

## The Role of Domestic Goat in Harappan Economy

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**Abstract:** The domestic goat (*Capra hircus*) was an important livestock species during the Harappan civilization, because the goats provided a good source of meat, milk, and skin for the Harappans. Goats have fulfilled agricultural, economic, cultural, and may be some rituals for the people. The goats have played an important role in the subsistence of the Harappan culture. The artifacts of goats made by Harappan people such as painting on pottery, terracotta and metal figurines and depiction on seals and sealings give a great deal of information about the domestic goat that played an important role in Harappan times. Large scale exploitation of this animal was used as resources in various ways after the cattle from early to late Harappan cultures. A majority of the faunal remains of goats studied has mainly resulted from subsistence related activities where these had been largely exploited for food purposes. In this paper an attempt has been made to assess the role of goats in the economy of the Harappans.

**Keywords:** Animal Husbandry, Archaeo-zoology, Domestic Animals, Domestication, Faunal Remains, Harappan Civilization, Harappan Economy, Harappan Sites, Pastoral Economy, Subsistence Practice

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## INTRODUCTION

One of the most successful and interesting aspects of the evolution in human culture was the beginning of man's relationship with animals and plants in the Mesolithic period that developed into domestication later in the Neolithic period. It was through this process of domestication that a population of animals and plants first became adapted to human care and control. Then their evolutionary process was influenced by humans so as to ensure a secure supply of food and other valuable supplies like wool, teeth, bone and skin etc. Both types' archaeological and archaeozoological evidence have been collected of the existence of the goat in the Harappan Civilization. In archaeological evidences fall indirect evidence such as paintings, figurines, and depiction on the seals/sealings etc. whereas the direct evidences include the bone, teeth and horn etc. The bones of goats were collected to the Harappan deposits, have bear butchery marks and burnt in nature. It shows that the Harappans obtained a significant amount of animal protein from goats. The paper focuses on the role of goat exploitation in Harappan times.

## OBJECTIVE AND METHODOLOGY

The objective of this paper is to find out the relationship between Harappan people and domestic/wild goats. The primary focus of this paper is based on the role of goats in Harappan economy.

Goat's skeletal remains are evidence which helps to fill in the natural and economic background in Harappan civilization. The bones of animals consumed as food are among the most ubiquitous of all objects recovered from excavations of almost every Harappan settlement. It is from the study of research on faunal material collected from several excavated Harappan sites that the author can reconstruct the importance of goats in Harappan civilization. The Goat remains, helping in the reconstruction of the history of domestication, food habits of the Harappan in question as well as their food economy and social organization from early to late Harappan cultures. The work is based on the published excavation reports, research papers, articles and basically on faunal research works. In the last few decades, there has been a complete change in the approach to the study of animal bones recovered from archaeological sites. The studies of faunal remains are attracting the researcher growing interest developed in Prehistory and Protohistoric economies.

### **DOMESTICATION OF GOAT (*CAPRA HIRCUS*)**

Defining domestication of animals is a complex issue. The English dictionaries describe - domesticated animals as the ones which tend to remain under control. This approximately means a close relationship between man and animal. Archaeo-zoological evidence indicates that the goat was one of the first animals to be domesticated by man c. 8000 BCE at the dawn of the Neolithic period in the Fertile Crescent (Porter 1996; Pringle 1998). The domestic goat (*Capra hircus*) derives its name from the wild goat or bezoar (*Capra aegagrus*), but other wild species of *Capra* are also called 'wild goats'. Much doubt persists because it is difficult to distinguish between wild and domestic forms. However, there are differences which can be detected if the sample is large or enough in amounts (Mason 1984). Bökönyi suggests that the wild goat was present in those regions of southwest Asian where agriculture was developing and that the goat is an extremely hardy animal which could withstand the rigours of being 'reduced to the state of domestication (Bökönyi 1974).

