

17. Economic activities of the Harappans in the Haryana Region

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Abstract:

The Harappan civilisation was a prosperous civilisation. Its prosperous villages and towns strengthen the view that this tract was very fertile in ancient times. In various parts of many towns and cities, workshops and factories were set up, where skilled craftsmen were engaged in manufacturing various products on large scale. Many Harappans were engaged in these crafts at Mohenjo-Daro, Chanhudaro, Lothal, Surkotda and Kunal. This culture also flourished in the valley between the Yamuna and Sutlej rivers, with the lower Himalayan Shivalik hills enclosing it on the east. This territory corresponds to modern-day Punjab, Haryana and Western Uttar Pradesh in North India. The Harappans were gifted with high talent regarding crafts and industries. Making of pottery, metal vessels, tools and weapons, spinning of cotton and wool, weaving and dyeing, making of ornaments and wooden articles especially implements related to agriculture, bullock carts and boats etc. were important industries of the Harappans. The research integrates

findings from prominent Harappan sites in Haryana, including Kunal, Bhirrana, Banawali, Rakhigarhi, Balu, Farmana and Girawad. By synthesizing data from these sites, a comprehensive picture of the economic life of the Harappans in the region of Haryana will come out.

Additionally, the paper examines the role of craft production, analysing the materials used for pottery, beads, and other artifacts, along with the presence of specialized workshops. The presence of various toys like mini wheels, miniature lids, sling balls, and animal figurines in Rakhigarhi and on other sites indicates a prevalence of toy culture. Beads making was a favourite occupation of the Harappans will be discussed in this paper. This study will contribute to a deeper understanding of the Indus Valley Civilization's economic structure and sheds light on the significance of the Haryana region within the broader network, potentially revealing its role as an agriculture hub, craft production centre, animal husbandry, ceramic industry, and metal Industry.

Keywords: *Harappan, Economic activities, Eastern Domain, Indus Valley Civilisation, Haryana, Punjab.*

Introduction

The Indus Valley Civilization, one of the world's earliest urban cultures, flourished during the Bronze Age (c. 3300–1300 BCE; Mature Phase: 2600–1900 BCE) across the northwestern subcontinent. Its vast domain extended over approximately 1,260,000 km², making it the largest of the ancient civilizations (Possehl, 1999). The core zone of development lay within the Indus River basin, but its influence reached eastward into the Ghaggar–Hakra (ancient Sarasvati–Drishadvati) system and the upper Ganges–Yamuna Doab, westward to the Makran coast of Balochistan, northward to northeastern Afghanistan, and southward to Daimabad in Maharashtra. Within this expanse, more than 2,500 Harappan sites have been identified, including major urban centres such as Harappa, Mohenjo-daro, Dholavira, Ganweriwala, and Rakhigarhi, the last being one of the largest known settlements of the civilization (Joshi, 2008; Possehl, 1999). Nearly 350 sites have been reported along the course of the dried-up Hakra River, a continuation of the Indian Ghaggar, emphasizing the centrality of this riverine system to Harappan settlement and subsistence.

Although the precise trajectory by which the civilization attained urban maturity remains debated, scholars broadly agree that its rise was sustained by agricultural intensification, craft specialization, and an extensive trade network (Lal, 1997). The Harappans developed one of the most expansive trading systems of the ancient world, connecting regions from Mesopotamia to the Iranian plateau, Central Asia, and western India. Indus seals have been discovered in Mesopotamian contexts, while contemporary cuneiform texts refer to trade with Meluhha, widely accepted as the Indus region (Ratnagar, 1981). The existence of port facilities at Lothal and the identification of intermediary trading stations such as Dilmun (Bahrain) and Makan (Makran coast) suggest the use of both maritime and overland routes. Trade goods included copper, gold, silver, gemstones, beads, pottery, textiles, shells, timber, and agricultural products, indicating a highly diversified economy supported by skilled craft industries and long-distance exchange.

Agriculture, however, remained the foundation of Harappan prosperity. Farmers cultivated wheat, barley, millets, pulses, oilseeds, and cotton, sustaining urban populations and supporting craft and trade activity. Complementary industries—such as pottery, metallurgy, textile production, bead-making, carpentry, and

animal husbandry—demonstrate a complex and well-organized economic structure (Kenoyer, 1997; Possehl, 1980).

Within this broader framework, the region of Haryana occupied a distinctive position. Located along the Ghaggar–Drishadvati river system, it offered fertile alluvial soils, abundant water sources, and mineral resources conducive to early agriculture and settlement. The region's palaeochannels—identified with the Sarasvati, Drishadvati, Yamuna, Ghaggar, Markanda, Tangri, and Kaushiki (Kuskiputra) rivers provided both irrigation facilities and access to natural flora and fauna. These environmental advantages encouraged the emergence of a dense network of Early, Mature, and Late Harappan settlements, which played a pivotal role in sustaining the civilization's agrarian and industrial base (Garge, 2012; Parmar et al., 2013).

This paper examines the economic activities of the Harappans in the Haryana region, emphasizing their agricultural practices, animal husbandry, craft industries (especially bead-making and textiles), and trade networks. It aims to highlight the settlement patterns, resource utilization, and cultural depth that underpinned the Harappan economic system in this eastern domain of the Indus Civilization.

