Harappan Socio-Economic Conditions: Based on Archaeological and Archaeozoological Remains

It is generally believed that economy of the Harappan people was mainly based on external trade. It is true to the extent that the Harappan urban centres were supported by the external trade but actually agriculture was the backbone of the civilization. Agriculture was supported and supplanted by the animal husbandry.

The economy of the Harappan civilization was based on domestic animals, particularly on zebu cattle, and on variable agriculture of growing cereals, pulses and other plants. These were supplemented by the exploitation of wild resources, such as fish. Pastoralism and agriculture differ in their relative importance in view of the great diversity of environment that composed the Indus realms\(^1\) in the valleys and plains of the Indus and Ghaggar rivers, their tributaries and other small rivers. Mixed farming was highly profitable as rains and other local water resources supported farming in the region and also facilitated grazing of cattle on the expanses of seasonal pastures in Gujarat, Punjab and in the uplands of Baluchistan. Coastal settlements took advantage of marine resources such as shellfish, which provided not only food but also shells, an important resource for making ornaments.

Some domestic animals played a major role in Harappan agriculture. These domestic animals, mainly, were cattle, sheep, goat, water buffalo, dog, pig, horse, ass, camel, elephant and fowl. Subsistence economy like agriculture was supplant with domestic animals which provided meat, milk, hides, wool and raw material for other related industries like shoe making, woolen textile etc.

Raising livestock was a useful investment against crop failure. In good monsoon years, when crops yields were high, grazing would also be good and the number of animals that were kept could be increased. In addition to this surplus agriculture produce would also be available as fodder. In the drought years agricultural activities tend to decrease and grazing activities shall increase and animal products shall also increase. In lean years, when grazing was limited, the additional animal could either be killed for food or used to obtain other foodstuffs, say for example, by trading with pastoralists, by giving the animals as gifts to kin in other areas in the expectation of useful return gifs, or perhaps by exchanging them for grains stored by those in authority, though the evidence of central storage is limited and dubious².

Large numbers of sites were excavated by various archaeologists in different region of Harappan civilization and archaeozoological, as well as archeological evidences in respect of domestic animals were collected. The faunal material available is probably one of the best sources of information in archaeozoological context. It provides an excellent example of human co-existence with animal in the artifactual remains viz., terracotta animal

figurines, depiction on ceramic and seals etc. The recovered animal bones reveal the existence of terrestrial, aquatic and also of avifauna. These can be grouped as wild and domestic. The wild taxa belonging to larger mammals and reptiles exhibit forest dwelling tendencies, a great bearing on understanding the ecological conditions prevalent around this region in ancient times and also on the potential food resources available to them to supplement the domestic stock.

The animals of the domestic category viz. zebu (*Bos indicus*), buffalo (*Bublus bublis*), sheep (*Ovis arيس*), goat (*Capra hircus*), pig (*Sus domesticus*), ass (*Equus asinus*), horse (*Equus caballus*), camel (*Camelus dromedaries*), elephant (*Elephas maximus*) and fowl (*Gallus gallus*) have been exploited as some of these were used in term of food economy, some for transport and other for traction. This speaks of the priorities given to the animals in various respects on the basis of selective physical capabilities possessed by them. The artifacts depicting these animals also support this evidence.

At Harappan settlements, cattle (*Bos indicus*) occur in great density and accounts for about 40 to 70 percent of the total animals found. Domestic pig (*Sus domesticus*) outnumbers other animals as the statistical analysis by Singh has revealed that domestic pig played a dominant role in the food economy at Mohenjodaro, followed by cattle, sheep and fowl. Due to the presence of juvenile individuals of cattle and excessive use of pig at Mohenjodaro it has been postulated that probably animal husbandry practices were quite inadequate and immediate requirement for food were

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3Singh, B. P., (1983), Pattern of Faunal Exploitation in Harappa Culture: Dietary and Other Implications, *Annual conference of the ISQUS and Archaeological Survey of India*, p.74
fulfilled by consuming meat. In addition, various corvine kinds also supplemented their diet by affording exploitation of their secondary products. The cattle bones are represented by jaw fragments, isolated molars and phalanges. Probably, most of the proximal and distal ends of long bones were either consumed or damaged as these do not occur in the collection 4.

The presence of bones of various age groups within the cattle assemblage indicates their optimal food yielding capacity. However, the osteological and dental material also seems to have been dominated by juvenile individuals. This supports the assumption that young ones (most probably males) were slaughtered first, females and a few of the males probably maintained for the purpose of milking, breeding and as draught animals. They were replaced by new stock and consumed as they grew older. Quantitatively, the amount of meat supplied by cattle is of large size and measures ten times greater than that of sheep or a goat of comparable age as postulated by Chaplin 5, and Meadow 6. This great variation in the ratio of quantity of meat might have attracted the Harappans for greater exploitation of cattle than that of sheep or goat.

Milk is one of the important secondary products, containing great dietary values though we have not found any representation of milking of cows. But the depicting of a cow and her calf is a solitary example on Harappan pottery (Pl.3.13). In the painting, a calf is sucking milk of her mother cow. Before milking of the cow firstly the calf was allowed to suck

the milk and then cows were milked. This is an earliest evidence of the consumption of milk. In Harappa, cows were probably kept for their milk and bullocks for drawing plough and cart, threshing and drawing water, while a few bulls would be maintained for breeding, one bull being enough to service all the cow of a village. Such a practice is still prevalent in the villages where only one stud bull is available for the cows of whole village. This bull was either donated by some benevolent person or panchayat arranged the same. Similarly only one he-buffalo was available as stud for the whole village.