The history of domestication of animals in Indian subcontinent goes as far back as c. 7000-6000 BCE from the Mesolithic cultural phases at Bagor site Bhilwara district in Rajasthan (Mishra 1973: 92-100) and Adamgarh site Hoshangabad district in Madhya Pradesh (Joshi and Khare 1966: 90-5). At Bagor site the faunal remains of sheep/goat have been identified as the principal domestic animals (Thomas: 1977). The sheep/goats are found in fully domestication form from the Neolithic sites at Koldihwa and Mahagara (Sharma 1985: 369-71). During the Protohistoric period the evidence of domestication of goats has been found at Mehrgarh and Kile Ghul Mohammad in Quetta region (Pakistan). Bones of domestic and wild goats have been found at almost all the Harappan sites (Table 1).

The faunal assemblages of the Harappan culture have been analysed since 1931. The excavations have revealed a wide spectrum of domestic animal species during Harappan civilisation. About 70 to 80 percent of the faunal assemblage of Harappan sites belong to domestic animals. After domestic cattle, the second largest group of important animals was domestic goats or sheep (chart 2) which have been identified from almost all the Harappan sites (Table 1). Generally, the bones of goats accounted from Harappan sites are about 10-25 percent in the total faunal remains (Chart 1). In the 1930s, Prashad described 43 bone fragments and 11 teeth of goat from Harappa (Prashad 1936: 9, 48-9). The faunal remains of domestic or wild goats were collected from almost all Harappan deposits (see table 1). At Shikarpur and Kuntasi, compared to sheep, more goat remains were found. Probably, it is befitting to state that sheep is a grazer, and goat a browser, and the latter is more adapted to different environment conditions (Thomas 2002: 409-20). Goat (*Capra hircus*) was identified by fragments from its maxilla, mandible, teeth, astragalus, scapula, phalanges, metapodials and was found in all the

periods of Bhirrana Some of the bones of both sheep and goat show charring and unfused condition indicating young individuals (Deshpande-Mukherjee et al. :256).

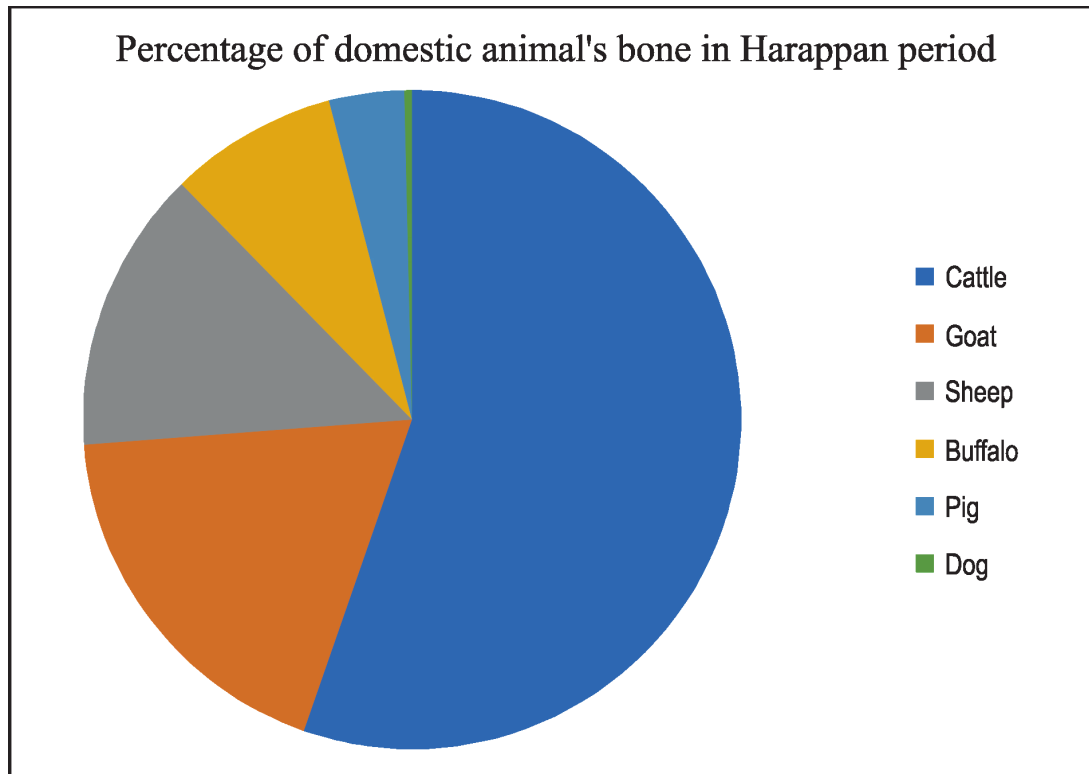
**Table 1: Important domestic animals found from various Harappan sites (after Kumar 2014:109)**