AIM AND OBJECTIVE OF THE STUDY

Fresh research work is being undertaken on the Harappan economic activities in the Haryana region with a view to study the below-mentioned aspects, which have not been dealt with in great detail by the previous scholars working in this region in great details

1. To investigate the economic significance of major Harappan sites in Haryana, such as Kunal, Bhirrana, Banawali, Rakhigarhi, Balu, Farmana, and Girawad.
2. To examine the agricultural practices and tools used by the Harappans in the Haryana region, highlighting its potential role as a fertile agrarian hub.
3. To analyse the craft industries, including pottery, bead-making, metallurgy, textile production, and toy manufacturing, with reference to the presence of specialized workshops and materials used.
4. To assess the role of the Haryana region within the eastern domain of the Indus Valley Civilization, focusing on its contributions to the broader economic system in terms of production and trade.
5. To contribute to a deeper understanding of regional economic diversity within the Harappan

Civilization by synthesizing archaeological and cultural data specific to the Haryana zone.

REVIEW OF LITERATURE

The Haryana region, forming the eastern domain of the Indus Civilization (Possehl, 1980, 1999), has emerged as a focal zone of study due to the discovery of numerous settlements exhibiting all cultural phases from the Pre- or Hakra Ware phase to the Late Harappan and Painted Grey Ware stages. However, compared to the core regions of Sindh and Punjab, systematic analyses of the economic aspects of Harappan life in Haryana have remained relatively underexplored until recent decades.

Early explorations by A. Cunningham and B. B. Lal (1950s) initiated the archaeological interest in the Saraswati–Drishadvati valley. Suraj Bhan (1960s–70s) was the first to conduct extensive fieldwork across Haryana, recording numerous Pre-Harappan, Early, and Mature Harappan sites. His doctoral work *Prehistoric Archaeology of the Saraswati and Drishadvati Valley (Haryana)* (unpublished Ph.D., M.S. University, Baroda) and subsequent reports on Mitathal (1968) and Siswal provided foundational data on settlement pattern, ceramic typology, and cultural sequence. These early studies established Haryana as a vital corridor

connecting the Harappan centers of Cholistan and Rajasthan.

The excavation at Banawali by R. S. Bisht (1982) offered a clearer stratigraphic picture of Early and Mature Harappan phases, revealing planned urban layouts, evidence of storage facilities, and craft specialization in pottery and bead-making. The site of Kunal, excavated by J. S. Khatri and M. Acharya (1997, 2004), yielded Pre Harappan, Early Harappan levels with seals, copper implements, silver ornaments, and faunal remains, emphasizing its role as a proto-urban industrial settlement (Khatri & Acharya, *Puratattva*, No. 25). K. N. Dikshit's discussions on the "Origin of the Early Harappan Culture" further positioned Kunal as a key transitional node toward urban Harappan economic complexity.

The site of Balu (Kaithal district) has been a turning point in archaeobotanical research. Arun Kesarwani (2001) and earlier work by Saraswat & Pokharia (2003) identified a broad crop repertoire—including barley, wheat, millets, lentils, peas, and even garlic—revealing a sophisticated multi-cropping system and advanced agricultural management. Savithri (1976) and Vishnu-Mittre & Savithri (1982) demonstrated that such mixed farming was the economic foundation for later Harappan urbanism in the Ghaggar–Hakra basin.

Rakhigarhi, excavated extensively by Amarendra Nath (1998, 1999, 2001) and later by Vasant Shinde et al. (2006–2011), has provided the richest assemblage of economic artifacts in Haryana. Evidence of granaries, terracotta wheels, seals, spindle whorls, copper tools, and agricultural storage units point to a highly organized production and distribution system. Amarendra Nath (2019) later examined Rakhigarhi's textile and tool industries, identifying spindle whorls, loom weights, and copper needles as indicators of an advanced cottage-based textile economy.

Excavations at Farmana (Sonipat district) by V. Shinde, T. Osada, and M. Kumar (2011) yielded a detailed archaeobotanical and zooarchaeological record. Studies by P. P. Joglekar and collaborators documented cattle, buffalo, sheep, goat, and pig remains, as well as evidence for fish and mollusc exploitation, pointing to a pastoral-agricultural economy. Starch grain analyses revealed the use of ginger, turmeric, eggplant, and mango, establishing early culinary and spice usage. These findings situate Farmana as a major agrarian and industrial node, sustaining long-distance cultural and economic ties.

Similarly, Tejas Garge's (2011, 2012, 2014) systematic research in the Chautang Basin emphasized the environmental backdrop of Harappan settlements in Haryana. His work connected the region's

riverine ecology to agricultural productivity and demonstrated how fluctuating hydrology shaped settlement continuity and abandonment. R. C. Thakran (2001) conducted locational analyses showing that most Harappan sites in Haryana were strategically positioned along palaeochannels of the Saraswati–Drishadvati system to maximize agricultural and trade potential.

Excavations at Mitathal, Girawad, Kheri Meham, and Banawali by scholars such as Prabhakar, Garge, and Law (2010) and Parmar et al. (2013) revealed evidence of craft specialization and metallurgy, including copper smelting, chert blade industries, and bead-making workshops. These studies collectively suggest that Haryana's settlements functioned as agrarian-industrial complexes, supplying raw materials and finished goods to larger centers like Rakhigarhi.

Recent interdisciplinary works by Parikh & Petrie (2017) and Singh et al. (2009, 2010) from the Land, Water and Settlement Project have expanded understanding of the urban–rural economic dynamics within northwest India. Their surveys of Masudpur and surrounding villages in Hisar district confirmed a continuum of agricultural and craft production zones feeding the urban network. Sharma & Rajpal (2024) further analyzed copper artifacts in the Haryana region, demonstrating the role of local

metallurgy in sustaining Harappan livelihoods and exchange systems.

Collectively, the corpus of archaeological, archaeobotanical, and zooarchaeological research underscores that the Harappan economy in Haryana was regionally diversified yet deeply integrated within the wider Indus Civilization. The reviewed literature highlights how Haryana acted as a fertile agrarian hub and craft-production center, enabling the economic resilience and spatial expansion of the Harappan world. The present paper builds upon these foundational studies by synthesizing multi-site evidence to present a comprehensive model of Harappan economic organization in the Haryana region.

