Chapter VI: Settlement Patterns

The focus of this chapter is on the various factors which played their part in the settlement pattern that we come across through time in the research area. The topography, environmental setting, nature of resources available for economic activities, size of the settlement, and the availability of the water around the sites, all these factors shape the way in which sites are formed and distributed over the landscape. A critical assessment of these factors provides us the necessary data for understanding general features of the settlement pattern.

Willey (1953:1) describes the term settlement pattern as "the way in which man disposed himself over the landscape on which he lived. It refers to dwellings, to their arrangement, and to the nature and disposition of other buildings pertaining to community life. These settlements reflect the natural environment, the level of technology on which the builders operated, and the various institutions of social interaction and control which the culture maintained". He further adds that since cultural needs shape settlement patterns, therefore, the later can be used as an efficient tool for functional interpretation of archaeological cultures (Willey 1953: 1). He further opines (1956: 1) that since settlements reflect social and economic activities, their investigations can be the subject of both archaeology and ethnology.

Commenting on the settlement pattern approach, Willey (1956: 1) states that there is 'no settlement pattern approach' to archaeology. He further adds that when considered in isolation, the importance of settlements is lost like any other archaeological facts. What therefore makes settlement pattern data different from other archaeological evidence? Vogt and Leventhal (1983: xiv) answer to that when they claim that "settlement archaeology is no longer just the examination of house sites within a settlement, but rather emphasizes a complete or 'holistic' view of the past. They further believe (1983: xx) that

settlement pattern studies lead to a "more complete and systematic view of the ancient world".

Sanders (1956:115). defined settlement pattern as the ecological and demographic aspects of culture. In effect, settlement pattern, according to him, is human ecology as it deals with the distribution of population over the landscape and the reason behind that distribution.

Vogt (1956:173), highlighting the importance of settlement pattern, brings out the importance of collaborative work of archaeologists, ethnologists, and geographers for the development of the subject. He suggests an ecological dimension for the study of settlement pattern which includes three interrelated interpretations: first is "relationship of living arrangement to geographical features like topography, soil, vegetation type or rainfall zones". Second is "the social structural inferences made about socio-political and ceremonial organizations", and the third focuses on the "study of change through time with a view to providing materials for generalizing about cultural processes".

Settlement pattern according to Chang (1958: 299) is the way in which human settlements are arranged over the landscape in relation to physiographic environment. He also mentions about a second division, i.e., community pattern which he defines as the way in which various structures are arranged within the community by its people and the communities in turn are arranged within the aggregate. In other words, "settlement pattern" is the ecological relationship between the people's components and their environment, and "community pattern" is the social relationship among various component (Rouse, 1968). Chang (1958: 302) further categorizes the local groups into three categories: household, community, and aggregate of communities.

Chang (1962: 29) explaining settlement in the background of "locale", also formulated a typological division of settlement patterns based on the ecological potentiality of the locale and the exploitative ability of the human occupants (Chang 1962: 30) – a. Year-round settlement consisting of permanent and semi-permanent settlement, and b. seasonal settlement consisting of sedentary seasonal settlements (with permanent and transient bases) and temporary seasonal settlements.

In 1968, Chang proposed the typological models of archaeological settlement – microstructure, i.e., cultural, and social structure of a settlement, and macrostructure, i.e., larger cultural and social systems composed of individual settlements.

Chang (1972:3) highlighted the central issues of settlement pattern methodology to be the proper formulation of classificatory units and proper determination of the interrelationships. He methodologically explains the geographic and ethnographic models and their use in the reconstruction of settlement pattern studies.

Trigger (1963a, 1963b, 1967) has made significant contribution in framing the methodological base of settlement pattern. It was however in 1968 in his work "Determinants of Settlement Patterns" that he demarcates settlement studies in archaeology into different levels, namely individual buildings and structures, community level and zonal pattern. Individual level emphasises on independent structures and their internal arrangements. Community level focuses on arrangement of buildings in a confined locality highlighting social hierarchy and economic strategies. The third level, i.e., the zonal level focuses on wider geographical perspective covering aspects like natural resources (water, land, flora and fauna, forest products and such other sources) and their

exploitation, economic and ecological adoption of the communities. The current research derives its frame from the third aspect of zonal patterning.

Rouse (1972: 96) defines settlement pattern as the way cultural activities and social institutions of people are distributed over the landscape. As against the term settlement pattern, which is popular in geography and ethnography, he uses the term "remnant settlement pattern" in the archaeological context.

The aforesaid studies and observations form the backdrop for assessing the role of sites in the economic production and overall cultural development in different periods of time in history for understanding the settlement pattern in the region.

The regions of Jammu and Kashmir form a single political unit, yet the former is geographically an extension of the Punjab plains. Located on the periphery of the Siwaliks, it serves as an ecotone between the plains and the mountains. Surveys in this area as a part of current research resulted in the discovery of sites of different periods. In addition to this, there are sites reported and documented in previous surveys by the Archaeological Survey of India. Data from the latter sites do not always incorporate all the necessary parameters considered here for the settlement pattern studies. In some cases, it is therefore unavoidable to evaluate the limited data from the prior investigations.

The settlement pattern is recreated in this research by considering characteristics such as geographical context and spatial distribution, site size, and proximity to water sources, all of which are discussed in detail in the following sections.

VI.1 Settlement pattern reconstruction

VI.1.1 Sites and their spatial distribution

As has been already discussed in Chapter 3 (section III.2), the district of Jammu has four sub-micro regions. Although the research area incorporates two major physiographic zones: Chenab-Tawi plains and the Jammu Foothills plains, the rest of the two zones – areas in the Jammu Siwalik West and Jammu Siwalik East – also form part of the surveys.

Out of the total 88 sites of Period I, II, III and IV[1], it was observed that 47 sites are concentrated in the plains or Sirowal belt, followed by 35 in Kandi belt, and six in the high elevated areas of Siwalik Hills (see Chapter III- section III.3 for explanation of the terms). The plains therefore appear to offer a congenial landscape to the ancient people of the region for settling down (Fig. VI.1, Fig. VI.2; Fig. VI.3; Table VI.1).

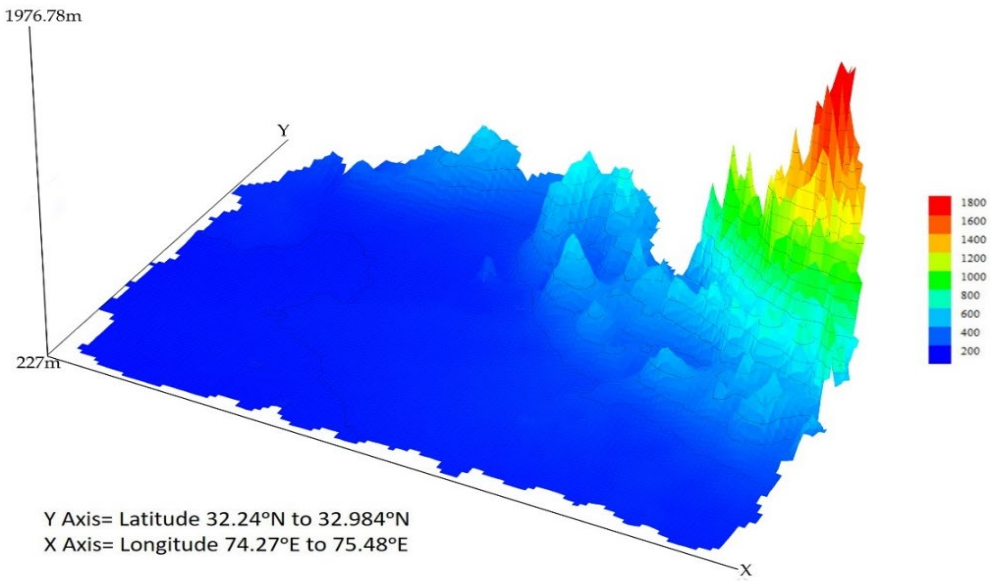


Figure VI.1: 3D representation of the elevation (in meters) of the research area

[1] This number represents the documented sites of the current research in which the coordinates were recorded and the sites with the same documented criteria in the IAR reports. Coordinates primarily are important in this case as the spatial distribution can be assessed using that information.
29 sites with their coordinates mentioned in the IAR reports and 59 documented by the researcher (25 sites documented in IAR and revisited by the researcher and 34 discovered by the researcher).

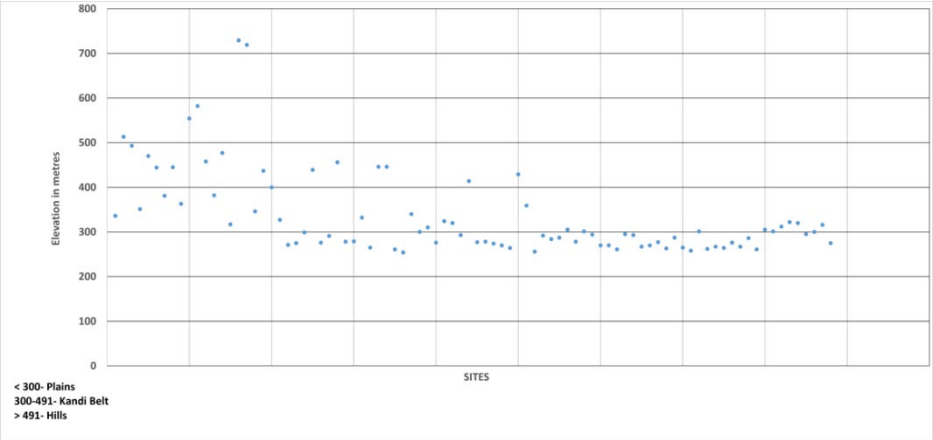


Figure VI.2- Distribution of the sites of Period I, II, III and IV based on the elevation in the research area (N=88)

VI.1.1.1 Period I

With the scanty data of Period I in hand, it is difficult to ascertain the locational preference of the protohistoric population of the area. However, the two excavated sites of Manda (IAR 1976-77) and Malpur (IAR 1993-94) are spatially located in the Kandi area.

VI.1.1.2 Period II

The trend of populating the plains continue further in the Period II (period contemporary to the NBPW pottery) of the area. Out of the 17 sites[2] belonging to this period, 15 are concentrated in the plains and 2 in the Kandi area.

VI.1.1.3 Period III

In subsequent periods, the plains continued to be attractive for setting up sites, but the habitation also covered Kandi area and Hills. Hence, out of the total of 68 sites belonging to Period III[3], 36 are in the plains, 27 are in the Kandi area and 5 are on the hills. This pattern reflects the strategy of territorial expansion by the population.

[2] 9 sites documented in IAR and revisited by the researcher and 8 discovered by the researcher
[3] 28 sites with their coordinates mentioned in the IAR reports, 21 sites documented in IAR and revisited by the researcher and 19 sites discovered by the researcher.

VI.1.1.4 Period IV

A similar pattern of settlement distribution is seen in this period as well. Out of 69 sites[4] belonging to Period IV, the material culture of 41 sites were found in the plains, 26 in the Kandi belt and 2 in the hills. Interestingly, most of the sites of Period II have settlements belonging to Period III as well as Period IV.

By examining the pattern stated above, it becomes apparent that the sites belonging to distinct periods are spatially distributed in different micro-zones with preference given to the plains followed by the Kandi area. Period II sites are mostly in the plains, while Period III and IV sites are primarily in the plains, although pattern of occupying the piedmont Kandi belt is also witnessed during these periods. This indicates that the inhabitants preferred the plains for settlement throughout the habitational history of the area and moved out to other areas such as the transition zone and the foothills in the later periods.