<i>Harappan Sites</i>	<i>Dog</i>	<i>Goat</i>	<i>Sheep</i>	<i>Cattle</i>	<i>Pig</i>	<i>Buffalo</i>	<i>References</i>
Mehragrah	P	P	P	P	P	?	Meadow, R. H. 1981
Balakot	?	P	P	P	?	p	Meadow, R. H. 1979
Mohenjodaro	P		P	P	P	P	Sewell R. B. S and Guha, B. S. 1931
Harappa	P	P	P	P	P	P	Prashad, B. 1936
Chanhudaro		P	P	P	P		Mackay, E. J. H. (1943),
Kot Diji		P		P	P		Khan, F. A. 1965
Amri		P	P	P	P		Casal, J. M. 1964
Bhagwanpura	P	P	P	P		P	Sharma, A. K. 1993
Ropar	P	P	P	P	P	P	Nath, B. 1968
Bara		P	P	P	P		Nath, B. 1968
Kalibangan	P	P	P	P	P	P	Deshpande-Mukherjee, A. 2010
Bhirrana	P	P	P	P	P	P	Deshpande-Mukherjee, A. 2010
Farmana		P	?	P	P		
Tarkhane wala-Dera		P	P	P			Deshpande Mukherjee, A. 2009
Rakhigarhi		P	P	P	P	P	Uparathana, R. U. 2011
Lothal	P	P	P	P	P	P	Nath, B. 1985
Surkotada	P	P	P	P	P		Sharma, A. K. 1993
Rangpur	P	P	P	P	P	P	Nath, B. 1962-63
Shikarpur	P	P	P	P	P	P	Thomas, P. K. et al. 1995
Kuntasi	P	P	P	P	P	P	Thomas, P. K. 1996
Padri		P	P	P	P	P	Thomas, P. K and P. P. Joglekar, 1993-94
Kanmer	P	P	P	P	P	P	Goyal, P. and P. P. Joglekar, 2008
Rojdi	P	P	P	P	P	P	Kane, V. S. 1989
Nagheswar	P	P	P	P	P	P	Shah, D. R. and K. K. Bhan, 1990
OriyoTimbo		P	P	P	P	P	Rissman, P. C and Y. M. Chitalwala, 1990
Dholavira		P	P	P	?	P	Roy, A. 1993
Alamgirpur	P	P	P	P	P	P	Nath, B. and M. K. Biswas, 1969

## GOAT MOTIFS ON POTTERY AND IN OTHER FORMS

The animal motifs were very popular Harappan cultures. The paintings of goats have been found on various types of ceramics. It is very difficult to identify the motifs belonging to wild or domestic form of animals. Goat's motifs on pottery have been found from various Harappan sites. These have been discussed here site wise.

Mehrgarh has provided some good examples of goat motifs on pottery. In figure 1: below the horizontal band is found a beautiful goat motif in standing posture filled with the colour. The legs, horns, tail, mouth and other body parts of the goat have been drawn very carefully. The earliest representation of the goat motifs in friezes are recovered from Mehrgarh III (figure 2&3) in the early



**Chart 1: Percentage of domestic animal's bone in Harappan period**

Harappan level c. 3500 BCE. Goat motifs are found stylized and occur in series with different types of geometrical symbols (Jarrige 1981: 81-2).