The use of the bullock for traction is vividly illustrated by many terracotta models of cart (Pl.6.6 to 6.10) drawn by a pair of bullocks. They would also have been used to draw plough and probably provided the muscle power needed to draw water from well for irrigation. Model yokes have been found at Nausharo. Other uses of cattle included threshing grain and carrying goods as pack animals.

**Social and economic dimension of Harappans:**

On the basis of archaeological and archaeozoological studies, the researcher has classified the Harappan society as directly and indirectly connected with the animal husbandry. On the basis of these sources, we can classify the Harappan social organizations as hunter-gatherers, pastoralists, farmers or agriculturist, fishing communities (Fishermen), Butchers, Transporters or traders, tool maker (Jewellers), priest group, magician and cart makers etc.

Although the Harappan script has not been deciphered, hence we have to depend on the interpretation of the material remains in order to have socio-economic condition of the Harappans. Here in this research work the domestication of animals have been taken as a basis for the reconstruction of
socio-economic fabric of the Harappans. On the basis of this we can postulate various social groups in the society.

**Hunter-gatherers:**

Hunting of wild animals such as antelopes, *nilgai*, chital, wild pig, wolf, jackal, jungle cat, gaur, hare, blackbuck, chinkara, sambar, leopard, and tiger was common as observed at several Harappan sites where these animals’ bones have been found. These animals appear to have played an equally important role in the food economy. The Harappans were also fully familiar with the tiger and rhinoceros which they might have hunted as a game. Every Harappan sites yielded 10 to 40 percent wild animal bones. There is no doubt that a hunter-gatherer group also existed in Harappan culture. Many arrow heads and spears were recovered from several Harappan sites and both were the major weapons used for hunting by the Harappans (Pl.6.1 & 6.2).

The hunting equipment found from various excavated sites throw light not only on the economy of the Harappan but also on the social life. It reflects that there was a class of hunters in the society which was otherwise a well settled one. The metal objects lead us to infer that a group specialist classes were there in the Harappan population which were engaged in the identification of the area, where ore are is available, extractors of the ores, metal extractors and the craftsman who made their tools. These metal smiths enjoyed a higher status in the society than the ordinary crafts men. Apart from these transporters of the ore, from field to workshops, finished goods from workshops to market were also there. Shopkeepers or the sellers of these goods also provided a useful link in the trade and contributed in the Harappan economy.

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Environment would have played an important role in regulating the sociology of hunting as practiced by the Harappans. Hunting of a pig or a wild buffalo in tropical jungles could not be an individual affair. Except a concerted attempt made by a number of able-bodies at a time, it is almost impossible to trace and kill a pig or wild buffalo in the virgin tropical rain forest of the region. Hence, to cope with the environmental situation, the Harappans might be lived in groups.

Pl.6.1 Copper arrowheads from Bhirrana (after Rao and others, 2005-06)

Pl.6.2 Copper arrowheads and chisels from Dholavira (after Agarwal, 2007)
When a big wild animal like a pig or a wild buffalo was captured, not only the members of the hunting party shared it, but every member of the community took a portion of the game. Being the most strenuous work, hunting was exclusively the business of the males.

**Pastoralists:**

Pastoral community had been another community or class in Harappan society. A study of the distribution of Harappan settlements shows significant clusters of towns and villages in some region. Pastoralists, and perhaps also hunter-gatherers, moved within these tracts, grazing their animals and providing the vital link that held together the civilization.

Pastoralism involves breeding, raising and managing of domesticated ungulates by members of a human society or we can say that the term “pastoral” is generally used to refer to a group of people who maintain a nomadic lifestyle and keep domestic animals. The main pastoral animals of Harappan people were cattle, sheep, and goat. Pigs might also have been husbanded and included among the pastoral animals.

Focus of this research work, has been on the archaeological and iconographic evidences for pastoralism in Harappan culture. The earliest evidence for pastoralism comes from the site Mehrgarh, which is located at the foot of the Bolan Pass of Baluchistan in eastern Pakistan. Cattle were the predominant animals in the Harappan Culture. This is true for all excavated Harappan sites. The Harappans were well acquainted with the multiple utility of the cattle, and cattle pastoralism was an indispensable

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profession in the Harappan economy. The other domestic animals such as buffalo, sheep, goat and pigs also contributed substantially to the diet of the Harappans. In the subsistence system of the Harappans, the domestic animals contributed more than 80 percent of the animal protein. The remaining 20 percent was obtained from the wild animals consisting of the terrestrial, avian and aquatic fauna.

In Harappan periods, pastures received an influx of animals from the adjacent northern highlands during the winter months, but throughout the Harappan period communications between the northern borderlands and the Indus region appear to have been severally limited; so Late Kot Diji inhabitants of the highlands probably took their animals to other pastures, west of the mountains. In summer, from around March to October, the pastures of the Kulli region in southern Baluchistan might have been utilized by Indus pastoralists, though the majority of animals were probably grazed in the summer in eastern Sindh, particularly on the seasonal grasslands of the Tharparkar, Kuchchh, particularly the grassland immediately south of the Great Rann, Saurashtra, and the western Ghaggar region. Winter grazing was available on the Kachi plain, in Sindh, Punjab and Gujarat. The inhabitants of the mountains would thus have spent their summers near home and travelled to seasonal pastures in the winter. In greater Indus region it was the winter months that saw the herders at home and it was the spring and summer when they moved to others pastures, though the distances they had to travel were often quite short\(^\text{10}\).