[4] 12 sites with their coordinates mentioned in the IAR reports, 24 documented in IAR and revisited by the researcher and 33 discovered by researcher

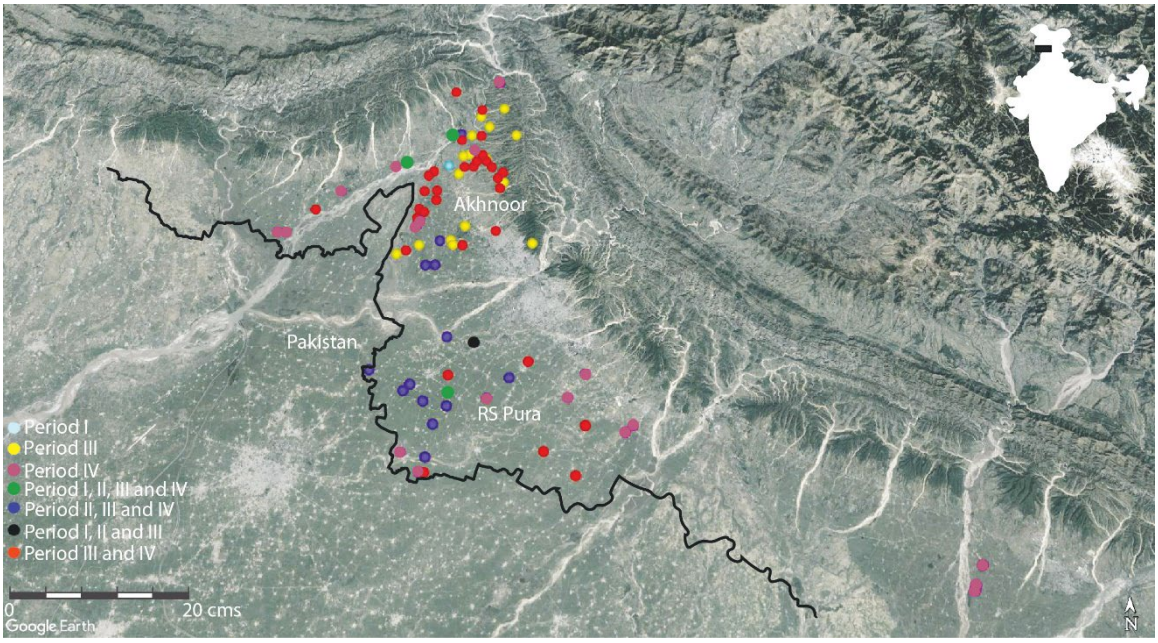


Figure VI.3- Spatial distribution of sites of different periods in the research area

VI.1.2 Size of the sites

Another factor to consider is the size of the sites for the reconstruction of settlement pattern. Mughal (1990: 7) in the Cholistan region of Pakistan and Kenoyer (1998: 49) in Indus and Saraswati region had categorized Harappan Chalcolithic sites into various categories based on their size. Mughal (1990) divided Harappan sites into small villages (0.1-5 hectares), large villages (5.1-10 hectares), small towns (10.1-20 hectares), large towns (20.1-30 hectares) and cities (30.1- 40 and more). Kenoyer (1998), divided the sites into small villages and hamlets (1-10 hectares) and large towns and small cities (10-50 hectares).

Applying these parameters to all the 53 sites[5] reported from the study area, it became apparent that most of the sites measure less than 2 hectare and fall into the category of small villages (Fig. VI.4 A and B; Table VI.1). The size of the sites was assessed based on the spread of mounds in cases where mounds were intact, and probable size estimated in cases where some remnant of a mound was visible. However, in both methodologies, the spatial extent of material

[5] This number represents the documented sites of the current research in which the size of the sites was recorded and the sites with the same documented criteria in the IAR reports.
18 sites with their coordinates mentioned in the IAR reports and 35 documented by the researcher (17 sites documented in IAR and revisited by the researcher and 18 discovered by the researcher).

culture dispersion was essential for determining the size, resulting in inevitable inaccuracies in some circumstances.

It's also worth noting that, in case the sites had cultural continuity, the size of the youngest period was applied to estimate size of the rest of the periods.

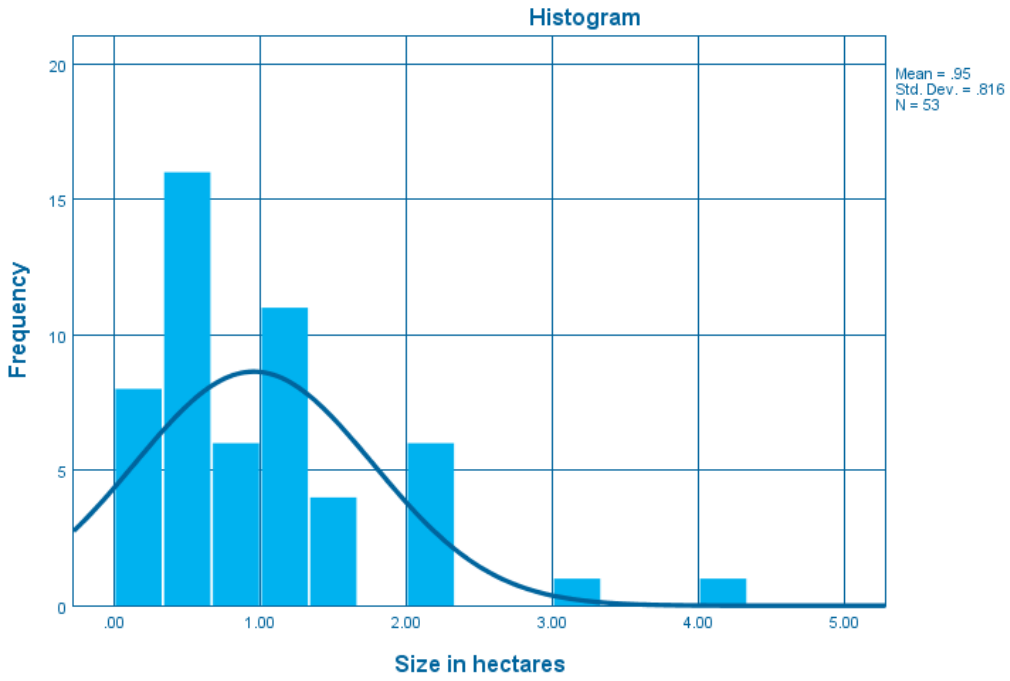


Figure VI.4 A- Histogram showing the range of size of sites from all periods in the area

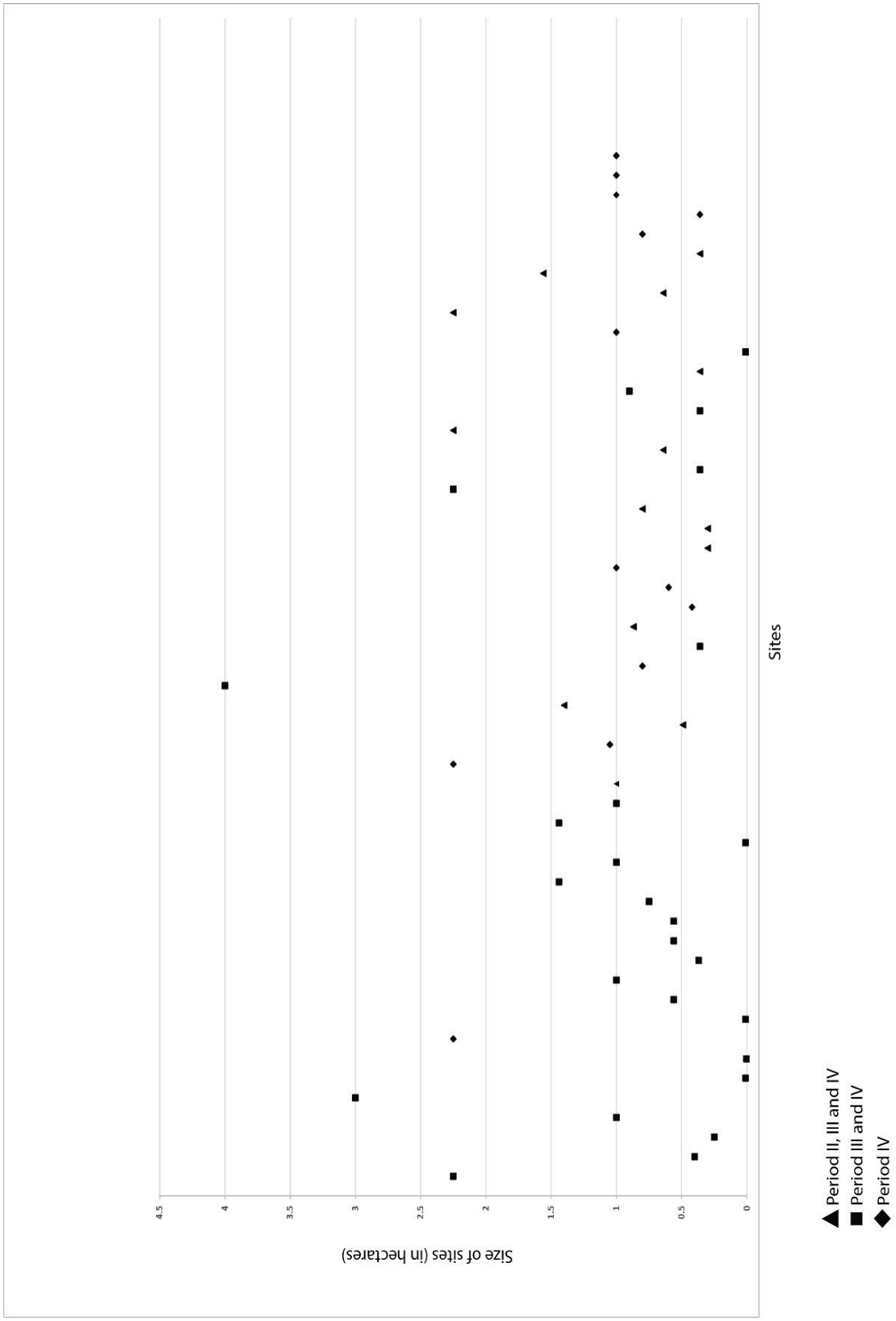


Figure VI.4 B: Sites and their size in hectares (N=53)

VI.1.2.1 Period I

The two excavated sites of Period I – Manda and Malpur lack detail of their size. However, out of the remaining three doubtful Harappan sites, Nadi also lacks the detail. Premachak Tibba (0.3 hectares) and Kot Garhi (0.49 hectares) fall under the category of small villages.

VI.1.2.2 Period II

All the 14 sites[6] belonging to Period II have the area under 3 hectares (Fig. VI.5) with 9 sites between the ranges 0.1-0.9ha, 3 sites between 1-2ha and 2 sites greater than 2ha.

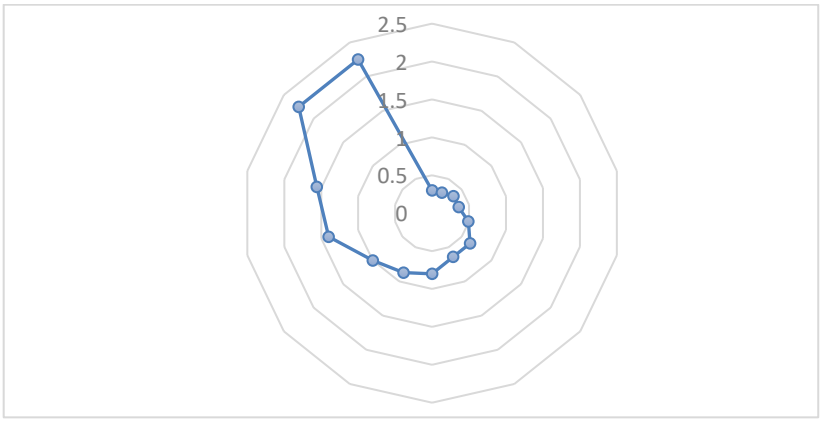


Figure VI.5 Radar graph showing the size of sites of Period II (area in ha) (N=14)

VI.1.2.3 Period III

Period III has 42 sites[7], most of which are small villages with an area of less than 2 hectares, some of which are under 3 hectares, and one of which is of 4 hectares (Fig. VI.6). There are 24 sites between the ranges 0.1-0.9ha, 10 sites between 1-2ha and 8 sites greater than 2ha.

[6] 7 sites documented in IAR and revisited by the researcher and 7 explored by the researcher
[7] 17 sites with their coordinates mentioned in the IAR reports, 16 documented in IAR and revisited by the researcher and 9 discovered by researcher

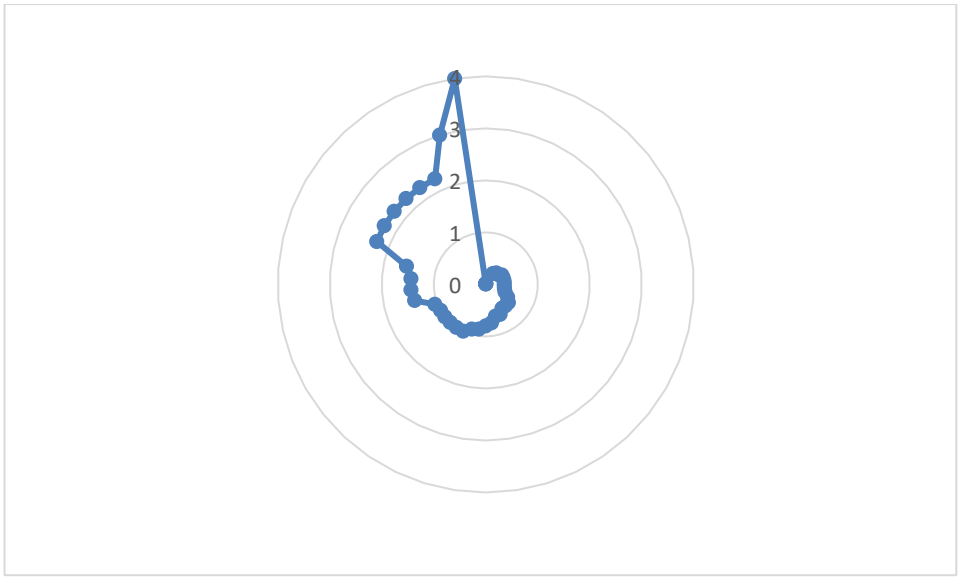


Figure VI.6- Radar graph showing the size of sites of Period III (area in ha) (N=42)

VI.1.2.4 Period IV

The similar trend as Period III can be seen in 43[8] sites belonging to Period IV. Most sites are under 2 hectares in size, with a few under 3 hectares and one of 4 hectares (Fig. VI.7). There are 21 sites between the ranges 0.1-0.9ha, 15 sites between 1-2ha and 7 sites greater than 2ha.