**Figure 1**



**Figure 2**



**Figure 3**

From Kulli and Mehi highly stylized depictions of bull and goat motifs (figure 4&5) were noticed. The figures deemed to be of goats, or may also represent of ibexes. Ibex or goat motifs have been noticed from Kulli (Kumar 2014: 37-8 and Satyawadi, 1994).



Figure 4 (after Satyawadi, 1994)

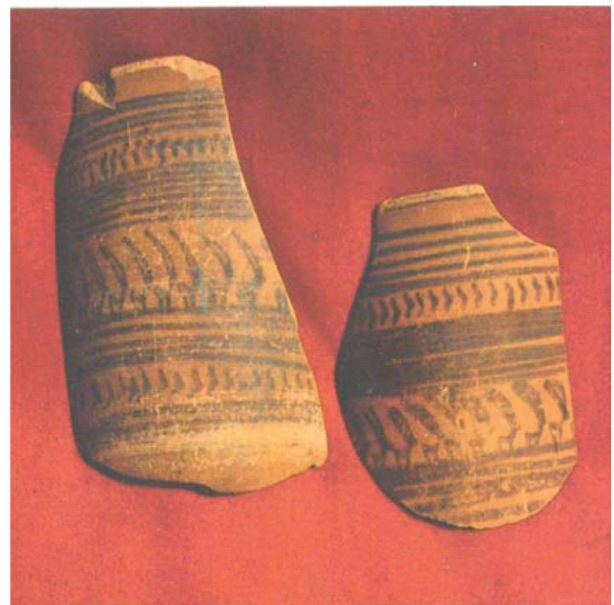


Figure 5 (after Satyawadi, 1994)

At Mehi goat motifs are in stylized form, and generally represented in friezes (Figure 6). In figure-7 ibex or goat motifs have been recovered from Kulli (Kumar 2014: 37-8).



Figure 6

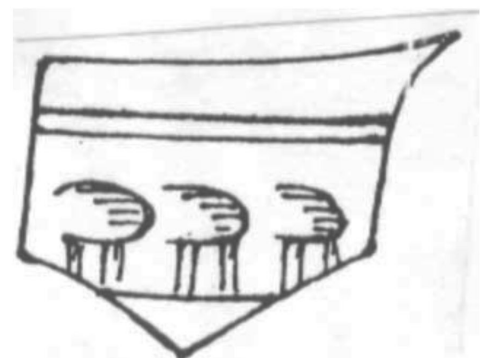


Figure 7

The goat motifs are noticed on Kot Dijian pottery. In figure 8, a beautiful goat motif is depicted on a pot-sherd. Its tail is stylized and mouth, horns, ears, neck, and one eye are carefully drawn by the potter. On another pot-sherd in figure 9 a goat motif is found. The behind legs, tail and body part is visible but neck and mouth are missing (Kumar 2014:40).