OVERVIEW OF HARAPPAN SITES IN HARYANA (EASTERN DOMAIN)

The region of Haryana, forming a major part of the eastern domain of the Indus Civilization, holds a distinctive position in the study of early urban and economic development. Strategically located between the Yamuna–Sutlej interfluvium, Haryana encompasses the upper catchments of the Ghaggar–Drishadvati river system, a crucial hydrological network that once supported dense habitation and fertile agricultural tracts.

There are 1177 explored Harappan sites in Haryana alone which can be assigned to the different phases of this civilization in the following manner.

TABLE 1 – HARYANA		
S. NO.	Culture	Number of sites
1	Pre and Early Harappan	241
2	Mature Harappan	96
3	Late Harappan	840
Total		1177

These figures demonstrate the extraordinary density of settlement in the region, particularly during the Late Harappan phase, reflecting both demographic expansion and adaptive resilience to environmental shifts.

The area's geography—marked by wide alluvial plains, ancient river channels, and semi-arid climatic conditions—offered both challenges and opportunities for early settlement and resource utilization (Garge, 2012; Thakran, 2001).

CULTURAL SEQUENCE:

Serial no .	Archaeological site	Latitude	Longitude	Block	Cultural Sequence
1.	Bhirrana	29°32.59.99'N	75°32.59.99'E	Fatehabad	HWC, EH, EMH, MH

2.	Kunal	29°37.3'N	75°39.5'E	Fatehabad	HWC, EH, Transitional towards MH
3.	Burj	29° 39' 18.03" N	75° 38' 24.21" E	Fatehabad	EH, LH PGW
4.	Banawali	29°35'54"N	75°23'31"E	Fatehabad	HWC, EH, MH, LH
5.	Siswal	29°13'"N	75°23'31"E	Hissar	EH, MH
6.	Rakhigarhi	29°17'35"N	76°6'51. "E	Hissar	HWC, EH, MH
7.	Farmana-2	29°02'22" N	76°18'21" E	Sonipat	HWC, EH, LH, PGW
8.	Balu	29° 40' N	76° 22' E	Kaithal	EH, MH, LH
9.	Girawad	29°07'05"N	76°33'20"E	Rohtak	HWC, EH, MH, LH
10.	Kheri Meham	28°58'2.89"N	76°17'31.13"E	Rohtak	HWC, EH, MH
11.	Banawali	29°35'54"N	75°23'31"E	Fatehabad	HWC, EH, MH, LH
12.	Burj	29°38'00"N	75°40'00"E	Fatehabad	HWC, EH, LH, PGW, Hist.
13.	Tigrana	28° 53' 25.9" N	76° 08' 08.8" E	Bhiwani	EH, MH, LH
14.	Mitathal	28°52' 39.9"	76° 11' 10.8"	Bhiwani	EH, MH, LH
15.					
16.	Khanak I, II	28°54'26.5" N	75°52'08.9" E	Tosham	EH, MH, EH, MH, Med.
17.	Jognakhera	29°58'17" N	76°53'14" E	Kurukshetra	LH, PGW
18.	Bhagwanpura	30°04'N	76°57'E	Kurukshetra	LH, PGW
19.	Daulatpur	29°57'33"N	76°56'27" E	Kurukshetra	LH, PGW
20.	Mirzapur	29°58' N	76° 49' S	Kurukshetra	LH, PGW

Palaeochannel studies have confirmed that during the mid-Holocene, the Ghaggar and

its tributaries, including the Chautang, Markanda, Tangri, and Saraswati, were

active and sustained a vibrant riparian landscape (Garge, 2014). These river systems not only supplied perennial water for agriculture but also served as trade and communication routes connecting Haryana's settlements with the core regions of Sindh and Cholistan to the west and with the Ganga–Yamuna plains to the east. The semi-arid ecosystem, characterized by fertile silts and a mosaic of natural vegetation, enabled the growth of diverse crops, grazing grounds, and wild resources essential to Harappan subsistence (Saraswat & Pokharia, 2003).

Archaeological research across Haryana has documented an impressive sequence of settlement growth from Early Harappan (c. 3200–2600 BCE) to Mature Harappan (c. 2600–1900 BCE) and Late Harappan (c. 1900–1500 BCE) phases (Nath, 2017; Singh et al., 2009). More than 400 Harappan and related sites have been identified, many distributed along the palaeo-channels of the Ghaggar–Drishadvati. Major urban and proto-urban centres—Rakhigarhi, Banawali, Bhirrana, Mitathal, Kunal, Balu, Farmana, and Masudpur—represent successive stages of regional adaptation and growth. Smaller rural and satellite settlements such as Girawad, Daulatpur, Siswal, and Tigrana supplied raw materials and agricultural produce to larger centres (Kesarvani, 2001; Parmar et al., 2013).

The archaeological record of Haryana thus provides an exceptional case for examining the interaction between environment and economy. The region's fertile plains supported a mixed agro-pastoral economy, while its proximity to mineral resources of the Aravalli range and trade routes leading to the Makran coast facilitated the development of craft production and commerce. The settlement hierarchy and spatial distribution indicate a well-integrated system where rural surplus and craft specialization sustained urban growth and long-distance trade (Law, 2011; Possehl, 1999).