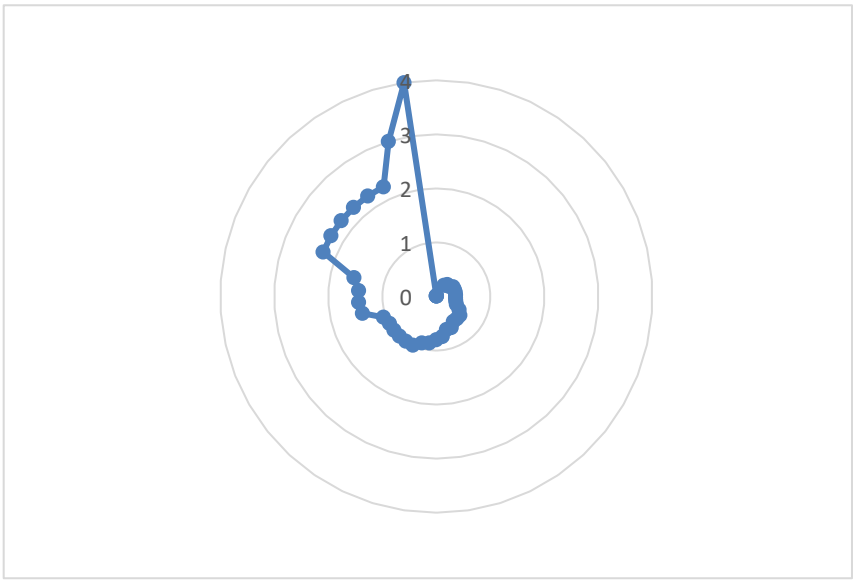


Figure VI.7- Radar graph showing the size of sites of Period IV (area in ha) (N=43)

[8] 08 sites with their coordinates mentioned in the IAR reports, 18 documented in IAR and revisited by the researcher and 17 discovered by researcher

Even though the population of Period III and Period IV are inhabiting the lowlands and populating the higher elevated areas, the size of the sites fits within the same village category throughout the region's occupational tenure. It is however interesting to note that the number of big sized sites are increasing from Period II to Period III and IV. This is important to remember while focusing on Jammu in the framework of North Indian historical discourse, which will be discussed in the coming sections.

VI.1.3 Sites and Proximity of Water Bodies

In terms of reconstruction of settlement patterns, the site's proximity to water bodies is also crucial. As already explained in Chapter III, apart from the rivers, there, are various sources at play providing a congenial ground for settlements to flourish. There are 88 sites[9] located around different water bodies, discussed in table VI.1.

Apart from the main rivers— the Chenab and the Tawi, there are also numerous ephemeral deep and shallow ravines known locally as *khads.* Major streams, tiny ravines, rills, and gullies make up the *khads* (Master Plan, 2032 – in making). These are ephemeral and perennial in the Kandi and the Sirowal belt respectively as has been discussed in Chapter III. The seasonal rains convert these into raging torrents, resulting in flash flooding (Master Plan, 2032—in making). Furthermore, aquifers ranging from shallow to deep levels are present, acting as a valuable source of water in the region (Central Ground Water Board [CGWB], 2016).

VI.1.3.1 Period I

Since the data of Period I is scanty, it will be inconclusive to talk about the pattern. However, the two excavated sites are in proximity to river Chenab in

[9] Since the coordinates are important to reconstruct the spatial distribution of sites vis-à-vis water bodies, all the sites with documented coordinates (same as section 5.1) are taken into consideration

the Kandi area. This point is important and will be discussed in the coming sections.

VI.1.3.2 Period II

Sites of Period II (N=17) are distributed essentially in the two geographic micro-zones of the area – majority of the sites in the plains or the Sirowal belt and two in the Kandi belt.

VI.1.3.2.1 Sites in the Sirowal Belt

The sites in the plains are in the following setting around the water bodies. First being on the bank of rivers/ major streams/ small streams (N=4); in the range of distance between 0.1-5 km around the rivers/ major streams/ small streams (N=8) and in the range of distance between 6-10 km around the rivers/ major streams/ small streams (N=3).

VI.1.3.2.2 Sites in the Kandi Belt

The sites of Manda and Ambaran (N=2) in the Kandi belt are just located on the right bank of river Chenab.

VI.1.3.3 Period III

The population in period III colonised different pockets with essentially the earlier pattern being followed. The plains were preferred for occupation in addition to the areas near the old bank of Chenab and the Hills. The total of 68 sites are located on the landscape in the following ways:

VI.1.3.3.1 Sites in the Sirowal Belt

Majority of the sites are in the plains/Sirowal belt and are spatially located in the following way.

The number of sites on the bank of rivers/ major streams/ small streams is six (N=6), in the range of distance between 0.1-5 km around the rivers/ major streams/ small streams are 17 sites (N=17) and in the range of distance between 6-10 km around the rivers/ major streams/ small streams is three (N=3).

In addition to this, the pattern of occupation settling around the old bed of the river Chenab is also witnessed in this period and the number of settlements belonging to this category is 10 (N=10).

VI.1.3.3.2 Sites in the Kandi Belt

The sites in the Kandi area are also distribution in some patterns which is discussed below.

The number of sites on the bank of rivers/ major streams/ small streams is two (N=2). In addition, there are sites located around area surrounded by Khads (N=23). The old bed of the Chenab in the Kandi area is also occupied and there are two sites falling into that category (N=2)

VI.1.3.3.3 Sites in the Hills

There are 5 sites (N=5) belonging to this category.

VI.1.3.4 Period IV

Period IV with 69 sites follow the same pattern of spatial distribution as is evident in Period III.

VI.1.3.4.1 Sites in the Sirowal Belt

The number of sites on the bank of rivers/ major streams/ small streams is six (N=8), in the range of distance between 0.1-5 km around the rivers/ major streams/ small streams are 23 sites (N=23) and in the range of distance between 6-10 km around the rivers/ major streams/ small streams is three (N=3).

In addition to this, the pattern of occupation settling around the old bed of the river Chenab is also witnessed in this period and the number of settlements belonging to this category is 9 (N=9).

VI.1.3.4.2 Sites in the Kandi Belt

The number of sites on the bank of rivers/ major streams/ small streams is two (N=2). In addition, there are sites located around area surrounded by Khads (N=20).

The old bed of the river Chenab in the Kandi area is also occupied and there are two sites falling into that category (N=2).

VI.1.3.4.3 Sites in the Hills

There are two (N=2) sites located on the hills.

An interesting pattern in Period IV is the presence of sites on the right bank of the river Chenab which was not actively inhabited in the preceding periods.

Figure VI.8 shows the spatial location of sites belonging to different periods around the water bodies in the research area.

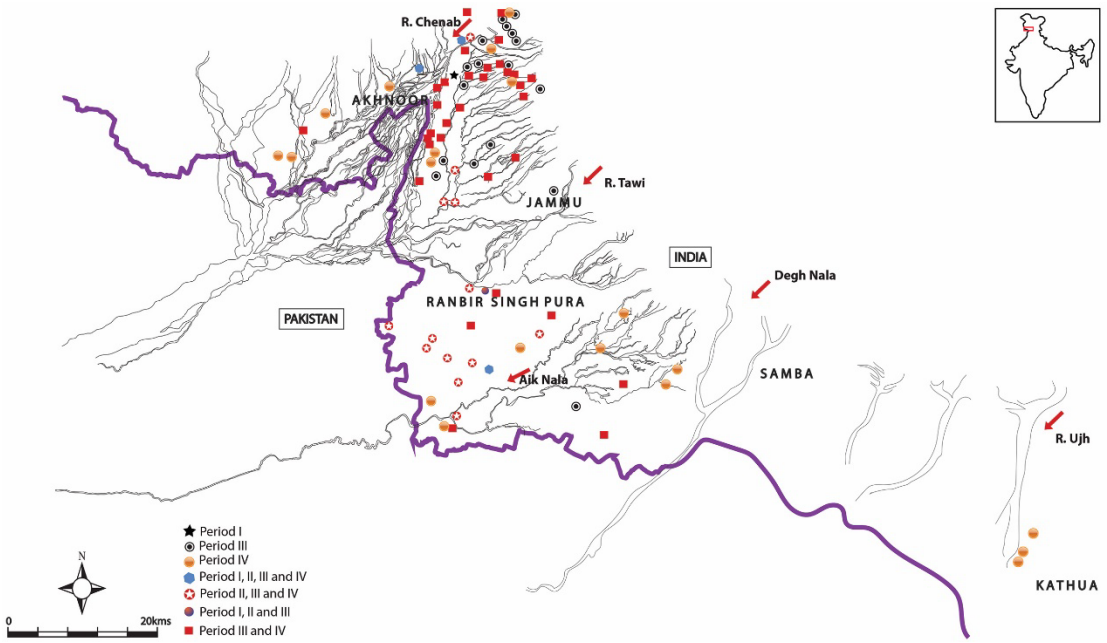


Figure VI.8- Location of sites of different periods around the water bodies

VI.1.4 Other Water Sources

In addition to this, it is important to highlight that the area of study has relied on groundwater for drinking water. Until the 1960s, pond water was used for drinking in the Kandi parts of Jammu (Akhnoor) (CGWB, 2016). Both the rural and urban populations in the districts of RS Pura and Akhnoor, according to census reports from 2001 and 2011, relied on handpumps for drinking water (Fig. VI.9). Rainfall is the most important source of groundwater recharge (CGWB, 2016: 11). The presence of confined and unconfined aquifers, depending on lithology, is a significant source of water for the area (CGWB, 2016) and must have been generously exploited by the people in the past.

The difference in the level of underground water in both these areas have resulted in the uneven resource distribution. In the Kandi area on one hand as Kumar et al., (2004) observes, there is an acute scarcity due to deep ground level of water of water. Agriculture, which is the main occupation, is mainly rainfed. The fallow lands therefore are commonly found in this area. Nonetheless, the ponds have played a major role in this area and there were as many as 406

ponds documented in this area in 2000 (Kumar et al., 2004). In the Kandi areas however, ponds are not used for irrigation purposes, crops being largely rainfed (Goyal & Rai, 2000).

The Sirowal belt, on the other hand, despite the absence of a major river around, has perennial streams flowing. The streams, which are dry in the Kandi tract, gain water through groundwater seepage immediately to the south-west, hence becoming perennial in the plains (CGWB, 2016). The shallower underground water level in the Sirowal belt makes this area best suitable for agriculture (Goyal & Rai, 2000).

The importance of the *Kolab* (water reservoir), established in Sialkot under the Delhi Sultanate, primarily for household purposes, and local people's preference for it over the Chenab River's water (Siddiqui, 1986: 53), is also noteworthy. It suggests that since at least the 13th century CE, other sources for water procurement were chosen over Chenab River, a tradition that may have existed since the area's earliest inhabitants.

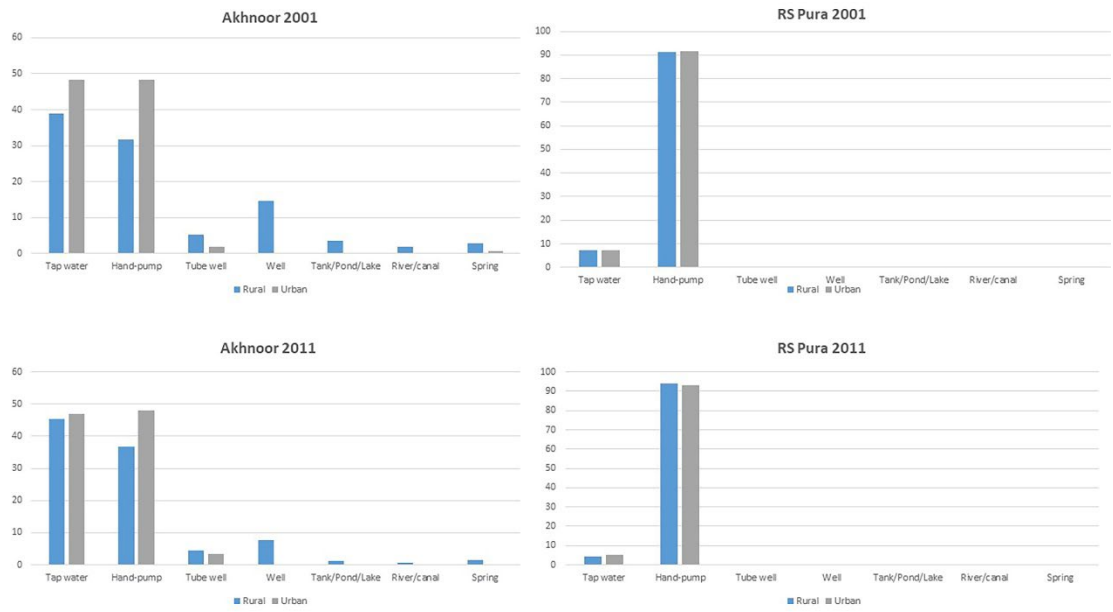


Figure VI.9: Graph showing usage of hand pumps for drinking purpose in the areas of Akhnoor and RS Pura

These ecological factors, such as the location and elevation of sites, size, and closeness to a water body, give crucial information for reconstructing the settlement pattern in the study area. These characteristics, when combined with the region's historical evolution, contributed to provide a reasonable dataset for the logical reconstruction of Jammu's settlement patterning, which is the subject of the following section.