A few settlements have been found that we can say were directly linked to pastoralists, although they are hard to locate, given their ephemeral

nature. At Nesadi (Valabhi) in Saurashtra, pastoralists dwelt in circular huts with rammed earth floors, occupying the settlement during the winter months. Another probable pastoralists’ campsite, from the Late Harappan period, was uncovered at Oriyo Timo in Gujarat. This site was probably occupied seasonally by a community whose main economic strategy was the herding of cattle, sheep, and goat but who may also have practiced a limited amount of cultivation. No structural remains were found there, with the exception of hearths, and it is, therefore, probable that temporary huts were constructed on arrival each year. Analysis of the cattle and caprine bones show that the animal were killed in the hot season, March to July, indicating the time of year when this camp was occupied.

It is likely that in the Harappan period there were both specialists: pastoralists and farmers who spent part of their year in transhumance. In Mature period, the animals fully belonged to the farmers and could be exploited directly and those who took them to pasture would return seasonally to their place in the settled family. Specialist pastoralists, on the other hand, would have had an elaborate pattern of traditionally established or negotiated relationships with settled farmers whereby milk, dung, and other animal products were exchanged for grain, access to grazing, and perhaps manufactured goods. Settled farmers may have made arrangements with pastoralists whereby the latter took charge of some of the farmers’ livestock during the period when the animals needed to be taken to seasonal pastures away from the settlement. The pastoral practices have been identified from the faunal remains in the early Harappan phase from several

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sites. Hence, pastoral practices continued in the Mature phase and also in the Late Harappan period.

**Agriculturists or Farmers:**

The evidences regarding agriculture in Harappan Culture are constituted by the food grain and fibers and from the potteries, granaries, terracotta toys and ornaments recovered in excavations. The size of the Harappan town itself indicates that it was plough agriculture, with dependence on bullocks for draught. The Harappans cultivated bread wheat, barley, sesame, sorghum, peas, melons, date-palm, and species of mustard, rice, millet and cotton. Actual remains of cereal grains in Harappan Culture have been found at Harappa, Mohenjodaro, Kalibangan, Rohira, Moharana, Daulatpur, Hulas, Surkotada, Rojdi, Orio Timbo, Rangpur and several other sites\(^{12}\).

The only direct evidence of the practices of Harappan agriculture comes from the ploughed field at Kalibangan\(^ {13} \) belonging to the Early Harappan period. The field at Kalibangan was about 140 meters square and had been ploughed in two directions at right angles a practice still used in this region. In modern times, closely special strips, ploughed at right angles to the first furrows are sown with mustard seed. This matches the arrangement in the Kalibangan field (Fig.6.1) where furrow 30 centimeters apart were ploughed first, followed later by furrow 1.9 meters apart and a large number of lignum seeds scattered across it.

\(^{12}\)Singh, R. P., (1990), *Agriculture in Protohistoric India*, pp. 62-80

\(^{13}\)Lal, B. B., (1971), *Perhaps the Earliest ploughed field so far excavated anywhere in world*, *Puratattva*, No. 4, pp. 1-3.
A terracotta model plough was found at Banawali\textsuperscript{14} (Pl. 6.3), giving an idea of the form of the Harappan plough. It had narrow, pointed share to go through the ground surface and a caved shaft by which it was drawn along. It is possible, therefore, that it was small enough to have been drawn by man, though it is more likely that a yoke for a plough team of two oxen

would have been attached to the shaft. The black cotton soil of Gujarat, used for *Kharif* cultivation, also did not require ploughing.

![Pl. 6.3 Terracotta model of a plough from Banawali (after Lal, 1997).](image)

The plough enabled large areas to be cultivated than was possible with hand tools such as digging sticks and hoes and it made use of animal traction, reducing the human effort involved in ground preparation. Ratnagar\(^{15}\) argues that farmers in the Harappan period were likely to have been less interested in achieving high productivity than in ensuring reliability: minimizing the risk rather than maximizing yields. Nevertheless, an increase in agriculture efficiency by using animal labor is likely to have increased productivity and therefore, produced a surplus that enabled some sector of the community to engage in part time or full time non-farming activities such as craft production and trading expeditions. Yields would also be higher if the seeds were carefully sown rather broadcast. The crisscross ploughed furrows at Kalibangan would have required careful showing along the furrow in order to maintain the clear separation between the two crops grown in the field; this suggests that sowing rather than broadcasting was practiced even in Early Indus times.

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\(^{15}\)Ratnagar, S., (2001), *Understanding Harappa Civilization in the Greater Indus Valley*, pp.120-128.
Transporter or Trader:

Transport was one of the significant aspects of land trade and the cultural diffusion which became possible through the living means of riding and traction such as the horse, ass, camel, and may be bull also. Overland transport over short distances might have been bull. Overland transport over short and may be long distance utilized bullock cart (Pl.6.4).

Pl. 6.4 Ox- or water buffalo-drawn cart with driver from Harappa (http://www.harappa.com)

Terracotta models (Pl.6.4) provide a clear picture of the wooden carts with solid wooden wheels that were widely used for land transport over short and long distances. These are virtually identical to those used by modern farmers of the Indus region. Some carts consisted simply of a solid wooden platform above the axle; others had an open frame work. In some cases, the platform might have laid permanent sidepieces but many just had holes into which wooden stakes could be slotted when required to form sides supporting a load. These carts were drawn by oxen or bullocks of which there are also terracotta models. A different style of cart, with a short
chassis, a roof and high sides was probably a vehicle in which people travelled. A small platform in front of the cab provided a seat for its driver\textsuperscript{16}.

