



Case Study

Defensive Architecture and Human Security in the Indus-Saraswati Civilisation in Eastern Domain (Haryana): A Case Study on Fortification Wall

Neelam Sharma

Research Scholar, Department of AIH, Culture & Archaeology, Kurukshetra University,
Kurukshetra, Haryana, India

Corresponding Author: * Neelam Sharma

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Abstract

This research paper examines the defensive Harappan architecture and its implications for human security within the Indus-Saraswati Civilisation, with a specific emphasis on the eastern domain, focusing on key sites such as Balu, Bhirrana, Rakhigarhi, Banawali etc. This Bronze Age civilisation, known as the first urban civilisation in South-Asian sub-continent although its advanced urban planning and trade networks have received a lot of attention; less emphasis has been placed on its defensive architecture and its role in ensuring human security. The main objective of this study is to fill this gap by examining the defensive structure of the Harappan civilisation. Through a multidisciplinary approach combining archaeological evidence, geographical analysis, layout, design, and placement of defensive structure such as fortification walls, gateways and bastions, this study aims to throw light on advanced understanding of the Harappan people in the eastern region.

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INTRODUCTION

Fortifications, traditionally seen as defensive structures, served various roles such as domestic protection, flood control and public identity, as noted by Connah (2000) and McIntosh & McIntosh (1993). But these defensive structures are constructed on a formal and casual plan and usually stand an enormous character. The earliest reported fortifications were found at Aşıklı Höyük in Anatolia during Neolithic times (Düring, 2011:71). But in the Indian context, fortification can be traced around the third millennium BC in the Pre-Harappan phase at Kalibangan, Rajasthan. Major cities of Indus-Saraswati civilisation have fortified citadels i.e. Harappa, Mohenjo-Daro, Kalibanga, Dholavira etc. There is disagreement among scholars over the prospective uses of fortification, which could have included flood protection, civic identity, and outsider control or restriction. Over the times Early Harappan societies has grown into large urban areas, such as Dholavira, Rakhigarhi, Kalibanga, Rupar, Lothal, Mohenjo-Daro, Harappa etc. The archaeological findings of this civilisation city designate outstanding organization; there were well-organized drainage system, greater bath, granaries, dockyards, citadel and fortifications. The archaeological site of Mohenjo-Daro and Harappa vividly demonstrate the importance of water as well as sanitation in Harappan culture by presenting bathing platforms, restrooms, and drainage systems (Possehl, 1998:56-58). Comparatively, contemporary civilisation viz. Mesopotamia and Egypt, did not build large and monumental buildings unlike Harappans. The mature Harappan phase also witnessed for new changes including construction of fortifications.

The settlement patterns reveal how they usually separated into two distinct areas: the urban zone itself and lower town, which was typically situated at a higher altitude and had varying defensive works depending on the location. Among the most remarkable features of this architecture is well thought planning, cardinal zone of streets, special and domestic buildings (Kenoyer, 1998:52). This research paper examines a previously undocumented architectural feature unique to the Harappan civilization in Haryana. Through comprehensive analysis and field reports studies, we explore the design, material and cultural significance of this feature. Our findings contribute to a deeper understanding of Harappan architecture and provide new understandings into the human security of the region during that period.

Haryana region

Eastern domain is study area of this work which falls under present day Haryana. Since ancient times, the region of Haryana has been irrigated by the Saraswati-Ghaggar and its tributaries namely Markand, Tangri, Chautang, Appaya, Koshiki etc. Haryana has been witnessing to this unique and highly developed urbanization that originated in South Asia. This region is enormously rich for the archaeological study; it has been focussing of research since long time. The Saraswati-

Ghaggar basin, which covers the parts of the Indian states of Punjab, Haryana and Rajasthan, has a thick cover of fertile alluvial soils, which is having the good circumstances for the civilizational growth in this area.

OBJECTIVE OF THE STUDY

- To define the purposes and types of fortifications in the Indus Civilization.
- To evaluate the impact of these fortifications on human security.
- To focus on the findings from Haryana as a case study to explain regional variations.