VI.2 The Emerging Picture

The emergence of distinctive features of settlements in the region has come from the synchronisation of diverse socio-cultural, political, and ecological processes. The section therefore aims to comprehend the interconnected processes of cultural development against the backdrop of all available data. Various critical elements, which will be discussed in this section, determine the pattern of settlement dispersion. Due importance is given to the archaeological and historical data, which according to Parsons (1972) has significant potential in settlement pattern studies.

Jammu is an ecotone between the plains of mainland India and the upper reaches of the Himalayas. The different routes radiating to the surrounding area of hills, valleys, and plains pass through it due to its strategic location. From the Harappan/Neolithic period onwards, this element paved the path for the establishment of settlements in the area. It is obvious that the region must have served as an important corridor for cultural growth by facilitating the movement of people and the acquisition/exchange of materials owing to its strategic location in this dispersal or exchange junction. In the background of the absence of any natural wealth from the research area itself (Chapter III: Section III.8), the assumption that it was involved in the transaction of raw material from upper reaches to the lower plains is noteworthy.

Law's Harappan raw material acquisition and provenience studies are crucial in this regard. He states that in the third millennium BCE, the Jammu region, as part of the tightly networked 'Harappan zone,' was involved in the acquisition of certain raw minerals like lead and steatite (Law, 2008: 371). He also discusses the Sothi-Siswal phase of the Early Harappan, who were settled at Manda and other locations in Punjab, having access to mineral resources. The location of the Harappan site at Manda (IAR 1976-77) at the northernmost navigable point of the Chenab River, along with sporadic evidence of the presence of Harappan outposts from the current research (see Chapter IV) highlight the antiquity of interaction between the people of highlands with that of the mainland going back to the third millennium BCE.

Manda along with the sub-Himalayan sites like Kotla Nihang, Ropar, Kashipur are hypothesised as gateway procurement centre for raw material like copper ingots, deodar wood, *shilajit* (sticky substance found in the rocks of Himalayas), cinnabar, talc etc. from the highlands (Agrawal et. al., 2010).

These events serve as a backdrop for reconstructing the research area's history and cultural evolution using historical documents and archaeological investigations.

VI.2.1 Period I

The scanty evidence of Neolithic tradition followed by Harappan civilisation in the research area is worth considering. Barring one site each of the Harappan period (Manda - IAR 1976-77) and Neolithic period (Malpur IAR 1993-94), and the meagre findings of the Harappan period by the researcher, there has been a dearth of cultural material that would have helped to better understand the intensity of prehistoric cultural engagement in the region. The Neolithic horizon in Jammu is scanty as the evidence from the research of Mohapatra and Saroj suggest (IAR 1968-69: 11-12; Saroj, 1974). Mohapatra (1978-79: 21)

mentioned the site of Gurapatan belonging to the Neolithic period and four more sites in Kathua district. Later, the site Malpur (1993-94) with Neolithic material culture was excavated.

This trend of Neolithic site scarcity can be seen all the way into the Punjab plains (Bala,1992). Mohapatra (1978-79: 22) indirectly emphasizes the scant distribution of sites on the plains. According to him, most of the Neolithic sites discovered in the Western Sub-Himalayas are on terraces within the "submontane valleys (duns) and on the outer alluvial slopes of the Siwalik Frontal range at or near their discharges to the plains." The discovery of Neolithic sites in the submontane terrain of the former Punjab (now Himachal Pradesh) (Mohapatra, 1974, Mohapatra ,1978-79: 20-21) attests to this fact.

Considering the available evidence, it may be concluded that Neolithic settlements on the plains of Jammu are limited, and that sites are confined to the upper reaches, as suggested by the pattern outlined above. However, the author was unable to discover any Neolithic sites in the current study, due to the restricted reach of the high elevated terrains.

Manda has maintained a significant reference point for the Harappan sites in the research area. Manda appears to have been strategically located at a spot when the Chenab is still struggling to burst out into the plains. For as late as the 19th century CE, the Chenab's downstream motion was used for timber transportation when the snow would melt (Drew, 1875: 128,133,148, 150, 151). The timber in Akhnoor was brought down by river Chenab from Bhadarwah and Kishtwar till the early part of 20th century CE, as documented by Munshi and Khan (1902).

Chaudhuri (1952: 29) in the similar context states that Alexander obtained timber for his fleet from the hilly regions abutting the Punjab's northern border.

According to Law (2008: 211), the Early Harappan outposts may have taken advantage of this ideal location to transport lithic raw material. Law (2008: 373) proposes that the sites along the Himalayan foothills were nodes, and that these sites/nodes would have served as a link between the highland Neolithic and lowland Harappan cultures. This concept of cultural exchange would have necessitated the regular spatial connection of Neolithic or Chalcolithic sites. To put it another way, the research area appears to have a reasonable probability of more Harappan or Neolithic sites.

As already mentioned, the current knowledge about the networking of Neolithic culture in the area is sparse, which however does not suggest its complete absence. On the other hand, the sparse evidence of Harappan sites in the research area, as the current data suggests, could provide a new perspective in unravelling the putative exchange network if further examined.

So far, the position of Harappan settlements in the area has remained sparse, as noticed by Joshi (1993). Apart from the sketchy mention of a few Harappan sites (e.g., Kot Garhi - IAR 1976-77, Airwan in Kathua – IAR 1985-86) there is no evidence of Harappan sites in the area. The current research has attested the presence of a few Harappan potsherds (personal communication – R S Bisht) in the research area, but the data is insufficient to draw any conclusions concerning distribution patterns. Joshi (1993) has earlier noted that there is a distinct lack of Harappan sites in the plains of Jammu. He also claim that no "major" Harappan settlement exists between Manda and Ropar. However, in the appendix section of the same text (1993), he discusses the list of explored Harappan sites, some of them of the Late Harappan period in the district of Gurdaspur (around 95 km from Jammu city) and Amritsar (around 120 km from Jammu city). This is important since these sites are not big, but small to medium sized, and as Petrie (2013) has put it, cover the “hinterland of large Harappan centres”. When taken together, the dispersed evidence points to a

nexus of small village settlements in the Punjab plains and Jammu probably operating as a satellite to the nearest Harappan centre.

The crucial question, however, remains unanswered. Why aren't there any Harappan settlements on the Jammu plains? It could be because there was no major settlement activity in the area during the Harappan times, or because this sequestered zone of the Harappan civilisation had some sites that were destroyed over time owing to river floods which even today have devastating consequence on the landscape (the process of flooding will be discussed later).

This constrained cultural trajectory of the distribution of Neolithic and Chalcolithic sites in the plains of Indian Punjab extends into the Post Harappan, PGW culture (1300-300 BCE (Uesugi 2018: 24, Fig. 13) in the research area. It should however be emphasized that the "painted grey ware" only accounts for a small percentage of the total pottery collection of the period under consideration, indicating the importance of PGW as a 'table ware' (Singh et al., 2014: 80). Hence, "PGW" here includes painted grey ware sherds and all the other wares associated with it (Roy, 1984: 136).

The eastern Ghaggar valley and the western Ganga valley are usually thought to be the epicentre of PGW sites (Uesugi, 2018: 4, Singh et al., 2014: 80). However, the dense concentration of PGW sites in Indian Punjab (Uesugi, 2018: 4; Bala, 1992: 62-70; IAR 1953-55, 56-57, 60-67, 68-70, 73-74, 75-81, 83-84, 85-89, 91-92, 93-95, 96-97, 98-01) is noteworthy. When travelling from Punjab to the north-west, however, this widespread distribution abruptly comes to an end. Apart from evidence of plain grey pottery from the site of Manda, which the excavator associated with painted grey ware (IAR 1976-77; Joshi, 1993), Tibba Name Shah is the sole site in Jammu containing "painted grey ware" sherds (IAR 2007-10).

As mentioned earlier, because of the inconsistency in the site's chronological labelling, evidence of grey ware from Guru Baba ka Tibba (IAR 1997-98) should be treated with caution (see Chapter III). Furthermore, no evidence of PGW has been reported from Kashmir's valley (Yatoo, 2012: 27, 281). PGW culture is completely absent at Taxila, which is located further north-west (Marshall, 1951b; Allchin, 1982). Marshall (1951b), who dates the settlement at Bhir mound to the fifth to sixth centuries or earlier, and Allchin (1982), who dates the Taxila even farther back, both do not acknowledge the presence of PGW in the area. The "soapy red ware" and "burnished red ware" of the mid-late second millennium to mid-first millennium BCE seems to be restricted to "Swat and surrounding valleys across the Peshawar Valley and to the east across the Indus into the Taxila Valley" (Petrie, 2021).

Archaeologically, it therefore appears that the area of Jammu with fewer settlements is a hiatus between the flourishing PGW culture on the alluvial plains towards its south-east and cultures on the north-west.

The literary narrative follows the same path. Referred to as part of Madra Janapada (see Majumdar, 1951:279; Singh, 1999: 149-168; see Przyluski, 1960; Law, 1924: 241-229; Law, 1954:105 for a general discussion on Madras; see Agrawal, 1953: 52 for more precise zone: Purva-Madra), the region is "completely ignored" by the authors of Rigveda in the sense that few hymns refer to the region (Singh, 1999). The dearth of archaeological sites of this period is, as noted above, corroborated by the literary data. In this regard, Singh (1999) makes an intriguing observation. He mentions that in this formative stage of the Madra Janapada, people had not settled but were in the process of settling.

The cause for this period's and the preceding period's restricted settlement in the research region necessitates problem-oriented excavations. However, an interesting observation by Lal (1985) regarding the paucity of settlement on the

Lower reaches of Yamuna and the sparseness on the Sengur partially due to kankar ravines along the rivers is worth considering. Without the help of artificial irrigation, observes Lal (1985: 375-76), the meagre agricultural land available in this area is difficult to cultivate. In addition, he also considers the census report of 1881 to affirm the unattractiveness of the Yamuna valley for habitation to the people right from the earliest time to the present. Giving the general pattern of spatial distribution of PGW settlements in terms of preferences, Lal (1985: 378) adds that the low-lying areas preferred for farming would have been enriched by the deposition of fresh silt by river floods. Drew (1875: 64), while referring to late medieval Jammu, makes an interesting insight in the context of Jammu. He says that Jammu is a "good deal resorted to for trade and other business" but not a place chosen for settlement. The availability of good water is limited, making it an unpleasant place (Drew, 1875). Bates (1873: 214), writing in the late medieval period, mentions Jammu's lack of water supply save during the rainy season, when tanks and pools fill up. In addition, flooding of rivers, as will be explained later, does not immediately increase soil fertility, but is rather detrimental to crops. This is to say that in the absence of external stimulus, the process of settlement in the outer plains of Jammu did not commence.

Keeping in mind the spatial location of the sites of Period I in the Kandi belt as discussed in section V.1.1.1, it appears that the population of the period concerned is occupying the areas around the river Chenab, primarily involved in trading activities. The site of Manda, as has been already discussed, may have been an active player in this resource procurement transaction from the upper reaches. One site, as the current evidence suggest, was able to fulfil the trading requirements, although the sparse evidence of more sites belonging to Period I that have come up because of previous research and the current one needs further introspection.

When all the above factors are considered, it appears that, in the absence of any external pressure to settle down, the Jammu region remained sparsely populated during this time. In the following periods, however, the picture changed.

VI.2.2 Period II

Around the 4th/5th century BCE, settlements in the plains of Jammu begin to appear. This period is represented by 17 sites in the Akhnoor and RS Pura areas. The radiocarbon date obtained from scraped sections from the site of Satowali (4th century BCE) was crucial in determining the area's historical sequence. Given the current lay of rivers and feeder *nalas*, the placement of these places is remarkable. Despite the lack of a large river, the area of RS Pura had the most sites, followed by Akhnoor. Furthermore, except for two sites in Kandi belt, all the others are in the plains. The sites of Ambaran and Manda fall in the Kandi belt and would have been instrumental in the trading activities of the area, given their location on the bank of river Chenab. The assumption that these sites are playing some important role in the trade networking is because despite continuous flooding, as is shown later in the case of Ambaran, there is a cultural continuity seen in these sites.