The ass being docile and useful in transport and dung etc. is likely to have become an easy target for exploitation by the Harappans. It was used as a pack animal to conduct long distance transport in the western and north-western India\textsuperscript{17}. In modern south Asia, pastoralist play an important role in providing links between settled communities and in transmitting goods from places as they move in their seasonal round. Seasonal movement was an important part of the pastoral economy in Harappan times, and it seems highly probable that people taking their animals through different parts of the Indus realms would have acted as carriers, moving goods from source to consumer and participating in a complex network of connections among pastoral groups from different regions, enabling the produce of one region to be transported to others. In the Harappan times, ass, horse and cattle could transport heavy loads and even sheep could be used as pack animals. While many goods, probably, moved within private transactions, pastoralists might also have been entrusted with the carriage of official consignment of goods by representatives of those in authority\textsuperscript{18}.

**Fishing Communities (Fishermen):**

An important source of food for the Harappan was fish: large numbers of bones have been recovered from several Harappan sites. At Balakot fish provided around half the faunal component of the diet. The faunal remains from the coastal settlement of Balakot and from Harappa, far inland near the

\textsuperscript{18}Ibid.
Ravi river, have been examined in detail, providing a complementary picture of the exploitation of marine and fresh water resources\textsuperscript{19}. The remains from Harappa show that the range of fresh water fish was more restricted than that available from the sea. Here, the main species exploited were four types of catfish, though various types of carp, snakeheads, and spiny eels were also important. The distribution of the remains at Harappa shows that some households consumed large quantities of fish while others ate little. At Nausharo in the Bolan Valley, carp and catfish were also the species of fish caught\textsuperscript{20}.

Pl. 6.5 Copper fish hook from Padri, (Courtesy V. Shinde)  
Pl. 6.6 T.C. Fish figurine from Harappa (http://www.harappa.com)

Nets were the principal fishing device, used on the side channels, and lakes. The bottoms of the nets were weighted down with terra-cotta net sinkers. These nets have been found in many Harappan sites. A sherd of pottery from Harappa depicts a fishing scene, in which a man stands among

fish, holding one or several nets, while along the foot of the scene runs a large net presumably surrounding an area of water in which the fish have been trapped. In early period, simple hooks had been used, but in mature period they were probably responsible for developing the barbed fish hook, which also had a looped end to which the line was fastened. The copper fishhooks have been recovered from Mohenjodaro, Harappa, Rakhigarhi, Lothal, Padri (Pl.6.5) and Chanhudaro etc. According to above mentioned sources, we can confidently say that the fishing profession was well established in Harappan society. A major group of society has adopted this profession.

**Cart Makers:**

Bullock cart played a vital role in the economic life of the Harappan people. Buffaloes and bullocks served as beasts of burden in the plains; it may be that mules and goats were used for the same purpose in the hilly regions. Although the bullock-cart was widely known, its use must have been confined to the plains. In the absence of the actual remains of carts because of the material used for making them, the clay-models and a few examples of copper/bronze models are to be relied upon in order to know the various types of carts in use in those times.

Three main types are reconstructed with the help of the toy-wheels and cart frames discovered from Lothal\textsuperscript{21}. The first type has a solid chassis which is concave or flat. The second and third types have a perforated chassis, but the latter has, in addition, a detachable cross-bar. On one such chassis, wooden pots are fixed to form a box-like frame. Even now, the carts in Gujarat and Rajasthan carry such frames formed by interlacing ropes for carrying huge quantities of light goods.

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We have varieties of terracotta toy cart models recovered from large cities and towns of Harappan Culture like Harappa, Mohenjodaro and several excavated sites\(^{22}\). Besides, a few copper / bronze miniature carts have been reported from Harappa, Chanhudaro and Daimabad.

Early to Late phase of Harappan civilization witnessed a full-fledged toy cart and wheel models (Pl.6.7 to 6.9) and (fig. 6.3). Many toy cart frames and wheel models have been recovered from Rakhigarhi\(^{23}\). In this context, it is interesting to note that at Banawali, an Early Harappan pot sherd decorated with a “canopied cart with spoked wheels” in black painting\(^{24}\) has been found. We have terracotta toy wheel models of a solid variety of the Early Harappan period from sites such as Kalibangan, Bhirrana, Rakhigarhi, Gumla, Rehman Dheri\(^{25}\).

A large numbers of toy cart frame and wheel models have been recovered almost from every Harappan site. Terracotta models provide a clear picture of the wooden carts (or may be frame with metal) with solid wooden wheels that were widely used for land transport over short and long distances. There is no doubt that a group or a class existed which made their carts.

Pl. 6.7 Toy carts from Nausharo, wooden pegs restore. (after Kenoyer 2009:)

Pl. 6.8 Terracotta toy cart from Mohajodaro (http://www.harappa.com).
Information on wheeled vehicles is scanty. However, solid terracotta model wheel often with single sides protruding hub (Pl.6.10 A&B), terracotta toy-cart frames and bull figurines may indicate that wooden carts with solid wheels were driven by bulls. Toy-cart wheels and cart frames are, however, absent at the hill site of Baluchistan. In the Indus plains cart-frames are found at Kalibangan II\(^{26}\), Sarai Khola II\(^{27}\) early levels of Mohenjodaro Mitathal IIA, and Jalilpur II. Toy-cart Wheels are reported from Mitathal IIA, Jalilpur II\(^{28}\) (Solid wheels with a single or double hub), Sarai Khola II\(^{29}\). Gumla II\(^{30}\) (the hub-less variety) and Kalibangan I\(^{31}\) (Solid wheels).

\(^{26}\) Lal, B. B., (1979), Kalibangan and Indus Civilization, D.P.Agrawal and Dilip chakrabarti (eds.), Essay in Indian Protohistory, p. 89.
\(^{27}\) Halim, M. A., (1972), Excavation at Sarai Khola, Part I, Pakistan Archaeology, No. 7, p.36.
\(^{31}\) Thaper, B. K., (1975), Kalibangan: A Harappan metropolis beyond the Indus Valley, Expedition,17(2) , p.21.
The presence of toy cart frames and wheels help us not only to have idea of actual models but also give an indication that the makers of actual specimen were a class of wood workers. These carpenters were specialists and may have higher social status than the ordinary carpenter who made simple wood product.
Butchers:

Both wild and domestic animals were important sources of food Early to Late Harappan people. Many of the animal bones have been found at every Harappan sites show evidences of cut marks, butchering marks and
charring; indicating human activity on them. There is no doubt the Harappans were used to these animal for food.