Figure 8

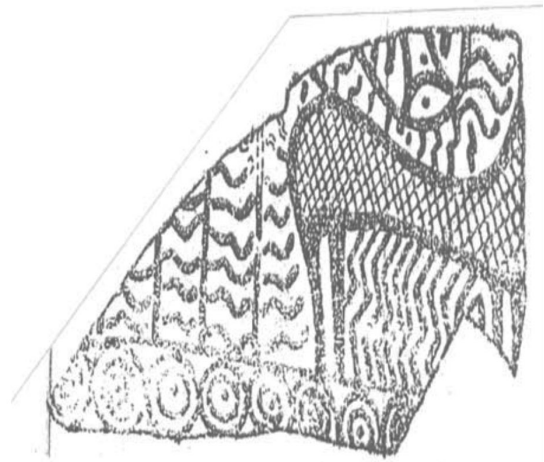


Figure 9

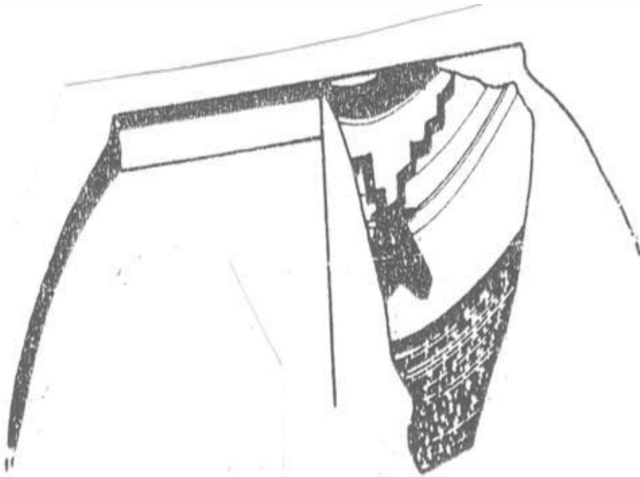


Figure 10

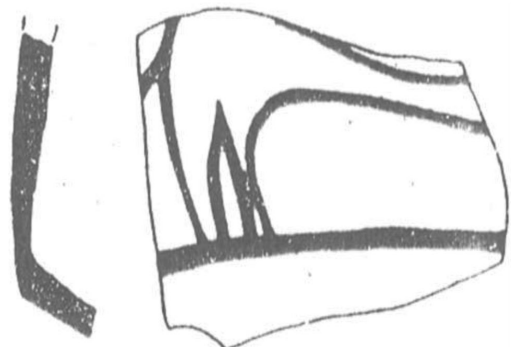


Figure 11

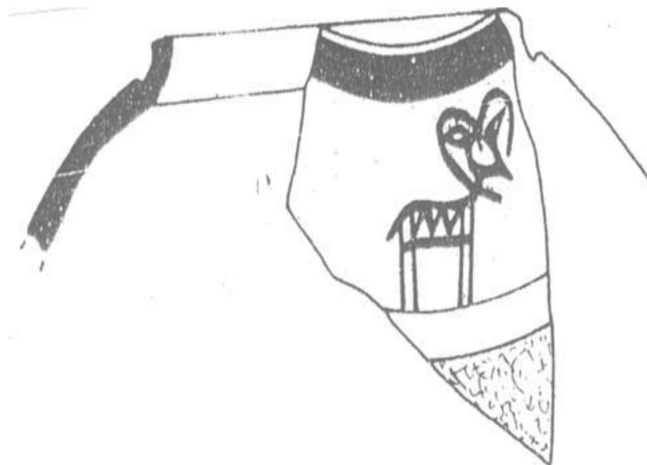


Figure 12

In figure 10, only the face and neck of the goat have been found from Rehman Dehri. The other parts of body of goat are missing. Both horns are drawn in wavy lines, but these horns are in stylized form similar to deer horns leading to doubt as to whether it is a goat or a deer. In figure 11 a goat motif is there on a pot-herd from Rehman Dehri. In figure 12 on a jar pottery is painted a mountain goat with a short tail, horns curved to the side and body decorated with hatched triangles (Kumar 2014: 40-4).



Figure 13

In figure 13 a beautiful goat motif is drawn on Amri pottery between two scorpions. Amri in Sindh (Pakistan) is an important site because of the presence of both early and mature Harappan levels (Kumar 2014; 45-6).