On the other hand, the sites in the plains or the Sirowal belt are in the areas which are away from the ferocious rivers. These are rather in the area which has high level of underground water and is hence an agriculturally productive zone (see section V.1.4). The presence of rice in the sherds from the sites in this belt as already discussed in the previous chapter (Fig. V.5 and V.9) signify the usage of rice and most likely intra-regional interactions between sites in the plains and the Kandi areas during this period (Kandi area owing to its lithology

doesn't support rice production on a grand scale- see Chapter III section III. 8 for discussion).

These sites, as discussed in section VI.1.2.2, fall under the category of villages. However, given the data on the size and the number of sites, as highlighted by Habib (2010: 125), it is possible to have an idea of the economic base of a region. The sites are concentrated within 40 km diameter, showing a dispersed settlement pattern mainly owing to the availability of land. There are two relatively bigger sites (Biyan Tibba and Dohana chak Tibba – both 2.25 hectare (see sectionVI.1.2.2 for other categories) which hints towards the culmination of phenomena of site structuring (Fig. VI.10), an idea which will further become complex as will be seen in later periods.

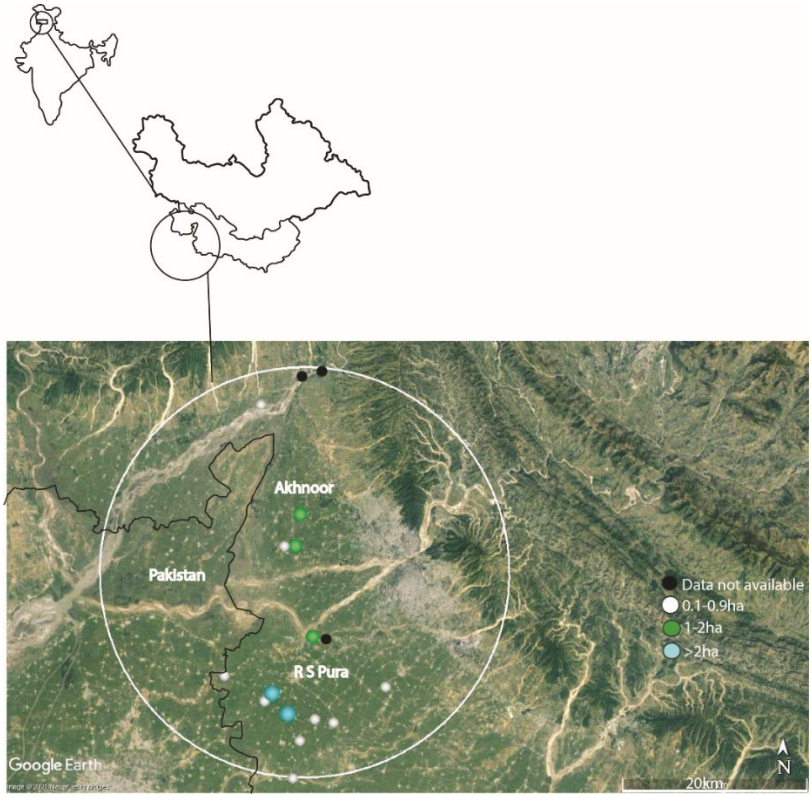


Figure VI.10: Size and spatial distribution of the sites belonging to Period II

The culmination of settlement process in the research area during this period may be related to the increased commercial networking in the form of the *Uttarapatha* or northern trans-regional route, which "comes alive only in the

sixth-fifth centuries BC," according to Lahiri (1992: 369). Marshall (1951a: 1) refers to this road as the "royal highway," one of the three that carried most of the traffic between India, Central Asia, and Western Asia. This bulk of traffic is archaeologically visible when the extension of the culture is seen in the form of distribution of sites (Fig. VI.11), which was lacking in the preceding cultural periods.

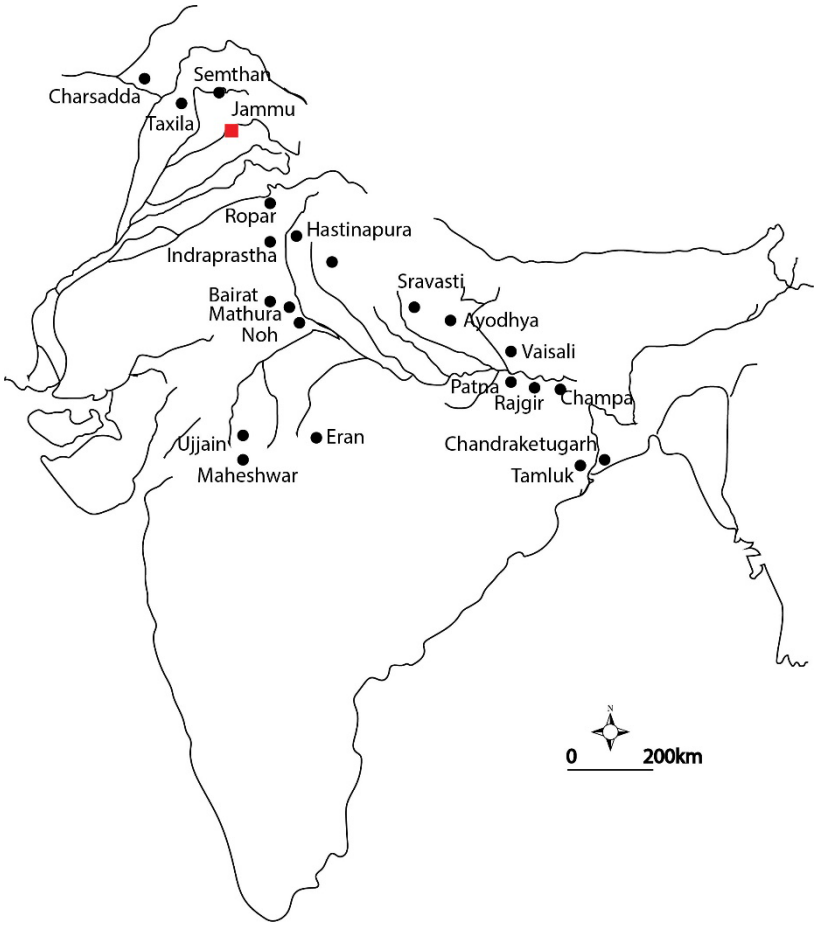


Figure VI.11: Distribution of major NBPW sites along *Uttarapatha*- modified after Kenoyer 1997

This period, in general, is associated with the Northern Black Polished Ware (NBPW) divided into two subphases – Early: 7th—3rd centuries BCE and Late: 3rd—1st centuries BCE (Singh, 2009: 259). Considering the above subdivision, the Early Historic habitation in Jammu's outer plains began in the late NBPW period. It is important to mention here that NBPW is a deluxe ware (Ghosh, 1989: 254; Ranjan, 2014: 64) and the material culture "NBPW" includes potteries like black and red ware, black slipped ware, plain grey ware, PGW, red slipped

ware, and coarse red ware in the earlier context and coarse grey ware and red ware in the later context (Ghosh, 1989). Therefore, the presence of any of the above pottery types with characteristic vessel features of the NBPW period would be considered as an appropriate cultural marker of the period in question. As a result, the presence of NBPW associated red ware in the research area is suggestive of the NBPW period occupation of the region, absence of other ceramic markers notwithstanding.

The spatial distribution of the sites from this period provides an intriguing viewpoint on the beginning of supra regional relations. The presence of the cultural element belonging to this phase in Charsada (Wheeler,1962; Mohammadzai & Khan, 2011; Petrie, 2013), Taxila (Marshall, 1951b: 432), Kashmir (IAR, 1978-79, 1980-81, 1981-82; Yatoo, 2012; Agrawal, 1998:76; Shali, 1993:114) and plains of Punjab (Roy, 1986; Bala, 1992) establishes the presence of sites all along the trade route (Fig. VI.11)

Based on the sites revealed in the current study and the data already available from other sites (see Appendix III), the outer plains of Jammu appear to be crucial in facilitating trade between the plains of Punjab and sites located in higher ranges, such as Kashmir. The valley of Kashmir can be reached from Jammu's plains via two routes: 1. Udhampur—Banihal and 2. Rajouri—Poonch. Lahiri (1992: 377) makes the intriguing point that "NBP-related pottery" must presumably transit through Jammu to reach Kashmir. However, she dismisses the likelihood of the Banihal pass (Fig. VI.12) as the route due to the lack of sites between Manda (Harappan outpost in Akhnoor Jammu) and Kashmir valley. She appears to be unaware of the cultural changes taking place along the Poonch Rajouri route.

The lack of extensive reconnaissance surveys along each of these routes has impeded the reconstruction of the complete cultural development. Nonetheless, the scant evidence available from IAR surveys along the Udhampur-Banihal pass (IAR, 1966-67: 16-17; 1971-72: 26-27) and sites along the Poonch Rajouri route (IAR, 1979-80: 33; 1985-86: 35; 1987-88: 31-32) suggests that these routes may have had a part in the overall cultural trajectory, the antiquity of which may go back to the prehistoric times. Nagrota in Udhampur provided evidence of prehistoric period from the 1966-67 exploration (IAR) (Sohanian pebble tool site) and the 1971-72 (IAR) surveys reported evidence of pebble chopper, scrapers, convex sided scrapers and bifacial chopper and a chopper on a flattish weathered pebble. Evidence of irregular brickbats floor belonging to 'Gupta' period was found from the site of Krimchi (IAR 1989-90: 35).

On the other hand, preliminary research discovered Kushana communities along the Rajauri Poonch route (IAR, 1979-80: 33; 1985-86: 35; 1987-88: 31-32), indicating that it was used for cultural and commercial interactions. The fact that Rajouri and Poonch were included in Hieun Tsang's 6th century CE itinerary (Beal, 1884) adds to the significance of this route.

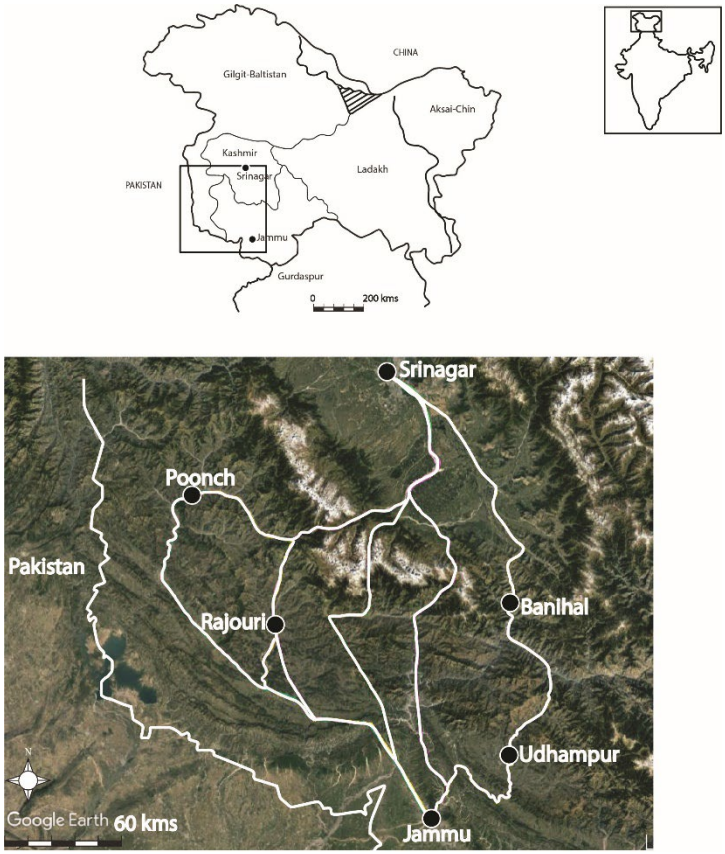


Figure VI.12: Routes from Jammu to Kashmir via Banihal and Rajouri- Poonch

When considering the commercial routes that pass through Jammu, the fact that the trail between Kashmir's highlands and mainland India passes through Jammu and that the plains of Jammu helped the trading phenomenon is intriguing (see Chapter I).

The purpose and functioning of these sites in Jammu, on the other hand, should be emphasized. The size analysis of Period II sites in the region reveals that they are small settlements (see section VI.1.2), serving as a link between sites in Kashmir (IAR, 1978-79, 1980-81, 1981-82; Yatoo, 2012; Agrawal, 1998:76; Shali, 1993:114) and on its north-west side e.g., Charsada (Wheeler, 1962; Mohammadzai & Khan, 2011; Petrie, 2013) and Taxila (Marshall, 1951b: 432) and the plains of Punjab (Roy, 1986; Bala, 1992). The existence of NBPW or its associated ceramics in sites from this trade network period forms a pattern all over the route, as evident from the studies indicated above. The proliferation

of trade networking along the route provided the impetus for the establishment of settlements during this period in the research area.