Features of Fortification

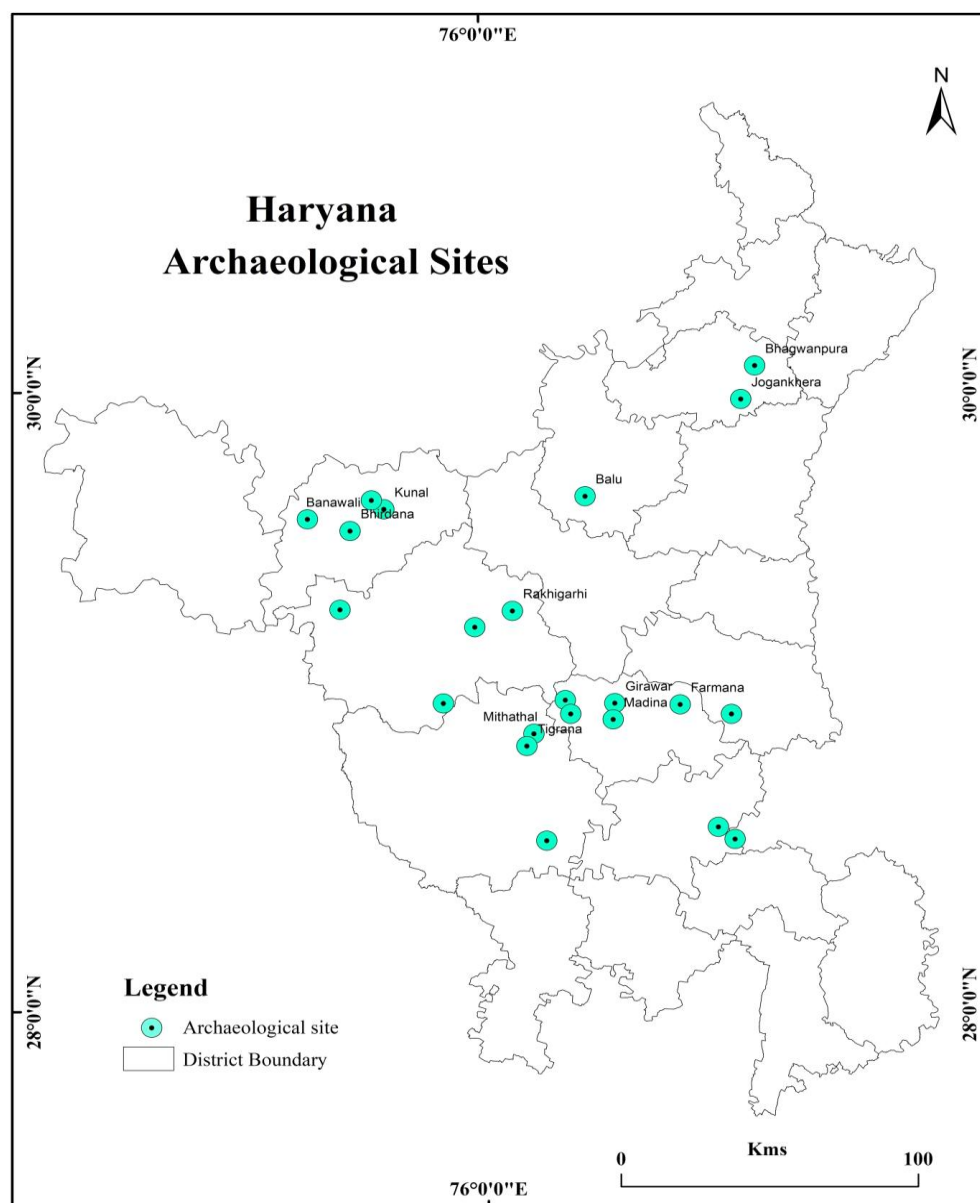
For defensive purposes, fortifications have been built to protect settlements and inhabitants from water and other potential threats. Harappan cities are separated in two portions upper part called "Citadel" and below city called "Lower Town" protected by the walls. Sometimes the parts were separate and sometimes they were surrounded by a single wall. Its foremost evidence is found in ancient archaeological sites like Dholavira, Lothal and Kalibanga etc. Keeley outlines the three primary components of a fortification wall. They are as follows:

- The Bastion: A portion of the main wall that would allow guards to fire at approaching attackers.
- A gateway: The fortification's entrance
- The V-Sectioned ditch: A particular kind of moat that can be difficult to cross (Keeley et al, 2007:55).

We looked at the characteristics of fortification walls that they come in various forms. The shape of the fortification wall in the citadel mound, makes a parallelogram in Harappa, Mohenjo-Daro, Kalibanga, while at Dholavira, it is rectangular in shape. But the site of Sutkagendor (Baluchistan) has a unique example of fortification around the settlement with square projection or bastions at the corners and midpoint of its long walls. Following Mate, study on Harappan fortifications was done by Deloche (2007) and Joshi (2008). Kesarwani (1984) overlooks other elements of fortification, such as bastions and moats, in favor of concentrating only on gateways.