Breakage patterns in long bones are being studied to distinguish human activity from scavengers and other biological / or non-biological angles. Breakages were of different types which include longitudinal, irregular, spiral, oblique and mosaic, mainly caused by different angles of forces implied to break the long bones for marrow extraction and also while meat was removed by some sharp edged instruments. The fractures were often found at the end of either of the extremities or sometimes the epiphyses were chopped off. To dismember the body parts, pelvis and vertebrae appear to have been subjected to butchering, which is indicated by different cuts and butchering marks on them. Most of the distal aspect of humeral of cattle and buffalo show the sharp edged instrument’s cut almost at right angle to the horizontal plane of the bones. Possibly the crania were crushed by some blunt instrument\textsuperscript{32}.

The cut marks, specially the cuts made for extraction of marrow etc. indicate ordinary butcher along with the specialist butchers were classes of people in Harappan society.

**Ivory and Bone Craftsmen (Jewellers):**

The archaeologists have unearthed a large number of objects made of ivory, shell and bones of animals. These include weapons, ornaments and decorative objects. Even poorly preserved and fragmented relics may lead to, at least, a partial reconstruction of the history of animals reared by Harappan people or those which were their beasts. The making of bone and ivory objects required sharper tools and high skills which go a long way to

Pl. 6.11 Ivory ornaments from Mohenjodaro (after Agrawal 2007).

Pl. 6.12 Bone points from Farmana (Courtesy Akinori Uesugi)

Pl. 6.13 Bone tools from Bhirrana (after Rao, 2005)
prove the high efficiency achieved by the craftsmen. It appears that these objects were mostly used by the people of rich classes as these were costly objects on account of the labour and skill involved in them.

Many artisans may have practiced their craft on full time specialists. There artisans lived in towns and cities, and many of them were highly skilled individuals producing special products like bone’s tools as well as ivory ornaments and tools also. Bone and ivory tools (Pl.6.12-13) and ornaments (Pl.6.11) are known from almost all Harappan sites.

The Harappan must have used tools and ornamental objects made of ivory, shell, bone and horn. Many evidences of ivory-working at several Harappan sites, such as Mohenjodaro and Lothal, are rich for ivory objects. The objects of toiletry produced in this material comprise combs, hairpins, antimony rods, mirror-handles etc. other objects included ear-ornaments, gamesmen bead, a few knives for sophisticated use, a couple of seals and scales. A scale found at Lothal is of great interest. Though damaged, it shows at least thirty divisions. Rao refers to something rather unusual: small tapering rods of ivory on which stains of red ochre are seen at the tip have been used for decorating lips or nail-tips. The ivory carving workshops, in a number of Harappan sites were probably associated with craft items and other items were obtained through trade.

Bones were used for many artifacts of everyday use, such as handles for metal and flit tools, weaving equipments, beads, tools for smoothing and decorating pottery, awls, needles, and many other small objects. Unmodified bones were probably used as soft hammers for flint knapping. Horn and

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antler may have been used in similar ways, and antlers were also employed as picks or punches. The distal extremities of rhinoceros’ limb bones were found both at Kuntasi and Shikarpur, but were probably not included in the diet of the inhabitants. These bones might have been collected as curios objects or for making stronger bones tools. There is no doubt as to the above mentioned sources and we can say that the graphs of Harappan people existed in the society which made these tools and ornamental objects.

Excavations at Surkotada have yielded a number of objects made from bones and ivory. It appears that the ivory industry was a flourishing one in period IC as revealed by the find of a huge elephant tusk. These objects are of the categories as shown in table 6.1.

Table 6.1 Period wise distribution of bone and ivory objects from Surkotada.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Object</th>
<th>In number</th>
<th>Material</th>
<th>Periods IA,IB &amp; IC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Kohl-sticks</td>
<td>12</td>
<td>Ivory &amp; bone</td>
<td>6 4 2</td>
</tr>
<tr>
<td>2.</td>
<td>Stylus</td>
<td>6</td>
<td>Ivory &amp; bone</td>
<td>3 2 1</td>
</tr>
<tr>
<td>3.</td>
<td>Comb</td>
<td>1(broken)</td>
<td>Ivory</td>
<td>----- ----- 1</td>
</tr>
<tr>
<td>4.</td>
<td>Pendant</td>
<td>1</td>
<td>Ivory</td>
<td>1 ----- -----</td>
</tr>
<tr>
<td>5.</td>
<td>Polishers</td>
<td>11</td>
<td>Ivory &amp; bone</td>
<td>5 2 4</td>
</tr>
</tbody>
</table>

In Kalibangam excavations have yielded very few bone and ivory objects from early Harappan levels (in table 6.2).

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Table 6.2 Bone and ivory objects from early Harappan level at Kalibangan.