Politically, this time appears to be marked by a series of complex processes that saw the rise of monarchies and *gana-sanghas* all over the Indo-Gangetic Plains, finally leading to the establishment of the Magadan empire. *Gana-sangas* were "alternate policy to the kingdom" and are found in the "Himalayan foothills, in north-western India, Punjab and Sind, Central and Western India" (Thapar, 2002: 147). The *gana-sangas* in general are seen with an eye of contempt in the writings of Kautilya and he gives a list of activities to be undertaken to break up their strong bond (Chattopadhyaya, 1959:173). Jammu was essentially part of the Madra group and Panini calls the Madrakaras – the warrior troop of Madras (Agrawal, 1953: 57). At the time of Alexander's campaign, these "tribal-organisations" gave him the stiffest opposition. The campaign of Alexander was across the "five rivers of the Punjab" (Thapar, 2002: 158) and his departure created a power vacuum. This situation was exploited by Chandragupta and the north-west fell to him rapidly (Thapar, 2002: 176).

Allchin (1995: 333) states that the emergence of cities and states in North India during this time was due to the "breaking down of tribal societies throughout North India" followed by the emergence of "new set of urban and sub-urban social relations". What we know after this from the textual sources (Chakravarti, 2014: 243) is that Chandragupta was successful in winning over the territories in Punjab ruled by Alexander's governors and as Ghoshal (1952: 261) states the favourable political conditions in the Mauryan period were conducive to the development of inland and foreign trade of the empire. Kenoyer (1997: 65) suggests that with the establishment of the Mauryan empire, highways and rest stops were built along major trade routes, resulting in the unification of huge regions with "inhospitable terrain". Ashoka was the viceroy of *Uttarapath* with his headquarters at Taxila at the time of Bindusara's death

(Thapar, 1961:25). The empire during the time of Ashoka was divided into four major provinces, Taxila being the capital of the northern provinces (Thapar, 1961: 100). After the third Buddhist council, Majjhantika, a Buddhist monk was sent to Kashmir and Gandhara (Thapar, 1961: 47).

All these events point to the fact that north-western region was politically active in this period and the region around Jammu was simmering in the political stew of the time. Although Jammu does not seem to occupy a special place on the Mauryan political map, it is highly unlikely that Jammu would have skipped this political influence. Kashmir however seems to be a part of the Mauryan empire as Rajatarangini recognizes Ashoka's influence in Kashmir (Stein, 1900: 74-75).

Following the collapse of the Mauryan empire, a wave of political influences sweeps through North India. The numismatic evidence from Jammu, as reported by various researchers, has been used to create a linear understanding of the political chronology.

Cunningham (1888: 44; 1890: 8) observes that some of the later Greek princes had driven east with their capital at Sangala. Strato I, Apollodotus (Haughton, 1943: 57), Zolius II (Deyell, 1984: 119), Dionysius (Haughton, 1946: 144; 1943: 51; Deyell, 1984: 119), Apollophanes (Haughton, 1943: 51, 59), and Strato II are among the Indo- Greek kings who ruled the Jammu region (Narain, 1957: 104). Marshall (1951b: 763, 768) also mentions the fact that the west bank of the Indus was ruled by different monarchs than the eastern Punjab territory (Jammu forms the part of East Punjab). In Jammu, the Indo-Greek ruler Strato II minted lead coins (Cribb, 2002: 78.). Another ruler, Bhadrayasa, is mentioned as controlling Jammu/Eastern Punjab (Cribb, 1985: 289; Marshall, 1951b: 770). Rajuvula, the Indo-Scythian satrap (Quintanilla, 2007: 169; Senior, 1991: 11), issued lead coins (Cribb, 2002: 78). Gondophares, the Indo-Parthian ruler,

succeeds Rajuvula (Cribb, 2002; Srivastava, 2004: 162; Ghosh, 2016: 1183; Neelis, 2007: 74). The Jammu-Pathankot region appears to represent the kingdom of Gondophares' eastern limit (Ghosh, 2016: 1184). The discovery of two hoards in the Jammu area by Joe Cribb (1985) has added additional rulers to the post-Indo-Greek period in Jammu. Gondophares is followed by Abdagases, Ubouzanes- Gadana, Sarpedanes and Sases (Cribb, 1985: 294, 298; Bopearachchi, 2011: 273).

These events gave the external thrust to the area which was required for the establishment of the settlements. Once settled, the area followed the political and economic trends active in North India at that time.

VI.2.3 Period III

This accentuated pattern of populating the area is further seen in Period III (1st century BCE/CE—3rd/4th century CE). The radiocarbon date (1st century BCE/CE) obtained from the scraped section at Biyan Tibba was important in authenticating the proposed relative period. With an available data on spatial location of 68 sites out of the total of 82 sites belonging to this period, it was observed that the pattern of the distribution of sites is almost same in the Plains and the Kandi area (36 in plains and 27 in Kandi belt). Some of the sites are also found on the hills (5) which signify the expansion undertaken by the people in this period. This is substantiated by the archaeological evidence from the higher reaches of Punch (IAR 1987-88: 31-32), Doda (IAR 1979-80: 33), and Rajauri (IAR 1985-86: 35), all to the north of Jammu demonstrating this territorial expansion during the "Kushana" period (1st century CE to 3rd century CE).

The data on the size of the sites reveal that they belong to the village category. However as has been discussed in section VI.2.2, the pattern of distribution of resources and site structuring become complex here. The settlements which

were dispersed widely in Period II now appear to be clustered within the range of 60 km diameter (Fig. VI.13), signifying two aspects. One is increase in the population density and second is the occupation of different micro-zones. The optimistic theory of population growth (Bloom et al., 2003) asserting that 'population growth can be an economic asset' fits in the case of Period III. The theory states that because of population growth, the available resources come under pressure leading people to innovate.

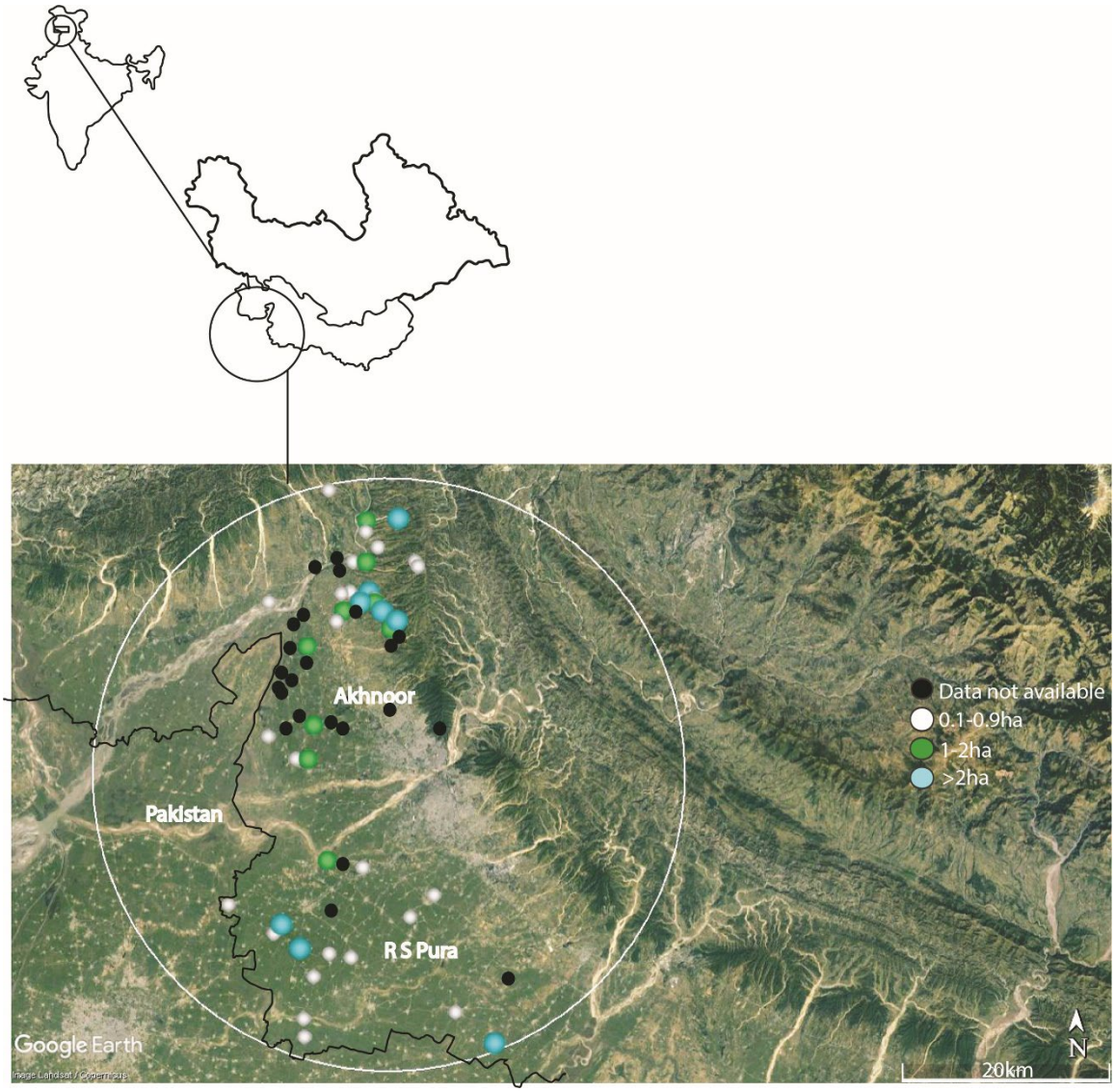


Figure VI.13- Size and spatial distribution of the sites belonging to Period III

It therefore seems that the resources were now catered to a larger population. Additionally, there is an increase in the number of relatively big sites. Where in Period II, there were two sites greater than 2 hectares, in this period, the number has increased to eight. It indicates that the sites are now structured according to their size probably involved in resource acquisition process.

One of the major changes in the colonization strategy apart from the one already adapted by the settlers in Period II was the emergence of settlements in and around the old bed of the river Chenab. The Chenab by nature is a ferocious river capable of eroding the banks as it swells up with water. It has several streams in its present course which become active and inactive depending on the load deposited by the river near its mouth, just before entering the plains. The logical argument about the emergence of sites around the old bed is that the branch flowing near the old bed must have become inactive, or in other words slightly shifted away and the expansion from the core zone of settlements (the area in plains occupied in Period II) had gained momentum. This process is explained in depth in the following paragraphs.

Two ongoing intertwined climatic phenomena in the research area gives an interesting perspective to this – the Indian Summer Monsoon (ISM) and the presence of erratic rivers like the Chenab and the Tawi and torrential streams. The working of these two processes will be discussed briefly and then their consequences on the settlement patterning will be taken.

The Tawi and the Chenab are two important rivers in the area. During the rainy season, the Tawi, as recounted by Bates (1873: 213), transforms into a raging river. This high-energy event, as noticed by the researcher, is a regular occurrence that is most likely to blame for the erosion of riverbank areas. The sites are eroded because of the severity of this process, as in the instance of Kalali (Fig. VI.14), where erosional activity of the river Tawi has resulted in

landform modification around the site over the last 16 years. The Chenab has also followed a similar trend of landform evolution.

As noted by Lambert (1878), the banks of Chenab are mostly undefined, the river wanders unchecked especially during summers and monsoons, sweeping away the riverbanks and making the villages disappear. This narrative although chiefly is of Wazirabad (in Pakistan), but in general talks about the ferocity of geological processes and their impact in the plains.

Figure VI.14: A: Kalali 2004: Narrow channel around the site B: Kalali 2020: Expanded channel

This is an ongoing process in the region with sites like Bakore and Sakrampur on the Chenab's banks being gradually destroyed by the river's meandering activity. Interestingly, Luqman et al., (2017) has published a study that documents the Chenab's riverbank dynamics before and after the 2014 floods. According to their research, Chenab flowing near the city of Gujarat in Pakistan (approximately 50 kilometres downstream of the Bakore site in Jammu), changed course by 1669 meters in 2014. This indicates that river shifting is a continuous activity that has had a significant impact on the overall formation of the site. This process of river shifting for over a century and a half in the research area is depicted in Figure VI.15.