Fortifications in Haryana

Haryana holds significant archaeological data essential for the study of the Indus-Saraswati civilization, including sites such as Bhirrana, Banawali, Rakhigarhi, Balu, Farmana, Kunal, Lohari-Ragho, Girawad, Bhagwanpura, Daulatpur, Jognakhera and Tigrana (Map I). These sites stand along with other major Harappan sites like Mohenjo-Daro, Harappa, Ganweriwala, Dholavira and Lothal, providing evidence of the unique defensive architecture. The discoveries of Harappan sites in Haryana contribute significantly to our comprehension of the economic, social, or defensive strategies of the Indus-Saraswati civilization, emphasizing the region's importance in ancient history and archaeology.



Archaeological Details of Fortification wall in Haryana Bhirrana

The archaeological site of Bhirrana, located in the Fatehabad District of Haryana at 29° 33' N and 75° 33' E, has revealed evidence of the growth of material culture from the Hakra ware period to a highly developed Harappan Settlement (**Rao et al. 2004- 2005&2005-2006**). This site contains the oldest dated evidence for Haryana, which dates back to 6800–7200 BC. The site was occupied by the Hakra ware culture in Period IA, which was followed by the Early Harappan Period IB, the Early Mature Harappan (transitional) Period IIA, and the Mature

Harappan Period IIB. A fortification wall has been reported in Bhirrana excavation (2004-05) belonging from the classical phase of this civilisation. A massive wall, measuring 95 m in length and 5 m in breadth, consists of seventeen courses. This defensive wall is 1.80 meters high and has a coat covering on its exterior part. It is built of mud-bricks that fall the known ratio of 1:2:4 (9×18×36 cm). The northern part of the defensive wall had mud brick paving. Excavation session 2003-04 exposed the southern part of this wall, running in east west orientation length of 46 meter with one gateway near northeast corner of citadel (**Puratattva, 2004-05:48**).

Table 1: Cultural sequence of Bhirrana

Period	Cultures
Proposed Sequence of Cultures (2004–05)	
Period I	Early Harappan
Period IA	Hakra Wares Culture
Period IB	Early Harappan
Period II	Transitional
Period IIA	Early Mature Harappan
Period III	Mature Harappan
Period IIB	Mature Harappan

Banawali

The archaeological site of Banawali situated on the river bank of Ragoi, Nadi / Nali, Hakra Ban is another name of this river. This 400-meter square mound raises 10-meter height above ground (**Bisht, 1984:89**). On the pattern of the other Harappan site, this site is also divided into two parts: the lower town and citadel. The citadel is encircled by walls on the eastern, northern and western sides, and it is situated atop a higher mound with an apsidal shape. The citadel shares a wall with the lower town on the outside. Banawali citadel has no special defence, in comparatively to other Harappan sites. The Banawali settlement was habituated by Sothian people (Sothi-Siswal culture) of the Pre-Harappan (or Kalibangan I) culture.

Period IA has been less structural activity during this time period. Without any defenses, the settlement was built on the mound, and walls were constructed around it later in the IB era. Period IB& IC presents the extreme modifications in site planning and architecture. During this time, upper town on the mound developed into the citadel and the walls were nearly twice as broad (**Bisht, 1998-99:15-16**). In Period II, a defensive moat was built and the street plan was modified with the citadel functioning as the center of attention (**Bisht, 1998-99:17:18**). On the east side of wall, two squarish basins were found towards the “Lower Town”. On the northeastern corner 1.5meter-long drain was constructed. It is questionable that it is served as entrance or a storm water drain (**Bisht, 1982:117**).

Table 2: Cultural sequence of Banawali

Period	Cultural Sequence
Period I	Pre-Harappan
Period IA	Pre-defensive Phase
Period IB	Defensive Phase
Period IC	Proto-Harappan (Transitional Phase)
Period II	Mature Harappan
Period III	Post-Harappan

Rakhigarhi

The ancient site of Rakhigarhi, one of the five main towns of the Indus-Saraswati civilization, consists of seven mounds that provide important evidence of this civilization. Rakhigarhi revealed some classic evidences of defense system adopted by the Harappans.

Fortification (5-meter thickness) runs north-south at RGR-2 and constricted steps lead from the east halfway to the wall's top, when they turn north. The road then turns west after passing through the guard cells on either side (**Nath, 1999-2000:118**). While the matching bastion on the northwest side has low profile and appears to blend in with other surface characteristics, the north-eastern corner displays a unique bastion that is reinforced externally by radiating spokes resembling an earthen structure. Alongside the two bastions, there is the remains of a screen wall that projects in opposite directions, creating the illusion of a cleverly designed entrance (**IAR, 1998-99:13**). Phase II involved the external addition of brick butters to the wall (**Nath, 1999-2000:113**). In the duration of Phase III, we saw the wall's thickness doubled and stairs installed to provide access via climbing the wall's summit and turning west. Phase IV involved turning the wall top westward and laying a full-sized brunt-brock pavement over it. Guard cells were visible on either side of the brick pavement. By covering the brunt-brick pavement with mud-brick courses,

height of the fortification wall was ultimately increased in phase V.