ECONOMIC CONDITIONS DURING HARAPPANS TIME

The economic structure of the Harappan civilisation was founded on agriculture, pastoralism, and extensive trade networks that facilitated both the procurement of raw materials and the distribution of finished goods across and beyond its territorial limits. Archaeological evidence from Mehrgarh indicates that a subsistence economy rooted in farming had already developed by around 7000 BCE and remained largely stable over time. The Harappans, inheriting this agrarian tradition, refined it through the adoption of systematic irrigation methods. Their mastery in controlling the seasonal inundations of the Indus River enabled them to harness its fertile alluvium for

sustained agricultural productivity (Kenoyer, 1991).

The economic structure of the Harappan Civilization in the Haryana region was characterized by a complex integration of agriculture, animal husbandry, craft specialization, and trade networks. Archaeological and environmental data demonstrate that the region evolved from early rural farming settlements into a dynamic economic landscape supporting proto-urban and urban centres such as Rakhigarhi, Banawali, Bhirrana, Kunal, Farmana, Masudpur, and Mitathal.

AGRICULTURE

Initiation of agriculture was a revolutionary step in human history. Agriculture, which started during the Neolithic period of man's existence on earth was initially for subsistence only, but with the increase in population grew man's needs for more agricultural production requiring the bring more land under cultivation in turn necessitated the use of animal power in agriculture. Indus Valley Civilization was one of the world's oldest civilizations, and one of the most advanced as well, in various fields such as agriculture, urban planning etc. The economy of Indus Valley civilization was based on animal husbandry, arable agriculture and growing cereals, pulses and other plants. As the people of the Indus valley had harnessed the power of irrigation system and water

supply. It allowed the people to provide for themselves and others in a stationary manner and produce crops as per the needs of people, by neglecting the old traditional nomadic ways and using contemporary techniques to satisfy the urban requirement. This is why agriculture was so important to the people of the Indus valley. Agriculture was one of the prime reasons to why the Indus valley civilization was so successful in surviving for so long. Agriculture in the Indus valley was solely dependent on good quality soil and advancements in farming technology.

The Ghaggar Basin was very potent for the surplus production of food grains as it has very thick cover of fertile alluvial soils and the rivers are perennial as they are glacier fed due to their rise from the Siwalik Hills. Even today, this region is considered to be part of an "Agricultural Bowl" of India. A large number of Harappan sites located in the proximity of arable land can be interpreted as agricultural settlements. They are relatively large in size and have considerable thick deposit. However, sites like Rakhigarhi and Farmana, very extensive and under occupation for hundreds of years may have played an important role in the socio-economic organizations of the Harappans.

Excavations at **Balu** (Kaithal district) have yielded extensive archaeobotanical evidence (Kesarwani 2001; Saraswat &

Pokharia 2003). Crops include barley, wheat, rice, green gram, horse gram, lentil, pea, sesame, and Egyptian clover, along with fruits like jujube and melon. The site also provided the earliest record of garlic (*Allium sativum*) in South Asia. Such diversity suggests crop rotation, multi-season farming, and an awareness of plants with medicinal and aromatic value.

Evidence from **Farmana** (Sonipat district), studies by Shinde et al. (2011) identified wheat, barley, pearl millet, gram, garlic, eggplant, ginger, turmeric, and mango, confirmed through starch-grain analysis. The combination of summer and winter crops points to year-round cultivation and adaptation to shifting rainfall patterns. The use of spices like ginger and turmeric reflects culinary sophistication and regional crop diversification.

At **Bhirrana**, charred grains of wheat, barley, and pulses and rice impressions on pottery demonstrate mixed farming and early rice experimentation (Rao 2005–06). Madina produced impressions of wheat and rice husks, with wild plants such as Bathua, indicating gathering alongside cultivation. Faunal remains cattle, buffalo, sheep, goat, pig, and deer confirm the close link between agriculture and animal husbandry. Taken together, Haryana's Harappan sites exhibit a consistent pattern of multi-cropping and mixed farming, combining Southwest Asian cereals with indigenous

millets and pulses. Terracotta bullock carts from Balu and Banawali imply the use of animal traction, while seasonal flooding naturally enriched soil fertility. The Ghaggar basin thus served as a productive agricultural corridor supporting both rural and proto-urban settlements

ANIMAL DOMESTICATION

Animal husbandry formed a cornerstone of the Harappan economy in the Haryana region. Favorable monsoonal climate and fertile plains enabled intensive agriculture and pastoralism to flourish in tandem. Abundant faunal remains from Harappan sites in Haryana attest to extensive livestock rearing. Domestic cattle (*Bos indicus*) and water buffalo (*Bubalus bubalis*) were especially prominent, alongside sheep and goats (*Capra hircus* and *Ovis aries*). Wild herbivores – such as gaur, nilgai (blue bull), blackbuck, spotted deer, and sambar – appear in the faunal record but in much smaller proportions. The prevalence of cattle and other domesticates in both villages and towns suggests a strongly agro-pastoral base to the economy, while wild game provided only a supplementary food source. Cultural evidence reinforces this focus: livestock frequently feature in Harappan material culture (e.g. painted pottery, terracotta figurines, seals), underscoring their economic and symbolic importance. By contrast, representations of wild animals

are relatively rarer, reflecting their more limited role. Archaeozoological studies indicate that domestic animals had been integrated into the regional economy since the earliest phases of occupation. At Bhirrana (Fatehabad District), one of the oldest Harappan sites in Haryana, cattle were already being utilized in the pre-Urban (Hakra/Early Harappan) period. This evidence including ancient *Bos indicus* bones from early levels suggests indigenous cattle domestication or adoption well before the Mature Harappan era (Rao 2005–06). Similar early horizons of animal domestication are documented at other sites in and around Haryana, such as Early Harappan Kunal, Rakhigarhi, and Girawad. For instance, excavations at Rakhigarhi (Hisar District) revealed domestic fauna in during 2600 BCE deposits (Nath 1998), indicating that herding of cattle, sheep and goats was established on the Saraswati plain at the dawn of the Harappan civilization. This continuity of pastoral practices laid the groundwork for the region's later economic prosperity.