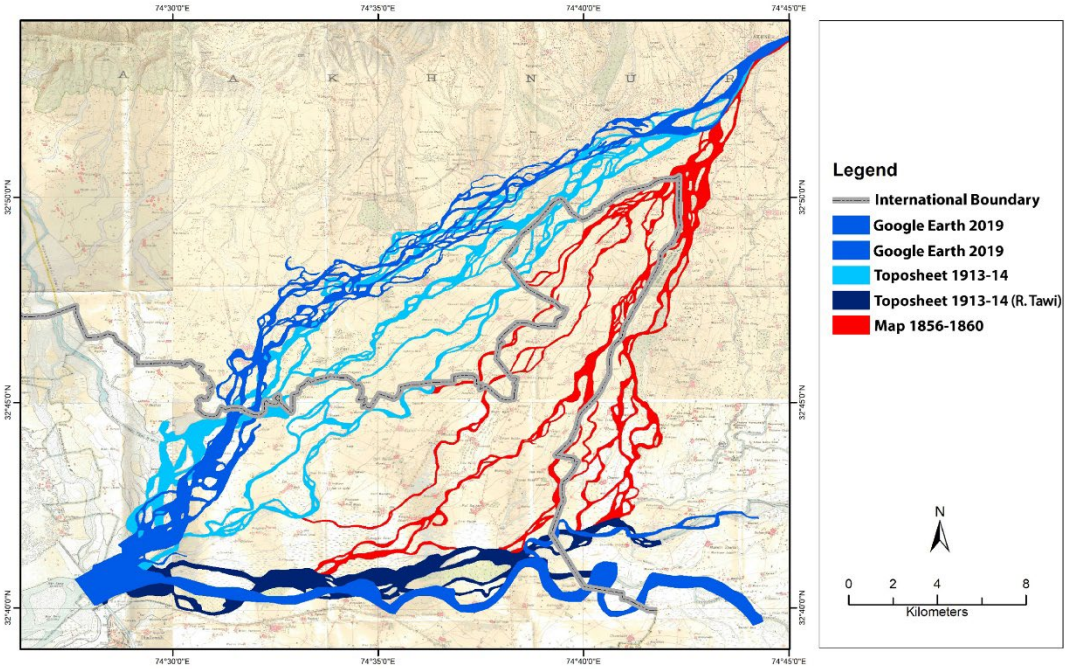


Figure VI.15: Shifting of the course of the river Chenab and the river Tawi over 150 years

This trend of the Chenab River migrating westward by AD 1397 (running west of Multan after changing its route from the east) is documented by Lawrence (1909: 93), and later by Wilson from 1855 CE onwards (1897: 3). The back and forth moving of the river appears to have occurred rather regularly in the past. However, there appears to be a distinct pattern of the river moving north-west rather than eastward, as the paleochannel doesn't extend after a point on the east. The gentle gradient in the course of the river Chenab (Fig. VI.16) signifies this pattern of its episodic shifting.

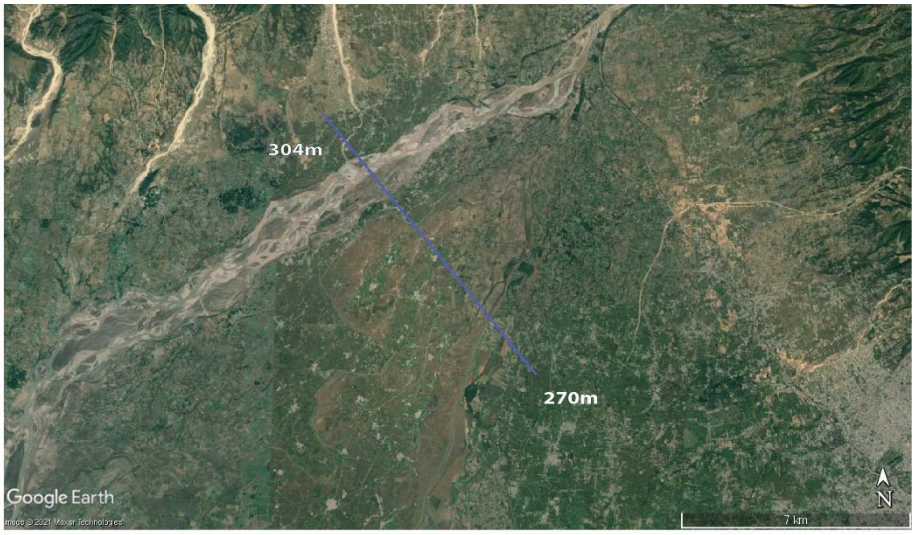
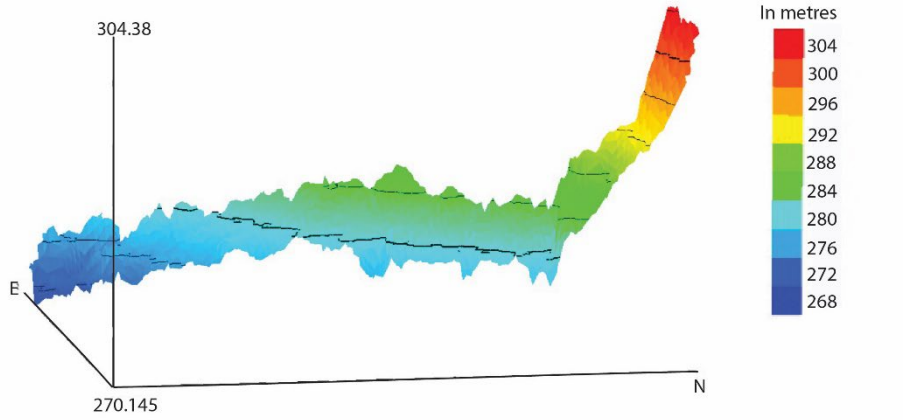


Figure V.16- Slope in the gradient of the river Chenab
A: Gradient in the Google Earth map



B: Gradient in the DEM

What causes these rivers to flood? These rivers and streams are perennial in nature, and when swollen with water, they can be immensely devastating (Luqman et al.,2017). According to Ali et al. (2013: 5), high precipitation in the hilly catchment areas of the Lower Himalayas causes flooding of the Chenab River. The Monsoon season effectively changes the "morphology of the river," according to recent research by Ashraf et al. (2016) of eleven separate flood occurrences in the braided stretch of the Chenab River in Pakistan. In other words, floods are primarily responsible for the river's meandering. Although the focus of these above-mentioned research is on the Pakistan side of the Chenab, their effect is of same intensity in Jammu plains as well.

Apart from erosion, the river Chenab's deposition is very low in fertility, to the point where the fresh alluvium (mostly sand) must be kept uncultivated for a few years in order to consolidate (Wilson, 1897: 2; Smith, 1895: 4). Smith (1895) also points out that the Chenab's current damages standing crops on a regular basis and is not as beneficial as the Ravi. The Chenab, according to Douie (1916: 41), is an unattractive river of the plains with inferior sediment to the Jhelum. According to Chohan et al., (2015), the river Chenab's water, silt, and sand deposit pose a significant threat to rice paddies. Tawi also brings in red silt which has far greater value than white sand deposits of Chenab (Government of Jammu, 1925). The sandy layer of Chenab renders cultivation impossible is also documented by Munshi and Khan (1902).

The image that therefore emerges is that severe precipitation created flooding, which resulted in erosional processes, a process that would have started before the start of the Period II. The consolidated alluvium on the paleochannel of Chenab on the east would have drawn the settlements to grow exponentially, given the river's moving inclination towards the north-west. The notion that the river temporarily changed its course well before Period II is supported by paleo-climatic data from Jammu's water bodies (Trivedi et al., 2013; Trivedi & Chauhan, 2008, 2009; Kusumgar et al., 1995; Quamar, 2018), as well as evidence from the excavation at the site of Ambaran.

The paleoclimatic data demonstrate a general pattern of increasing rainfall in Period II and Period III of the current research and this fact is seconded by the excavation at Ambaran (IAR, 1999-2000: 52,54,61), where the recurrent deposition of sand and silt in between periods I, II and III suggest the flooding events at the site of Ambaran (Fig. VI.17).

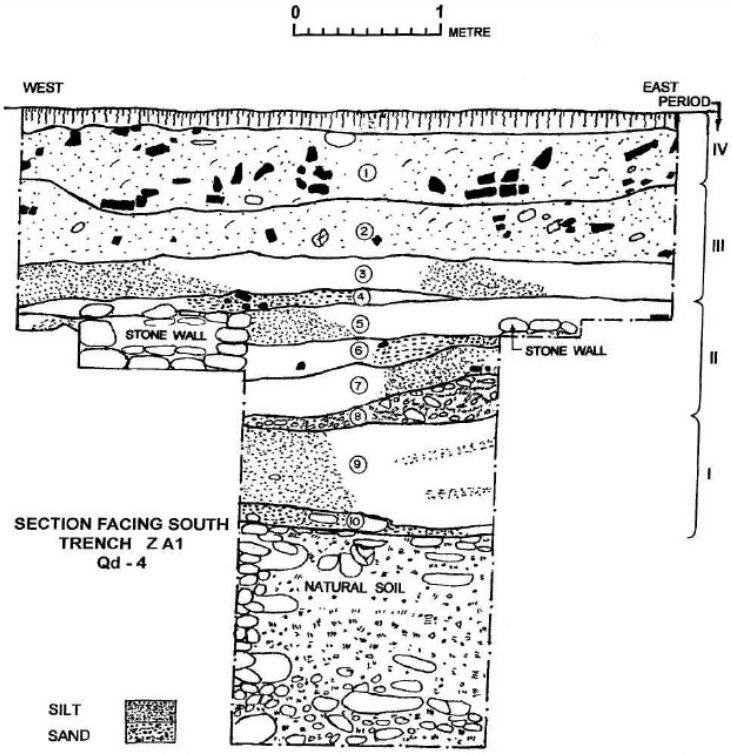


Figure VI.17- Section drawing from Ambaran with evidence of flooding (IAR 1999-00)

Given this context, the sudden increase in the number of Period III sites on the Chenab's left bank is fascinating (Fig. VI.18). However, when considering the spatial distribution of sites, the area along the Chenab river's right bank is devoid of them (Fig. VI.18). This probably is because of the erosional tendency given the river Chenab's ferocity, which can still be seen in the research area (for example the ongoing erosional damage to the sites of Bakor and Sakrampur situated on the right bank of the river Chenab). This, however, raises another intriguing aspect to consider.

The area on the right bank of Chenab, in the lower reaches is sparsely occupied (with an exception of site Bakore), because of the active and likely destructive river channel at that time, then why are sites like Manda, Ambaran and Kot Garhi—Lahrian though located on the right bank itself (Fig. VI.19) continuously occupied from Period I to IV?

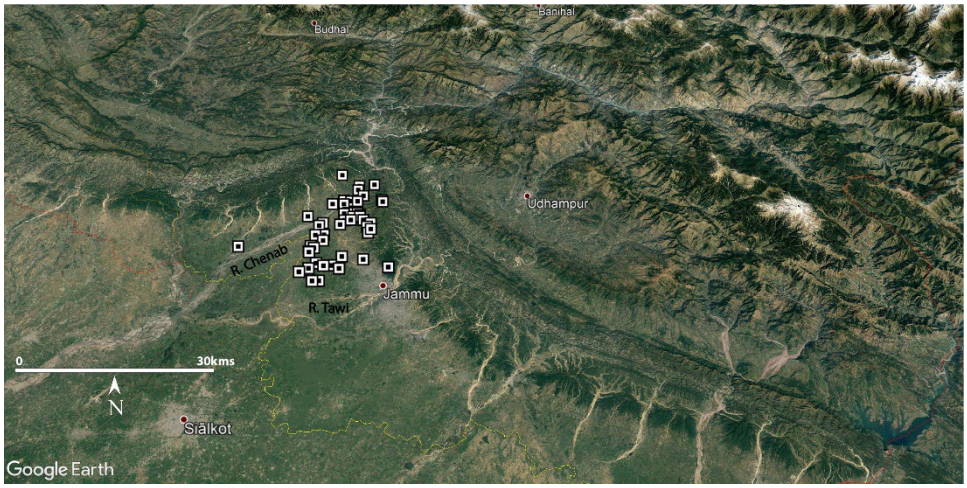


Figure VI.18- Settlements of Period III on the eastern bank of the river Chenab

Figure VI.19: Location of sites on the right bank of the river Chenab

The locations of these sites are at slightly higher elevations, with Kot Garhi at 300 metres, Manda at 324 metres, and Ambaran at 320 metres. The river Chenab in the higher reaches of the plains has a less aggressive erosional tendency than the lower plains (Fig. VI.19) due to the bounded mountainous path. This is not to say that these areas are not flooded, as signs of floods can be seen in Ambaran (Fig. VI.17), but the river erosion is restricted. The continuous process of deposition of silt because of flooding in Akhnur is recorded in Census report of 1902 (Munshi and Khan, 1902). Munshi and Khan (1902: 3) further observe that even though flooding makes the land which has gained alluvion worthless,

the area has its own importance in the acquisition of timber from higher reaches.

Based on the location of these sites, particularly Manda and Ambaran, it is reasonable to assume that the potential of a water route would have been economically more beneficial to the local populace. As previously mentioned, the Chenab operated as a communication channel until recently. Hence, as can be seen at the site of Ambaran, infrastructural developments were made following floods (IAR 1999-00: 58) to mitigate the catastrophic effect, but it was not abandoned, most likely due to the productive significance of the water route.