<table>
<thead>
<tr>
<th>Sr. no.</th>
<th>Object</th>
<th>Period</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Stylus</td>
<td>Period - I</td>
<td>Bone</td>
</tr>
<tr>
<td>2.</td>
<td>Wheels with hub</td>
<td>Period –I</td>
<td>Ivory</td>
</tr>
<tr>
<td>3.</td>
<td>Spatula</td>
<td>Period –I</td>
<td>Ivory</td>
</tr>
</tbody>
</table>

The jewellery of the Harappan people both the Metropolitan and Provincial towns consisted of fillets, ribbons, brooches and hairpins, ear and nose ornaments, necklaces and pendants, armlets, bracelets and bangles, finger ring and girdles. Bangles, with etched designs, are a specialty of Harappan jewellery in most of the sites. The large variety of Jewellery suggests that there must have been a good number of workshop and shops to make sell ornaments, which constituted an important item of trade as well outside the Harappan Empire.\(^{36}\)

Combs: Ivory combs seem to have caught the fancy of man at a very early stage of human civilization.\(^{37}\) The use of ivory for making combs was in fact very common. Many examples have been found from several Harappan sites (fig.6.4). The circular motifs are commonly found on Harappan combs.\(^{38}\)

Hairpin: The attractive hair-do of the Mohenjodaro bronze dancing girl\textsuperscript{39} makes it evident that women of those days were found of arranging and stylizing their hair. Not only women but men also used hair-pins.\textsuperscript{40} It is quite likely that the Harappan were using hair-pins mostly made of ivory. Such pins have been found in excavations from various Harappan sites. Mohenjodaro alone has yielded twelve such pins.\textsuperscript{41}

Kohl-stick: The Harappan seems to have been using Kohl also, as is evident from the discovery of Kohl-sticks at Harappa\textsuperscript{42}, Lothal\textsuperscript{43}. Generally these are cylindrical but a few examples are found rectangular in section. In most of the cases, they taper a little at both ends, which are fairly thick and rounded, but sometimes only end is finished, the other being left rough.

Handles: The ivory was also used for making handles of various utilitarian objects, such as, mirrors, knives etc. Two such objects have been discovered from Mohenjodaro\textsuperscript{44} and two from Harappa\textsuperscript{45}.

\textsuperscript{40}Ibid, Pl. XLIC, 6.
\textsuperscript{45}Vats, M. S., (1940), \textit{Excavation at Harappa}, Vol.II, Pl.CXIX, No.10.
**Hooks:** It is surprising to note the extent of the everyday use of ivory in life of the Harappan peoples. Even the hooks to fasten boxes were made of ivory\(^{46}\). There were usually about 7.5 cm long with an oval head about 1.25 cm in section, and the stem tapering from 2.45 cm diameter down to 1.25 cm at the end\(^{47}\). The top of the head was slightly rounded and the other end cut square with the sides.

**Seals:** Many seals have been unearthed from the various Harappan sites which are square or rectangular and are made mostly of steatite, but some ivory seals have also been recovered. In fact, from the point of view of art, they are the best creation of Harappan artists. Ivory seals, five of which were discovered by Marshall\(^{48}\) are somewhat different from their steatite counterparts. They are cylindrical in shape and bear only inscriptions.

**Scales:** A few examples of ivory scales have been discovered. The Lothal ivory scale is 15mm broad and 6 mm thick, the available length being 128 mm and 27 lines are visible in a length of 46 mm, the average distance between two lines being 1.7 mm.\(^{49}\)

Besides these objects, a number of other unidentified objects have also been recovered from various Harappan sites.

**Bone craft:** In the economic activity of Harappan people, a remarkably important part was played by bone as a material for tools, weapons, ornaments and in the manufacture of objects of representational art. Bone awls and needle have been found at Mohenjodaro\(^{50}\), Chanhudaro\(^{51}\), Harappa\(^{52}\) and Lothal\(^{53}\).

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\(^{51}\) Mackey, E. J. H., (1943), *Chanhudaro Excavations 1935-36*, p. 234, Pl. XII, Nos. 28&32.

\(^{52}\) Ibid, p. 459, Pl. CXIX, Nos.26&28.

Shell Craft: The shell was largely used to inlay beads and ornaments of various kinds by Harappans. A number of shell objects have been recovered from various Harappan sites but beads and bangles are common.

Thus we see that bone, ivory and shell were in use for ornamental purpose as well as for making various small utilitarian objects. Bones must have been easily obtainable in the locality, and ivory was rarely available. Shells of many kinds and in large quantities were imported from the coastal regions to other places.

Thus we can reconstruct that bone and ivory workers were important component of Harappan society and they cater to the needs of highly sophisticate clients. These provide item with combs, pins, pendants and other ornamental goods highly special of them were employed for cutting the ivory seals etc. 

Excavations at Surkotada have brought to light a distinct bone tool hitherto not reported from any other Harappan site. A wide range of tools have been recovered from lowest to the upper levels. Bones tools from Surkotada can be broadly classified into three categories according to their use i.e., Hunting tools; Domestic tools; Digging tools (Table 6.3).

Table 6.3 details of bone tools’ name and period wise distribution from Surkotada54.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Tools name</th>
<th>Period</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>IA</td>
<td>IB</td>
</tr>
<tr>
<td>1.</td>
<td>Spearhead</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>2.</td>
<td>Points</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>Burnishes</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>4.</td>
<td>Burin, Bores or Awl</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Bone tools from Bhagwanpura are mostly common tools: as point scrapers and pieces-cum-scrapers\(^{55}\).

Table 6.4 Bones and ivory beads from Lothal period wise distribution given below\(^{56}\).

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Material</th>
<th>Period (A)</th>
<th>Period (B)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Bones</td>
<td>--</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>Ivory</td>
<td>1</td>
<td>--</td>
<td>1</td>
</tr>
</tbody>
</table>

One ivory barrel bead with criss-cross incised grooves is an interesting type\(^{57}\). A similar one is reported from Harappan\(^{58}\) three beads have been recorded at Lothal from period B\(^{59}\).