By the Mature Harappan (2600–1900 BCE) and Late Harappan periods, faunal assemblages from numerous Haryana sites show a consistent pattern: a core of domestic livestock with only minimal contributions from wild species. For example, excavations at Bhagwanpura (Kurukshetra District) – a prominent Late

Harappan settlement – yielded remains of cattle, water buffalo, sheep, goats and dogs, but notably no domestic pigs. The only wild mammals identified at Bhagwanpura were a few deer (chital) and wild boar, alongside an isolated turtle shell. Based on the paucity of wild game bones, Sharma (1993) infers that Bhagwanpura's inhabitants engaged in little hunting. Rakhigarhi's faunal profile is similar: excavations at locale RGR-6 uncovered predominately domestic species – cattle, buffalo, sheep, goat, and even domestic pig – with only a scattering of wild fauna like nilgai, wild boar, deer, and mongoose. The site of Mitathal (Bhiwani District) likewise demonstrates the same broad spectrum of domestic animals (cattle, buffalo, sheep, goat, pig, dog) accompanied by a limited range of wild herbivores (antelope, deer, wild pig, etc.), confirming that domesticated stock dominated the meat and dairy supply (Channarayapatna 2018). Girawad (Rohtak District), a site spanning the Early and Late Harappan phases, further exemplifies this trend. In the Late Harappan levels at Girawad, the identified fauna include cattle, buffalo, sheep, goat and dog as the principal domesticates, with only a few wild animals present (notably wild pig, four-horned antelope and hare, plus a single wild bird species). A number of bone tools at Girawad made from polished and cut skeletal fragments attest to secondary uses of animal products (e.g. for crafting

implements). Overall, these site-specific profiles highlights that large domestic ungulates were the backbone of the Harappan subsistence economy in Haryana, whereas hunting of wild game was opportunistic at best. Additional evidence from recent excavations reinforces the primacy of animal husbandry. At Farmana (Rohtak District), for instance, zooarchaeologists have identified remains of thirty different taxa, yet the six domesticated species (cattle, buffalo, sheep, goat, pig, and dog) far outnumber the wild taxa. The wild animals at Farmana including antelopes, gazelle, deer, hare, wild pig, etc. – are relatively few and likely represent occasional exploitation of the surrounding savannah and riverine environments. Notably, cattle and buffalo

astragali (ankle bones) on a brick floor may hint at specialized usage or ritual activity involving cattle. Likewise, the faunal study of Madina (Rohtak District) found a comprehensive range of domestic animals (cattle, buffalo, sheep, goat, pig, dog), complemented by only sparse evidence of wild species (bones of deer, antelope, wolf, etc.). In Madina's assemblage, as elsewhere, the ubiquity of livestock remains and the scarcity of wild game remains indicate that hunting was a marginal pursuit, likely undertaken infrequently for supplementary meat or specific ritual/social occasions. In all these cases, archaeozoological analyses (Joglekar 2010; Joglekar & Sharada 2016) conclude that animal management was geared toward maximizing domestic



remains are especially abundant at Farmana, and a deposit of several cattle

production (meat, milk, traction, wool/hide) rather than reliance on wild resources.



Figure 2. Painted terracotta animal figurine, from the excavation of Farmana

Bead-making and craft industry

Beads belong to one of the most popular categories of antiquities from Harappan sites. Evidence of beads occurs in India and across the world since the prehistoric period. In India, beads made of ostrich eggshell were found at Patne from Upper Palaeolithic levels (Sali 1985). Since then, through the proto-historic period till today, a continuous use of beads is observed. Beads of various semi-precious stones, terracotta, metals, bones, and shells became common during different phases of the Harappan period. Almost all major Harappan sites—including Mehrgarh (Jarrige et al. 1995), Harappa (Wheeler 1947; Vats 1974, 1997), Mohenjo-daro

(Marshall 1930, 1973; Mackay 1938), Chanhudaro (Mackay 1943), Kalibangan (Lal et al. 2003), Rangpur (Rao 1962–63), Lothal (Rao 1979, 1985), Surkotada (Joshi 1990), Padri (Shinde 1992a, 1992b, 1998; Shinde et al. 2008), Kuntasi (Dhavalikar et al. 1996), and Kanmer (Kharakwal et al. 2012)—have yielded abundant evidence of beads and bead-making workshops.

Within the Haryana region, the Ghaggar–Drishadvati basin was a significant zone for bead manufacture and circulation during the Mature Harappan period. Excavations at Farmana (Rohtak District) and Mitathal (Bhiwani District) have yielded extensive bead assemblages and workshop debris, revealing a well-developed craft tradition (Uesugi, Kumar, & Dangi 2017). At

Farmana, more than 4,000 beads were recovered, mostly of steatite, followed by carnelian, jasper, agate, chalcedony, lapis lazuli, amazonite, limestone, and siltstone. Small steatite disc beads appear to have been mass-produced, while larger carnelian or jasper pieces represent high-value ornaments. At Mitathal, although the total number is smaller (87 beads), the pattern of materials closely parallels that at Farmana, confirming similar raw-material sources and techniques.

Raw materials for bead manufacture were procured through wide-ranging trade networks. Carnelian originated from Gujarat's Khambhat region, lapis lazuli from Afghanistan, and jasper and amazonite from Central India (Law 2011; Kenoyer 1997). Microscopic and SEM analyses show that Harappan artisans employed Ernestite and copper tubular drills; both Farmana and Mitathal display marks of these distinct techniques (Kenoyer & Vidale 1992). Procedures included pecking, grinding, heat-treating, and polishing to achieve the characteristic lustre of Harappan beads. Six perforation surface patterns identified at Farmana suggest technological experimentation and adaptation to material hardness (Uesugi et al. 2017).

