with different Bronze Age communities.
Already mentioned is the Mesopotamian where Harappan goods were recovered from
several sites. Interestingly, very little Mesopotamian material is found at Harappan sites.
Mesopotamian cuneiform records provide vignettes of these exchanges where the
Harappan region is called as Meluhha from where exotic material was obtained.
Distinctive Harappan ceramics like Black Slipped Jars were also recovered from
evacuations at sites in Oman suggesting that liquids were carried to these settlements,
bringing back copper to the Harappans. Yet another region with which contact is noted
is the island of Bahrein called as Dilmun in the Mesopotamian texts. No manufacturing
took place at Dilmun, nor was it known for any raw material; its significance came
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purely from its location between Oman, Mesopotamia and the Indus region which explains its major role in exchanges between these three regions.

Two other categories of artefacts were a necessary part of exchange mechanisms. These were seals and weights. Harappan stamp seals are distinctive (Figure 7.2), so much so that when they were first recovered from Harappa and Moenjodaro, scholars immediately recognized them as being the same type as those found earlier in Mesopotamian sites. Mesopotamian seals themselves were entirely different being cylindrical in shape where the design was obtained not by stamping or impressing but by rolling the seal over a clay surface. The distinctiveness of the Harappan seals came from their style conveyed through the motif (often of an animal (see Figure 7.2 c), such as the distinctive Indian humped bull) as well as certain signs both of which were present in relief. These seals were made out of steatite which was then fired to achieve a white surface. The back of the seal had a projecting perforated “boss” (Figure 7.2 a,b) which meant that the owner threaded the seal on a string and perhaps wore it around the neck. The fact that the motif and signs were in relief meant the object was to be stamped on another material such as clay. This has been proved by several clay pieces bearing seal impressions which were hence called sealings.

The seal motifs were beautifully engraved suggesting these to be artistic endeavours of that time. Apart from animal motifs, there were narrative scenes clearly indicative of episodes that may have had some ritual content. But it is the sign-like emblems that were inscribed above the motifs that have caught the attention of scholars and have been identified as writing. If these were writing (though there is some doubt expressed in this regard recently by Farmer, Sproat and Witzel [2004]), they indicate a level of literacy achieved by the crafters making the seals.

Harappan seals were used to convey a message through what was inscribed as well as the motif. The message probably pertained to the identity of the sender. Thus, what would reach the receiver would be the package with the clay tag or sealing which would identify the sender. If the sealing was intact, it meant the package had not been tampered with. Seals and sealings were an important part of exchange transactions.

As far as the weights are concerned, these were made of chert and were cubical in shape (Figure 7.3). These were in a series of regular gradations. The uniformity of these weights can be noted in their shape as well as material. Interestingly, as mentioned earlier, both seals and weights were made at a handful of settlements indicating that both categories of objects were made under supervision.

Figure 7.3: Cubical Chert Weights from Allahdino, Sindh (J.M. Kenoyer, Courtesy: http://a.harappa.com/content/how-did-harappans-measure-value).

7.6 SUMMARY

If we take multiplicity of occupations of a non-agricultural kind as a key criterion of urbanism, then several of the Harappan settlements like Mohenjodaro and Harappa would qualify as urban centres. That does not seem to be the sole criterion. Certain other settlements, like Chanhu-daro and Lothal, while primarily devoted to craft, are also urban but in a different category from the larger centres. Thus, producing for outside consumers would also seem to be a characteristic of urbanism. Yet, other major characteristics of urbanism lie in the social sphere which is what we will look at in the next Unit.

7.7 EXERCISES


2) In Harappan cities agriculture constituted a significant form of production. Comment.

3) Discuss the pattern of non-agricultural production in a Harappan city.

4) How did the Harappans organise craft production?


6) What are the mechanisms that would have aided the exchange of goods and resources in the Harappan period?

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1 The Harappan weight system is well understood. The most common has a mean value of 13.63 gm; others are fractions or multiples of it. If we take 13.63 as the ratio 1, we get a sequence of 1/16, 1/8, 1/4, 1/2, 1, 2, 4, 10, 12.5, 20, 40, 100, 200, 400, 500 and 800 (Ratnagar 1981: 184).