From Lothal some bones tools or objects are recorded such as the arrow-head, awl, needle, antimony-rods, weaver’s scrapes and spatula\(^{60}\). Harappan used ivory in a different view, its local use was limited to few kohl rods, gamesmen, jar stoppers and ceremonial knives. The most interesting ivory found at Lothal is the scale. A solitary ivory seal is also found\(^{61}\).


\(^{57}\)Ibid, Pl. 129, 30 p. 584.

\(^{58}\)Vats, M. S., (1940), Op. Cit., p.408.


\(^{60}\)Ibid, p. 624.

\(^{61}\)Ibid, p. 626.
The Bhagwanpura excavation has yielded about one hundred and fourteen objects made of bone and ivory. Almost these eight nine belong to Sub-period IB and remaining are from uncertified levels. Not a single object could be collected from sub-period IA. The objects are: awls, knitting needles, bangles, spatulas, pendant and styli also. The number of styli have been large than other objects. All the objects have well smoothened polished surface\textsuperscript{62}.

These awls, needles, stylus etc. were used for sewing and knitting purpose. Ordinary folks in their houses and specialized workers used them in their small workshops. Thus these indicate the presence of not only specialized crafts but also craftsman who made them and also these who used them.

**Priest Groups:**

Many a time a question occurs as to ‘why the animal representation outnumbered the human imagery, whether in terracotta figurines, painting on pottery and engraving on seals and sealings? Animal worship was prominent and their representation on seals, particularly those which were the important documents in trade and transactions, carried the animal figures in an innovative manner. Thus the seals provide us the evidence of animal worship. Among all the animal engravings, the unicorn, the humpless bull and composite animal form occupy special place. Harappan people loved animals and their qualities. They have expressed their concern over them by using so many varieties of animals in art. Representation of animals and

their majestic stance evoking admiration and respect suggest that the Harappans held them in great reverence\textsuperscript{63}.

The most quoted seal is the one showing a figure seated on a legged dais (Chaulki) and surrounding by animals (Pl.6.14 and fig.6.6). The legs of the figure are folded and drawn in such a way that the juxtaposed heels touch the part of the body below the genital. The figure appears to have three faces, a frontal and two sides ones, though the depiction is such that one cannot be too sure of these faces. On the head there is a gear consisting of two horns of a buffalo and a central bunch of feathers. Surrounding the figure there are, beginning from the right and in anti-clockwise manner, a buffalo, a rhinoceros, a man, fine characters of the Indian script, an elephant, a man and a tiger. Below the dais there appears to be two dear, one of which is damaged. By most writers, beginning with Marshall\textsuperscript{64} the figure has been taken to represent a Proto-Siva in his lord-of-Beast (Paśupati) aspect\textsuperscript{65}.

![Image](image1.png)  
![Image](image2.png)

Pl.6.14 and fig. 6.6 depicting a seated figure surrounded by animals, on seal impression from Mohenjodaro believed to be Siva in the form of Pasupati (after Lal, 1997)


\textsuperscript{64}Marshall, J., (1931), \textit{Mohenjodaro and the Indus Civilization}, Vol.3, p. 51-52

\textsuperscript{65}\textit{Ibid}, pp. 48-78. Seal No.420.
Commenting on Marshall’s Proto-Sīva or Paśupati Possehl gives four reasons for this identification. In the first place, the figure has three faces and Sīva was portrayed with three as well as with the more usual five faces and there are abundant of examples to prove it. Secondly, the head is crowned with the horns of a bull in the form of a Triśula, and both the bull and the triśula are characteristic emblems of Sīva. Thirdly, the figure is in a typical yoga attitude, and Sīva was and still is, regarded as the Mahayogi, the prince of Yogies. Fourthly, he is surrounded by animals and Sīva is par excellence the “Lord of Animals”- Paśupati of the wild animals of the jungle and according to the Vedic meaning of the word, paśu is no less than that of domesticated cattle.

Some other scholars dispute Marashall’s position on his Proto Sīva or Paśupati seal. Sullivan disagrees with Marshall on almost every point, including the possible presence of a phallus and the three faces. Sullivan submits that the figure is, in fact, female: There is no phallus and soon.

Srinivasan has two important papers reviewing Proto-Sīva seal. The first is a fine review of the history of the problem. She holds that there are many “non proto-Sīva” images with the horned headdress; the figure is not “three-faced”. Moreover, there are not other tricephalic images in Harappan art; the posture of the yogi is indeterminate; her survey of Rudra in the Vedas indicates this aspect of Paśupati who does not protect wild animal, and Rudra’s predominate trait with respect to all animal is wrath, rather than protection. This compromises the notion that the lord of the Beasts is a protector.

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Hiltebeite’s critique is much like Srinivasan’s but he makes much of the fact that the horns on the central figure are those of a buffalo. Indian tradition is rich in mythology and symbolism concerning *Mahisha*, the Buffalo God. Water buffalo has also been seen to occur in various contexts in the Harappan civilization\(^69\).

There is a clear association between the god and the buffalo based on the headdress. There are clearly buffalo horns in both the sweeping curve and the fact that the artist who carved this seal attempted to indicate the distinctive ribbing of buffalo horns. The importance of buffalo to the Indus people is revealed in two contexts. The number and frequency of the remains of this animal demonstrate its importance to the subsistence economy. Combat between humans and the buffalo is also a part of Indus iconography.

The buffalo horn motif first appears in the Early Harappan-Mature Harappan Transition. The famous pot from Kot Diji is undoubtedly the best and clearest representation of this motif (fig.3.15). From the Mature Harappan at Kalibangam, there is a famous horned figure incised on the broken triangular terracotta cake (fig.6.7). A more recent discovery came from the site of Padri in Saurashtra, where there is a large, complete storage jar with a human figure in a horned headdress\(^70\). The Horns in this case seem to be those of a buffalo, based on the ribbing that the artist has portrayed. The Padri figure is flanked by a motif that is more plantlike, but retains the ribbing of the buffalo horn. This is important documentation of the fact that these two sweeping motifs, one animal and the other plant, might travel together and be combined on a single object.