Harappan bead typology demonstrates a remarkable range of forms circular,

lenticular, cylindrical, and disc-shaped often material-specific.

- **Steatite beads:** tiny, short, and cylindrical; probably standardized mass-produced items.
- **Carnelian beads:** occasionally bleached or etched with geometric motifs, indicating high craftsmanship and symbolic value.
- **Agate and jasper beads:** fewer but aesthetically refined, often associated with elite or ritual use.
- **Lapis lazuli and amazonite:** rare and prestigious, likely imported through long-distance exchange.

Such material and morphological diversity reflects economic specialization and social differentiation, as access to certain materials depended on trade and status.

Finds of rough-outs, nodules, and debitage at Farmana and Mitathal confirm on-site bead-working (Shinde, Osada, & Kumar 2011; Manmohan Kumar, Uesugi, & Dangi 2012). These sites served as secondary production centres, importing semi-processed raw materials from Gujarat and refining them locally. The absence of large furnaces or Ernestite drills implies household-level or cottage-scale industries, contrasting with industrial workshops at Khambhat and Kanmer. Haryana thus functioned primarily as a redistribution and

finishing zone, integrating its agrarian base with artisan specialization.



Figure 3. Bead holes of samples from Mitathal (Uesugi, & Dangi 2012).



Figure 4 Beads from Farmana (Uesugi, & Dangi 2012).

TEXTILE INDUSTRY

The textile-based cottage industry of the Harappans primarily thrived on the production of high-quality cotton and woollen fabrics, carpets, and embroidered textiles. Although the perishable nature of fibrous materials limits their direct archaeological visibility, a variety of indirect evidence—figurines, impressions, tools, and palaeobotanical remains reflects significance of textile manufacture in the Harappan economy. The presence of

statuettes and terracotta figurines adorned with stitched and unstitched garments indicates the preference for woven fabrics both in apparel and household furnishings. The Harappan textile industry, deeply rooted in household-level craftsmanship, produced fabrics that satisfied both domestic needs and overseas trade demands. It is likely that some degree of state regulation or guild control existed over the production and sale of cloth and carpets, as textiles were valuable

commodities and an important source of economic revenue. The industry's development relied on the widespread cultivation of cotton across Sindh, Rajasthan, Punjab, Haryana, and parts of western Uttar Pradesh, regions rich in Harappan settlements. Mesopotamian texts even refer to the import of textile products from Meluhha (believed to represent the Indus region) (Ratnagar, 1981). The later appearance of the terms Sindhu and Sindon in Babylonian and Greek sources for cotton reflects the region's long-standing association with textile production and export.

Archaeobotanical and Artefactual Evidence

Despite poor preservation, archaeobotanical data and artefactual remains have provided valuable clues to reconstruct the structure of Harappan textile manufacture. The earliest evidence of cotton use is reported from Mehrgarh, where a mineralized cotton thread inside a

copper bead was found in a Neolithic context (c. 6000–4500 BCE) (Costantini, 1983). At Kunal, cotton (*Gossypium arboreum/herbaceum*) and flax (*Linum usitatissimum*) seeds from the Early Harappan phase (Sub-periods IB–IC; c. 2850–2500 BCE) demonstrate early fibre cultivation (Acharya, 2008). Indigo seeds found at Kunal further point to the use of natural dyes.

At Rakhigarhi, palaeobotanical investigations documented goosefoot (*Chenopodium album*) weeds and worked hematite specimens, both used for extracting vegetable and mineral pigments (Nath, 2017). Additional finds from Mohenjo-daro (Gulati & Turner, 1928), Harappa (Weber, 1999), Banawali (IAR 1994–95: 96), and Late Harappan contexts such as Sanghol (Saraswat, 1997) and Hulas (Saraswat, 1993) further strengthen the evidence for sustained textile activity



from the Early to the Late Harappan periods.

Figure 5 : Rakhigarhi: Black –on- Red ware vase fragment showing remains of textiles enlarged at A and B.

Evidence for Textile Production Recent studies at Rakhigarhi (29° 17' 30" N; 76° 06' 50" E) have yielded rich evidence for textile production, allowing a detailed reconstruction of manufacturing stages through artefactual and ethnographic parallels (Nath, 2019). Archaeobotanical data suggest that cotton was cultivated locally and underwent a series of labour-intensive processes: plucking, cleaning, ginning, carding, and twisting to prepare fibre for spinning. Excavations have yielded spindle whorls, a common Harappan artefact, as well as components of more advanced equipment, including spinning wheels (charkhi), spools, reels, bobbins, and loom weights. The discovery of a perforated tablet apparatus used for weaving narrow cloth strips indicates refined weaving techniques.

METALLURGY

The use of copper, silver, and gold is well represented in Harappan settlements across Haryana. Silver artefacts are notably reported from Kunal, in north-western India (Agrawal, 2000). The Early Harappan levels at Kunal (Period IA) yielded arrowheads, fishhooks, beads, and rods made of copper and silver. The limited

quantity of metallurgical slag suggests that smelting was sporadic, possibly conducted at a household or workshop level rather than as continuous large-scale production. A number of copper arrowheads from Kunal resemble those recovered at Ganeshwar in Rajasthan, showing marked curvature at their base a typological similarity that points to shared metallurgical traditions and resource exchange between the two regions.