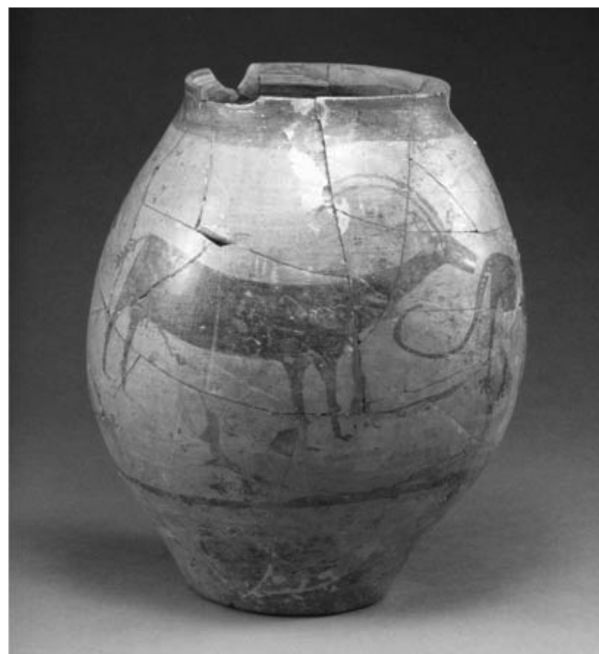


Figure 14

In Figure 14, a complete goat motif is drawn by Amri potter on a big pot. The horns are curved behind the body portion and the whole body is filled with black colour.

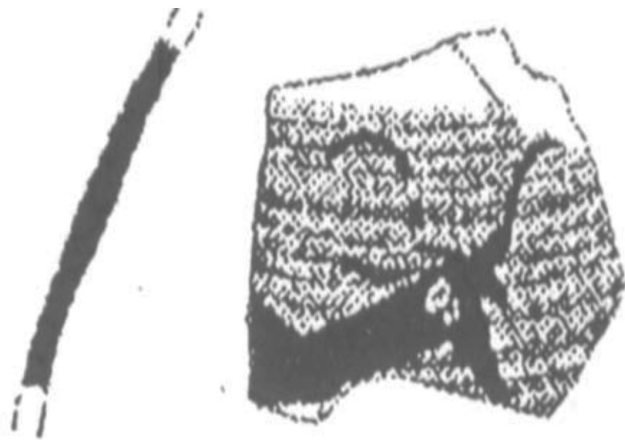


Figure 15

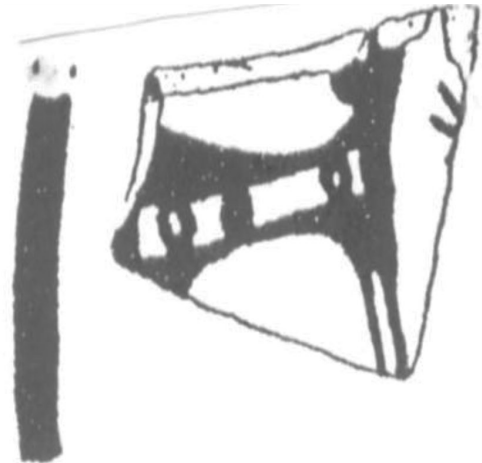


Figure 16

In figure 15, only the face and neck of the goat have been found. The ears of goats are conspicuous as one is small and the second is long on the neck. The horns are long, out curved, pointed and are very carefully drawn. The eye of the goat is drawn in the form of a black dot enclosed within a white circle. On another pot-sherd a figure of a goat is found as appearing in figure 16. The horns of the goat are drawn roughly. The goat figure is showing it in a standing posture, looking back. The forelegs are clearly seen but the hind portion has not been found (Kumar; 2014: 51). The black and red pottery from Surkotada bears the representation of cattle, goats and wild animals. All these examples are reported from period I A (Harappan Period) (Joshi 1990:393-401). In figure 17, a goat or stag is found surrounded by birds, snakes and other floral motifs. The horns of the animal are very long in straight position, ears are small and the tail of this animal is stylized just like in *trishul*. The body of the animal is filled in with cross hatching. Here some other small animal is drawn under his neck.