Balu

The per-Harappan and Early Harappan people were the first immigrants at Balu (Kaithal) who occupied the natural soil of the mound. Although there is no citadel but a mud-brick fortification has been found at the earliest levels of the site and this wall extend up to 13 meters running from north-west to south-east direction (**Ratnagar, 1991:114**). This wall has made of blackish clay and so called Harappan ashy material. Below this mud-wall another mud-brick wall measuring 3:2:1 was traced which raised on a 60 cm. Harappan remains have been divided into four stages by Shukla - Pre-Fortification Stage, Fortification stage, Late Classical Stage and Post-Harappan Stage (**Kesarwani, 1996:15**). In the second stage mud-brick (4:2:1) fortifications wall measuring 108 meters north-south and 96 meters east-west was built around the settlement. The total breadth of the fortification wall was 12 meters. At some place this rule was not adhered to and found to be wider. It is interesting to point out that at other contemporary sites the width of the fortification wall was not more than 5 to meters (**Shukla, 1997:10**). On the Northern side of the fortification, a bastion has been exposed measuring 15.10 meters and built of various sizes mud-bricks (44:22:11, 40:20:10, 20: 20: 26: 22:

cms). The settlement was dully planned with paths and sub-paths having width of 1.45 to 1.90 cms. Houses were constructed at distance from the fortification wall. Entrance

into the fortified settlement was traced in the southern corner or the eastern wall. The middle part of the fortification offset with stairs.

Table 3: Cultural sequence of Balu

Period	Cultural Sequence
Period I	Pre-fortification Stage, Early Harappan
Period II	Fortification Stage (Mature Harappan); Late Classical Stage
Period III	Post-Classical III Stage / Late Harappan Culture

Table 4: Showing the features of Fortification in different sites

Site	Gate / Bastions / Salients / Guard Cells	Building Material
Rakhigarhi	In the citadel mound RGR-2, screen wall remains extending in opposite directions were found, giving the impression of a well-planned entry. Bastions and guard cells were also present.	In the citadel mound, the wall was made of mud bricks with burnt-brick buttresses and pavement over the wall top. By adding mud-brick courses over the brick pavement, the height was eventually increased.
Banawali	The eastern and northern parts of the defence wall turn towards the north-eastern part of the citadel.	—
Balu	A large bastion was found on the northern side of the mud wall. The entrance to the fortified settlement was located at the southern corner or in the eastern wall.	The wall was made of blackish clay and so-called Harappan ashy material.

Security Analysis and Evaluation with Other sites of Indus-Saraswati civilisation

Defensive architecture in the Harappan civilization, particularly in the Haryana region, is primarily evidenced by only four sites of the 24 excavated Harappan sites. This selective presence of fortifications suggests a strategic approach to defense, emphasizing certain locations over others. Notably, these sites stand out as key settlements within this region. Bhirrana, the oldest site, presents at early defensive strategies possibly necessitated by its antiquity. Rakhigarhi, standard as a trade center, likely required strong defenses to protect its economic resources and trade routes. Balu and Banawali, while distinguished by their unique cultural contributions, also emphasize the diverse implementation of defensive measures across different urban landscapes. These evidences provide critical point of view into the socio-political, and economical factors that influenced the development of defensive structures within Harappan civilisation. Site citadel features an enormous brick platform, designed to function as an artificial barrier against flooding. The use of this platform at Indus-Saraswati civilisation like Mohenjo-Daro, Harappa, Dholavira and other Harappan sites suggested that the residents used them as a flood defense system (Wheeler, 1966:32). But Dales and Kenoyer counter that while sun-dried bricks may not have been ideal flood barriers, they were likely the best option available (Dales, 1986:486). Their perception proposes that ancient producers had to adapt to material and technological limitations, making do with what they had to address the need for flood protection despite inherent weaknesses. But the second purpose was probably set fortification as military defense. Study of defensive architecture, the Indus people generally included military features like gates and bastions in their fortifications, although they did not appear to employ moats for protection. Only the site of Lothal provides the different evidence where not traced any military structure. All Harappan settlements contain at least two military characteristics; Banawali is the only site that possesses all

three: a moat, gateway and bastions. After studying this architectural feature of IVC it seems that the Harappan folk engineering had most developed in its contemporary civilisations with high architectural features.

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About the Author



Neelam Sharma is a Research Scholar in the Department of Ancient Indian History, Culture & Archaeology at Kurukshetra University, Kurukshetra, Haryana, India. Her academic interests focus on Indian history, archaeology, cultural heritage, and ancient civilisations. She is engaged in scholarly research aimed at exploring India's historical traditions, archaeological evidence, and cultural development.