Large hoards of jewellery discovered at Kunal include two silver tiaras, gold ornaments, and semi-precious stone beads, indicating the presence of affluent social groups and a flourishing ornamental craft industry. These hoards, containing silver bangles and copper tools, suggest that metal craft and ornament production were economically significant. The proximity of Kunal to the Khetri copper mines of the Aravalli range India's largest copper ore deposit extending over 100 km—implies that raw ores for smelting were transported from there (Agrawal, 2000). This trade route likely formed a key link between Rajasthan's metallurgical zone and Haryana's production centres.

Evidence of copper smelting and a U-shaped hearth has been documented at Badli (Periods I and II), revealing early metallurgical activity in the region (Thakran & Singh, 2009). Additional artefacts, such as net sinkers for fishing, copper arrowheads for hunting, sharp chert blades, and bone tools, have been unearthed at Rakhigarhi (Poonia, 2017). These findings indicate the presence of specialized craft production and a variety of utilitarian and ornamental uses of copper.

At Farmana, the discovery of copper bangles and a small gold ornament further supports evidence of localized craft industries (Kumar, 2014). The burial of a middle-aged woman at the site, adorned with three shell bangles, two copper bangles, copper earrings, and foot ornaments, suggests social stratification and the use of metal ornaments as status symbols within Harappan society.

Similarly, Bhirrana (Period IA) yielded crucibles containing melted copper, directly attesting to local smelting and metalworking activities (Rao, 2006). These finds collectively confirm that Harappan communities in Haryana possessed both the

technical skill and the organizational capability required for metallurgy.

The Aravalli stones, found as grinding implements in the Northern Hakra (Ravi) phase at Harappa, are interpreted as indicators of resource movement from the Aravalli foothills into the greater Indus region (Law, 2008). The Eastern Hakra phase settlement of Khanak (Bhiwani District) is located near these foothills, suggesting that the inhabitants were actively engaged in resource procurement and exchange networks. The recovery of semi-precious objects at these sites further supports import trade contacts, demonstrating the integration of local resource use with long-distance trade.

The abundance of terracotta, stone, and bone artefacts in Haryana settlements reveals a society proficient in diverse technical crafts, including pottery production, bead-making, and bone tool manufacture. These industries, operating alongside metallurgy, indicate an interlinked economic structure that relied on specialized labour, trade, and technological innovation.



Figure 6 Blades and core of Chert stone, Copper objects, Balu, c. 2300 BC



Figure 7 Mould for casting, Terracotta, Balu, c. 2300 BC, Courtesy-Department Museum of Ancient Indian History Culture & Archaeology, Kurukshetra University.

The excavations at Balu have yielded chert blades and a chert core which were imported from Sukkur Rohri, Sind, Pakistan. The copper antiquities illustrated here include chisel, pointed bar, bangle, ring and arrow-heads. The terracotta mould from Balu was used for casting copper bars. No such mould has been discovered from any other Harappan site.

TRADE AND COMMERCE

Transport and exchange formed a vital component of the Harappan economy, connecting agricultural producers, craft specialists, and traders across vast regions.

The bullock cart served as the principal overland transport mechanism at many Harappan sites. Excavations at Balu have yielded toy cart frames and wheels, confirming familiarity with wheeled vehicles and mobility technology (Kesarvani, 2001). Although the axles were likely wooden and have perished, reconstructions suggest that a rounded wooden plank could serve as an axle, attached to wheels with wooden hubs. Such wooden wheels would have produced minimal abrasion, and lubricants like animal fat were probably applied to axles to

reduce friction and ensure smooth rotation (Possehl, 1980; Kenoyer, 1997).

Within the Haryana region, these transport mechanisms facilitated both internal and external trade. The Ghaggar–Drishadvati valley occupied a strategic position between the agricultural core areas of Punjab and Rajasthan and the trade routes leading toward Gujarat and Sindh. Sites such as Rakhigarhi, Farmana, Balu, Banawali, and Mitathal acted as production

riverine craft during wetter climatic phases (Garge, 2012; Law, 2011).

Internal Trade Networks - Archaeological evidence, such as standardized weights, seals, and terracotta sealings, points to a highly organized system of internal commerce. Uniform weight standards—based on a binary or decimal system—occur at Harappan sites across Haryana, suggesting that local economies were integrated with the broader



and distribution centres for a wide range of goods—agricultural produce, textiles, beads, metals, and pottery (Garge, 2014; Kumar, 2014; Poonia, 2017). These goods were likely transported by bullock carts along land routes and possibly by small

Indus commercial system (Kenoyer, 1997).

The circulation of finished goods like steatite beads, copper ornaments, terracotta figurines, and faience items from sites such as Rakhigarhi and Banawali indicates

regional specialization and inter-settlement trade (Uesugi, Kumar, & Dangi, 2017).

Agricultural surplus from villages like Balu and Masudpur was probably exchanged for craft goods or metal implements produced

in larger centres (Parmar et al., 2013; Singh et al., 2009). These local networks linked agrarian and artisan communities, establishing Haryana as a self-sufficient sub-region within the Indus trade sphere.