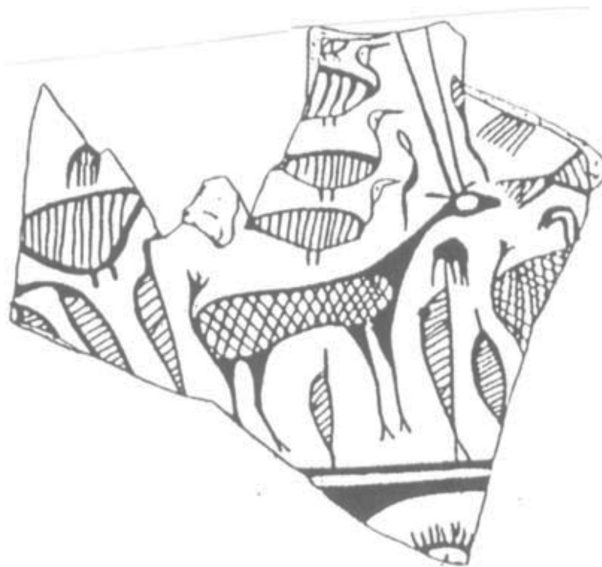


Figure 17

The domestic animal motifs are represented from Early to Late Harappa phases. In figure 18 and 19), goat or deer, birds, floral and a lady with child motifs have been found on Harappa pot-sherds (Kumar: 2014: 56 and Satyawadi 1994).





Figure 18



Figure 19

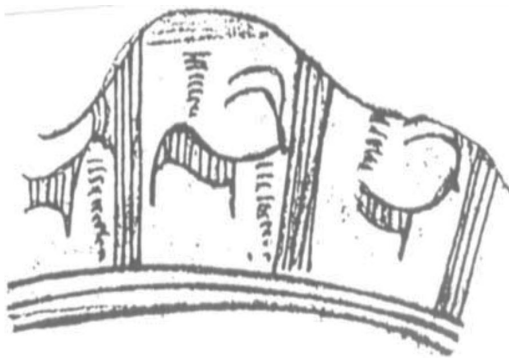


Figure 20



Figure 21

In figure- 20 and 21 three cattle motifs have been drawn in a row. Forelegs and Behind legs stand drawn composedly and horns curved on the body. (Nandgopal 2006).



Figure 22



Figure 23

In figure- 22 and 23, a complete figure of a goat is found surrounded by a leaf and tree motifs. On the back of the goat, a smaller one is seen. On the goat, a jackal-like animal is drawn. The body of the goat is filled in with cross hatching (Kumar: 2014: 58 and Satyawadi 1994).



Figure 24



Figure 25

On pot-shoulder figure 24 and 25 (Satyawadi 1994) is seen a representation of the Ibex or goat with long curling horns. In front of the animal may be an endeavour to represent a hill in the animal's natural habitat; it seems too crude in shape for a plant or bush. One such sherd has a beautiful two goat motifs (figure 26) from Baror (Sant, 2005: 50-55).



Figure 26

The goat remains were collected in different forms such as form of figurine made of various materials and depiction on seal and sealings. A terracotta goat figurine was collected from Harappa (Vats 1940: 330-31). The bronze goat figurines were found from the upper level in Mohenjodaro (Mackay, 1937-38: 292; figure 27 & 28). A number of goat motifs on Harappan seal were reported from Mohenjodaro (Mackay, 1937-38; Joshi and Parpola 1987: L-48), Lothal (Rao 1985; Joshi and Parpola 1987: K-34&37) and two from Kalibangan (Mahadevan 1977:793). Mahadevan has 37 seals with a goat or goat-antelope motif (Mahadevan 1977:77).