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There are some other seals which seem to throw light on the religious beliefs of the Harappan. Thus, for some examples, some seals show composite animals: the body of tiger, the horns and face of bull, the trunk of an elephant. If the animals have a totemic value, then the composite animals may represent the merging of clans. Otherwise, the composite animals may have had some mythological significance which, of course, we would not be able to reconstruct until the script is deciphered (Pl. 6.16). On another seal is an animal with the heads. However, on the bases of horns one may even regard these three different animals: the one looking downwards may be a short horned bull, the one looking ahead, a unicorn, while the horn first shooting up and then curving downwards, is not easy to establish. It may be a mythological creature. The composite figure may even signify contemplation on the time with the down-to-earth face signifying the present, the forward-looking one, the future, and the back looking, the past. Then there are some seals wherein a short-bodied individual puts up a fight with two tigers, one on each side. These seem to depict uncommon or extraordinary concepts and may thus have had some sort of the mythological import.

The presence ‘fire-altars’ of the animal sacrifice is another part of the Harappan religion. In Pl.6.15 tablet showing an individual spearing a water buffalo with one foot pressing the head down and one arm holding the tip of a horn. A gharial is depicted above the sacrifice scene and a figure seated in yogic position, wearing a horned headdress, looks on. The horned headdress has a branch with three prongs or leaves emerging from the center.
At Kalibangan, in many of the houses in the Lower Town, a room appears to have been reserved for the fire altars since these were found associated with successive floor-levels in that room, a fire altar was located in a pit measuring 1.25X1m and internally lined with kiln-fired bricks within it there lay bovine bones and antlers indicating some kind of animal-sacrifice. That animal sacrifice was practiced by the Kalibanganities is also suggested by incised drawing on the two side of a flat roughly triangular terracotta cake.  

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Lothal has also yielded evidence of animal sacrifice. In a house of phase-III, there was a low platform over which was identified a mud-bricks enclosure measuring approximately 85X75 cm on plain and low to a depth of about 20 cm. Within it were found charred fragments of the jaw-bones of an animal of the bovine group. The Harappan script has not been deciphered so far. In such a situation, it is very difficult to be sure of any statement that one might make with regard to the above mentioned topic. Nevertheless an attempt can be made to find out the various possibilities by analyzing the material remains such they are.

Studying the evidence from Kalibangan would tend to suggest that there was at least a threefold division amongst the inhabitants.

(i) A priestly class inhabiting the Citadel.
(ii) An agriculturist-cum-merchant class occupying the lower town.
(iii) A workers’ class living outside the two fortified areas.

The Lower Town at Mohenjodaro presents the picture of a well-to-do community which may have been engaged in trade and commerce and also exercised control over agriculture production.
Harappan civilization was the earliest civilization of the world, it exhibited tinge of modernity with a socially well knit, administratively well administered and economically well prospered society which thrived in the Indus-Ghaggar region some four thousand years ago. It was a society divided into three distinct social groups. One group ruled and administered the city whereas the other group was of traders and merchants associated with business activities. The third group consisted of labourers who rendered manual services to the society. This group also included farmers whose occupation was cultivation of crops and domestication of animals. On the basis of archaeozoological evidences, it can be safely conjectured that the people of Harappan civilization cultivated crops of wheat, barley, cotton, vegetables, fruits etc. and domesticated and reared cows, bulls, buffaloes, sheep goats and camels as their primary animals. The artisans of the civilization achieved lofty standards in manufacturing of pottery. Archaeozoological evidences further prove that hunting was not only a means of entertainment but also a means of sustenance as the people of Harappan civilization merchandised the skin, hair and bones of different animals. Further, various objects of weaving and spinning found in archaeological excavations point that the weaving and spinning were the occupations highly adored in the society. Cotton as well as wool was used as fabric.

Most city dwellers appear to have been traders and artisans who lived in well defined neighborhood. Although some houses were larger than others, yet cities of the civilization bear remarkable feature of egalitarianism. All houses had access to water and drainage facilities. As such, all this creates impression of a society with relatively low wealth concentration but well to do living. Social leveling of inhabitations is also clearly discernible
in the personal adornments evidenced by seals representing different groups and strata of the society.

The economy of the Indus civilization was significantly dependent on trade, which was greatly facilitated by major progress made in the field of transportation. The use of wheeled transport was fully in vogue. Big and modernized cities like Harappa and Mohanjodaro are undisputable evidences of the economic prosperity of the people. The bulk of public buildings in the cities seemed to be solely oriented towards economic activities and making the lives of the inhabitants comfortable and luxurious. The municipal town planning with administration placing high priority on hygiene suggest the existence of an advanced and sophisticated urbane culture in region now known as Harappan civilization.

The impressive dockyards, warehouses, brick plate forms, granaries and protective walls are further evidences of sound economy of the society. Harappan agriculture was also a profitable venture as Indus river brought fertile soil to the region from the Himalayas. The civilization flourished, and touched its pinnacle because of rapid progress in all fields of life. Art and craft is another infallible criterion of progress and prosperity of a culture as artistic talent and craftsmanship flourishes in an environment of peace and prosperity. The inhabitations of the region were superb in their art and craft with no parallel in contemporary civilizations. Briefly, it can be concluded that archaeological and archaeozoological evidences have greatly contributed in reconstructing the social and economic life during the time span of Harappan civilization.

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