Figure 8. Early Harappan seals discovered from Kunal archaeological site, Fatehabad district, Haryana

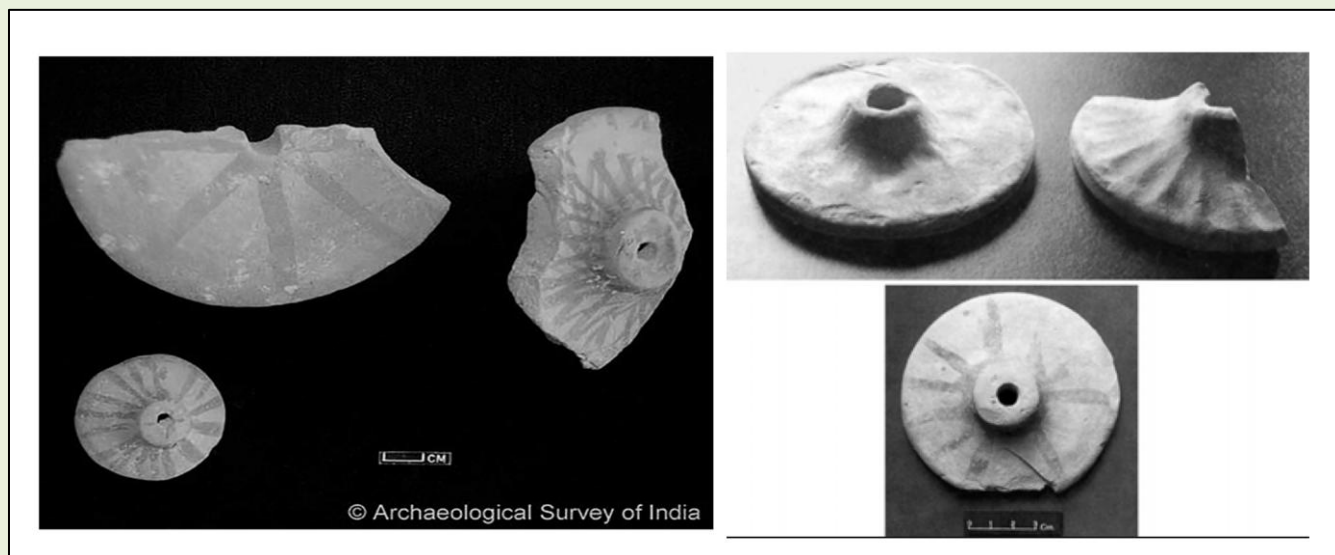


Figure 9 Terracotta wheels from Bhirrana courtesy (Archaeological Survey of India) Terracotta wheels from Banawali and Rakhigarhi, displaying spokes painted

External Trade and Long-Distance-Exchange Externally, the Harappans maintained trade connections extending westward to Baluchistan, Afghanistan, Iran, and Mesopotamia. Artefacts such as carnelian beads, etched agate, shell bangles, and copper tools recovered at Mesopotamian sites confirm these links (Ratnagar, 1981; Possehl, 1980). The Haryana settlements contributed to this

system by supplying agricultural commodities, cotton textiles, and crafted goods, while importing copper ores (from Khetri), semi-precious stones (from Gujarat), and shells (from Makran coast) (Law, 2011; Kenoyer, 1997).

The Indus–Mesopotamian trade corridor relied on both overland and maritime routes. Inland sites such as Rakhigarhi served as redistribution hubs, where goods

from interior settlements were assembled for movement toward coastal ports like Lothal and Sutkagen Dor (Nath, 2017; Law, 2011). This exchange enabled Haryana's craft and agricultural sectors to integrate into international commerce, making it an active participant in one of the world's earliest urban trade networks.

Conclusion

The economic organization of the Harappans in the Haryana region reflects a dynamic and self-sustaining system that balanced agricultural production, craft specialization, and trade. Archaeological, archaeobotanical, and zooarchaeological data from key sites—Kunal, Bhirrana, Banawali, Rakhigarhi, Balu, Farmana, Mitathal, and Girawad collectively reveal a complex, interlinked economy rooted in local resource utilization and regional integration within the wider Indus Civilization.

Agriculture formed the primary economic foundation. Multi-cropping systems based on wheat, barley, millets, pulses, and oilseeds, supplemented by horticultural and spice crops, sustained both rural and urban populations. The fertile alluvium of the Ghaggar–Drishadvati basin and the availability of irrigation channels encouraged surplus production. Closely linked to this agrarian base was animal husbandry, dominated by cattle, buffalo, sheep, and goats, which provided meat,

milk, traction power, and raw materials such as leather and bone for tools.

Craft industries flourished within this agrarian context. Sites like Farmana and Mitathal specialized in bead-making using imported raw materials such as carnelian, agate, and lapis lazuli, while Rakhigarhi and Balu developed textile and metallurgical crafts supported by local resources and external trade. The use of copper, silver, and gold at Kunal, Badli, and Bhirrana demonstrates an understanding of metallurgy and long-distance procurement of ores from the Aravalli–Khetri belt. Terracotta moulds, chert blades, and crucibles attest to a technologically adept community capable of both domestic production and specialized craftsmanship.

The textile and bead industries were significant economic branches that linked Haryana's settlements with the broader Indus world. Cotton cultivation, spinning, and weaving—attested by spindle whorls, loom weights, and copper needles—indicate an established textile economy that likely contributed to exports through western trade corridors. The presence of standardized weights, seals, and transport models like bullock carts illustrates a well-organized internal trade system complemented by external exchange networks connecting Haryana, Gujarat, Rajasthan, Sindh, and Mesopotamia.

The archaeological and technological data together reflect a multi-tiered economic structure—agrarian villages producing surplus, specialized craft centres manufacturing value-added goods, and nodal towns managing their redistribution. The bullock cart, standardized weights, and seal-based administrative tools formed the infrastructural backbone of Harappan trade. Haryana's geographic position in the Eastern Domain of the Indus Civilization made it both a production base and a transit zone, connecting interior settlements with external markets.

Thus, the region's economy demonstrates the Harappan genius for economic integration and technological adaptability, linking local production systems to far-reaching trade circuits across South and West Asia (Kenoyer, 1997; Law, 2011; Ratnagar, 1981; Possehl, 1980). The evidence from Haryana highlight its critical role not as a peripheral area but as a core contributor to the economic and cultural dynamism of the Indus Civilization.

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