Figure 27



Figure 28

## ROLE IN HARAPPAN ECONOMY

In my point of view agriculture and animal husbandry were the backbone of the economy of the civilization. Goats or sheep were raised primarily for meat. While some are slaughtered after they attain their adult weight in their second year, enough older animals are alive to ensure the long-term viability of the herd (Redding 1981). The archaeo-zoologists suggested that examination of the pastoral economy must consider patterns of livestock production that supplied the people of Harappan with the animals that they consumed as food. Agriculture was supported and supplanted by the animal husbandry. The economy of the Harappan civilization was based on domestic animals, particularly on cattle, goat and sheep, and on variable agriculture of rowing cereals, pulses and other plants. Subsistence economy like agriculture was planted with domestic animals which provided meat, milk, wool and raw material for other related industries like shoe making, woolen textile etc. The animals of the domestic category such as bull (*Bos-indicus*), buffalo (*Bubalus bubalis*), sheep (*Ovis arise*), 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. Cattle and buffalo were generally kept for secondary products prior to consumption at advanced age while goats and sheep were kept primarily for meat and consumed at younger ages (Kumar 2014; 174-9).

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, bull and may be goat or sheep also. Kharakwal suggested that the basis of ethnographic study sheep/goat were used for transportation of copper objects from one place to another place during the Harappan times. The *Saukas* (a trading community) were bringing a variety of spices, incense, salt and wool using sheep/goat as a porter (figure 32) to the middle and lower Himalayan zone from Tibet. A special kind of bag popularly known as *karbwaj* used to be tied on the back of the sheep and material weighing more than 5 kg could be loaded on each sheep (figure 29). In fact the *Sauka* traders were collecting a variety of cereals, pulses and other middle Himalayan products in lieu of material they used to bring from Tibet and China. It is also interesting to note that goats or sheep can carry such a load for a very long distance through very difficult geography. Even today in the higher reaches of Kashmir, Himanchal,

Uttarakhand and Nepal sheep are being used for transportation. (Kharakwal 2022). Since goat or sheep is a very common animal even today in semi arid or in arid zones of Rajasthan and south Haryana and its presence is registered way back from Bronze Age, it is therefore likely that sheep may have been used for transporting metal to Harappan sites in Haryana and other places. This appears to be a possible answer to the operation of intra and extra site trade or transportation (Kharakwal 2022). Goat milk and milk products were/are food items of human beings which provide sufficient nutritional supplements especially to the children. The goats can be milked any time of the day and are therefore named as the moving refrigerators. Goat milk is prescribed for children, old and sick people as it is easily digestible and has possible medicinal value.

The meat component of occupants of Kanmer was derived almost exclusively from cattle and sheep/goat. Beef was certainly a much more significant contributor to the diet of the people than mutton (Goyal 2013: 64). The faunal remains of Farmana have been studied by Joglekar and others (Joglekar et al. 2017:106). They have been identified the goats or sheep are the second (after cattle) important contributor to the food economy. A total of 225 bones of the sheep/goats were recovered (Figure 30).



Figure 29: Loaded sheep and goats with karbwaj (after Kharakwal 2022)



Figure 30: Bones of domestic goats from Farmana (after Joglekar 2017)

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

## CONCLUSION

As the Harappan seals and sealings have not yet been deciphered so we have no solid documentary proof of the social and economic life of the Harappan people. The people of the Harappan Civilisation were farmers and herders, with hunting and fishing as their subsidiary practices. The cattle were the most important animal in their lives and may have been their most important source of wealth. The second important group of animals was goats and sheep. The domestic goats have been reported from almost all the Harappan sites. From the number of bones of goats with many instances of chopping marks and charring signs, it seems that they formed an important component of the Harappan food economy and the people possibly used them to supplement their diet with meat and milk derived from these animals. Generally, the bones of goats from Harappan sites are about 8-20 percent (chart-1) in the total faunal assemblage. Goat/sheep was the most important food item in the Harappan economy. It is likely that goats were generally preferred as food rather than for their secondary products e.g. milk and wool, etc. The faunal remains of goat along with terracotta animal figurines, animal depictions on pottery, seals strongly indicate the important role of goat in the economy of the Harappans in the different regions. An important observation about the economy of Harappan was that the reliance on domestic animals was first important for cattle and second with goat/sheep in almost all Harappan regions. The pastoralists supplied the meat for the Harappan residents.

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