The settlement zone in this period, appears to have expanded to higher elevated Kandi areas surrounding ravines or *khads* and the hills (data extracted from the ASI reports). This inhabitation of new micro-zones, is most likely a part of the resource procurement process. The sites belonging to this period are also found in the higher reaches of Punch (IAR 1987-88: 31-32), Doda (IAR 1979-80: 33), and Rajauri (IAR 1985-86: 35), all to the north of Jammu demonstrating this territorial expansion during the "Kushana" period (1st Century BCE to 3rd Century CE), mainly owing to the increasing trading networks.

Evaluation of material culture from excavated sites in the research area reveals evidence of intra-regional commerce during Period III. One of the craft items reported from the sites is shell bangles and ornaments. Because shell is not found locally, and no trace of a shell workshop has been discovered in the vicinity, the discovery of a shell bangle from the excavated site of Tibba Name Shah (IAR 2008-09: 69) provides some indications regarding transactions with other locations. In this context, it's worth noting that shell was the second most common raw material utilised in Sanghol's artistic creations (Margabandhu, 2010: 120). Furthermore, as observed by Marghabandhu (2010: 123)

documentation of a well-organized shell-workshop at Sanghol during the Kushana period, adds an additional dimension to the discussion of intra-regional trade of this commodity.

The political influence of this period is dominated by the Kushanas. The strong base of Kushanas reflected in the excavation of sites in the adjoining areas of Punjab (IAR, 1960-61; 1962-64; 1965-67; 1968-74; 1975- 1992; 1993- 95; 1996-97; 1999-00; Margabandhu, 1987: 5; Ray, 2010), Kashmir (IAR 1960-63; 1964-65; 1971-72; 1973-74; 1977-79; 1980-82; 1983-84; 1985-87) and further north-west in Taxila (Marshall, 1951a: 217; Petrie, 2014) and Peshawar (Dani, 2002) testify the fact that the Kushanas ought to have a strong hold in the area of Jammu. This strong hold is duly recognized by the activities undertaken during their rule in Jammu (Mani, 2004: 86). There is a good chance that these activities involved commodity trading, but without material evidence, it is impossible to say which commodities from Jammu were exchanged. Therefore, the assumption of Singh (1993: 777; 1996: 128) that Kushana settlements in Jammu flourished because of marine trade[10] and that costus was the principal product exported via Chenab in Akhnoor requires serious reconsiderations.

Apart from the settlements belonging to this period, one of the most notable activities during the Kushana period is the construction of Buddhist structures (Mani, 2004: 86; IAR 2000-01). The fact that the entire Ambaran complex is dedicated to Buddhist establishments and the site was repeatedly repaired following Chenab's flooding activities after the Kushana period (IAR 2000-01: 64), suggests that Buddhism influenced the area for a long time (as will be seen

[10] The author's main idea of marine trading revolves around the area of Akhnur and does not seem to have considered the area of R S Pura which is devoid of any big river but was an active player in the formation of the economic network of Period II of the research area.

later, Akhnur terracottas essentially used for embellishing the structures in Ambaran became common in Period IV).

Intra-regional forces influenced the development of religious architecture in the Jammu region. In terms of ornate mouldings, building material, and the existence of relic chambers, reliquaries, and caskets, the *Saririka* stupa belonging to the Kushan phase discovered at Ambaran has been compared to the stupas from Taxila (Mani, 2004: 94, 98). Furthermore, the spoked wheel type stupa with eight spokes discovered during clearance operations at Ambaran (IAR,2009-10) resembles a minor stupa of the same sort from the site of Sanghol (personal observation) (Fig. VI.20 A and B) belonging to Kushana levels (Margabandhu,1987: 7; IAR 1985-86: 69).

These stupas are similar in plan to the major stupa excavated at SGL-5 in Sanghol (IAR 1984-85: 62, 66; Michon 2010: 90). This kind is also found at the 1st/2nd century AD site of Dharmarajika (Taxila) (Marshall, 1951a: 239; Singh, 2009: 449).

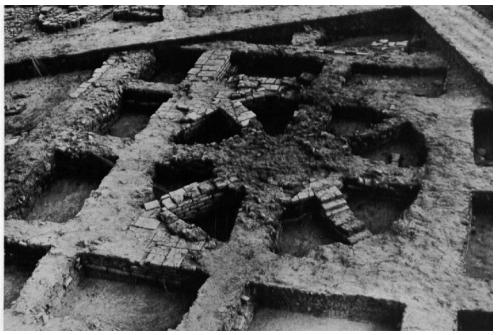


Figure VI.20 A. Small stupa at Sanghol
Source: IAR 1985-86

B. Spoked stupa at Ambaran
Source: IAR 2009-10

There are several votive stupas documented from the site that are part of Period III construction activity, in addition to this spoked stupa and the major *saririka* stupa. These votive stupas, according to Mitra (1971: 22), are primarily created by pilgrims when they visited the sacred spot for acquiring religious virtue.

Buddhism appears to be a powerful vehicle for further emphasizing the importance of trading network in the study area. Darian (1977: 236) has well documented the emergence of Buddhism in India due to its aptitude for catering to the socio-political and economic requirements of rulers and merchants in growing empires. The proximity of archaeological sites of Buddhist shrines and monasteries to trade routes "indicates a symbiotic interaction between religious institutions and economic networks" (Neelis, 2011: 19).

On the same lines, Singh's (2009: 445) overall observation of the period under review argues that "growing institutionalization of religious activity" prepared the way for "elaborate religious structures" to emerge as a result of "gathering support from various elements of society." The construction of a stupa complex along the commerce route would have aided in the collection of donations, which might have also served as a votive stupa (Singh, 2009: 468). Worship, along with charity, was emphasized in Buddhist literature as the primary path to enlightenment (Liu, 2009: 189).

As observed by Neelis (2011: 1), there is a pattern of overlapping of trade routes with the routes of Buddhist missionaries and this development of residential monasteries along trade route would have required surplus raised from lay donors (Neelis, 2011: 5). This appears to hold true for the area of Jammu where the Buddhist religious monuments benefitted from the general institutionalization of Buddhism along the trade routes and thus contributed to the overall cultural development of the region.

In this connection, the microbeads of pearl, coral beads, and carnelian bead (IAR 2000-01: 60) retrieved from the reliquary of a stupa belonging to the Kushana phase in Ambaran are significant for understanding the inter-regional

trade. In addition, thin sheets of gold and silver, amethyst bead, copper coins and small pieces of charred bones were also part of this. Most of the above-mentioned things form part of the *sapta-ratna* (seven treasures), a collection of precious material donated essentially by the laity for attaining religious merit (Liu, 2009: 181-183). Most of the components of the seven treasures, observes Liu (2009: 189), were items either brought to north and north-west India by the trade or highly popular in the markets of other countries.

Liu (2009: 182) further states that the main items used for honouring main figures of Buddhism consisted of the merchandise traded in Kushana period. The existence of international trade from Mediterranean to China was critical to the Kushana empire's existence, and the commercial component pervading Buddhist thought, as well as a thriving urban culture and mercantile economy (Liu 2009: 191), was crucial during the Kushana empire's reign. This commercialized aspect of Buddhism may have aided in the promotion of trade networks connecting highland and lowland areas via Jammu.

It further signifies the importance of this regional complex, especially given its proximity to the river Chenab. As previously noted, the water route might have played a role in helping the site of Ambaran to maintain its legacy for a long period. However, despite its regional significance, the monastery does not appear to be exerting an impact in a larger setting. It does not appear in the itinerary of Hieun Tsang (Beal, 1884), Ou Kong (Joshi, 1967) or in the narration of Kalhana (Stein, 1900) bolstering the argument that the plains of Jammu were always a link between two different cultural zones of Punjab and Kashmir and the upper reaches of the Himalayas but were unable to stand out, culturally and economically, as a distinct entity.

In Period III, there ushered in a network of settlements in the outer plains of Jammu surrounded by important areas of Punjab, Kashmir, Sialkot and Taxila. The existence of a Buddhist centre directly at the point where the Chenab River meets the plains gave the area of Jammu significance, but that significance appears to have been limited, as previously discussed.

Period III witnessed the emergence of thriving settlements because of burgeoning trading activities. Furthermore, the favourable landform created by the temporary shifting of the river Chenab provided further impetus for the populations to colonize the areas surrounding the paleochannels. The trend to occupy high elevated zones also gained momentum because of the increased trading nexus coming mostly from commercialized Buddhist ideology.

Because of the presence of a Buddhist centre right at a point where the river Chenab becomes accessible to the plains, Jammu had an important regional role to play as a bridge between important Buddhist areas of Punjab, Kashmir, Sialkot, and further north-west, but the importance appears to be confined regionally as already discussed.

Politically, after the decline of Kushana supremacy, we have references of "assertive" gana- sangas of Punjab and Rajasthan (Thapar, 2002: 223) making their presence felt, implying that they had reclaimed their independence.

VI.2.4 Period IV

Period IV of the research area witnessed radial expansion of settlements. Settlements are found in the same micro-zones of Plains, Kandi belt and the hills. In addition, settlements have started emerging in the adjoining plains in Kathua and Samba districts.

The sites in general are small sized settlements and the pattern of distribution of resources and site structuring is same as period III. The sites are clustered within a range of 100 km diameter with seven sites greater than 2 hectares suggesting that the complex processes of structuring of site is continuing in this period as well (Fig. VI.21).

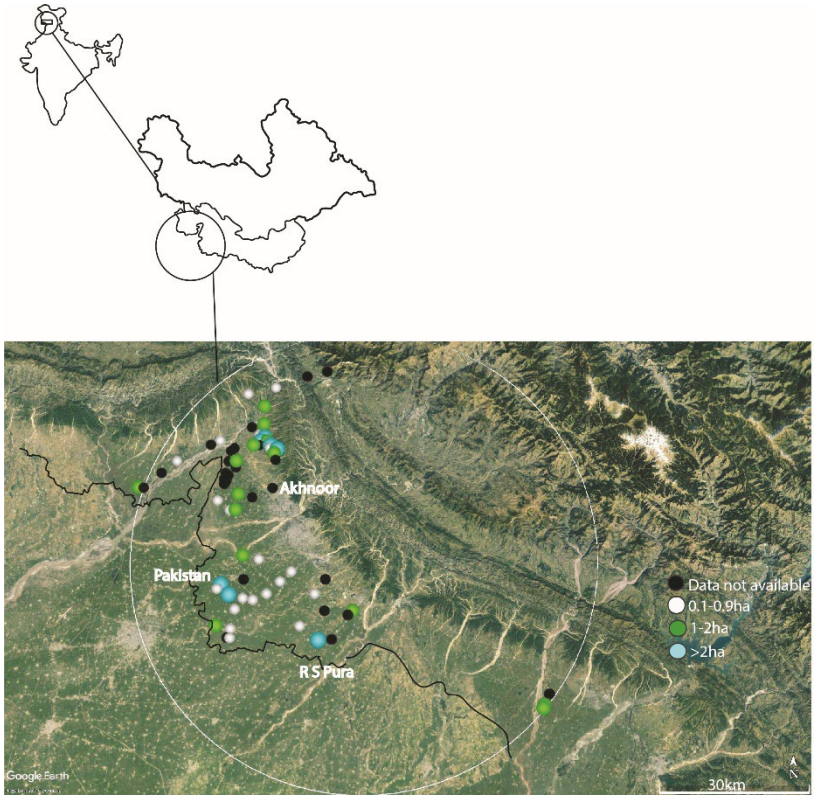


Figure VI.21: Size and spatial distribution of the sites belonging to Period IV

One of the interesting phenomena noticed in Period IV is the establishment of settlements on the lower side of the right bank of river Chenab, which was previously uninhabited, except for site of Bakore. In addition, most of the sites on the old bed of left bank of Chenab occupied during Period III continue to be populated in period IV as well. There is evidence of flooding from the site of Jafarchak around 9th century CE (IAR 1998-99: 49) and Ghattala (as recorded from villagers during the current survey- see Chapter IV- section IV.4.2.46) which are located on the left bank of river Chenab suggesting the reoccurring pattern of floods in this belt. It therefore appears that the back-and-forth

movement of river Chenab was a regular process, and hence, the population might have innovated ways of handling floods. This hypothesis is supported by the data of reoccupation of sites from period III to IV around the old bed of river Chenab, emergence of new settlements belonging to Period IV in the same belt and then some of them with further chronological continuity (e.g., the site of Jafarchak) till 18th century CE, all in the background of flooding activities reported from the area (Jafarchak and Ghattala as already discussed).

The intra-zonal interaction continues in this period as well with the evidence of rice tempered pottery pieces found from the sites of the Plains. Apart from intra-zonal, there is also strong evidence of inter-regional cultural exchange suggested by presence of Rangmahal ceramic tradition in the region. As has been already discussed in Chapter V (section V.4.3), the painting patterns found form the sites in Jammu are similar to the pattern found from the sites in Rajasthan and Pakistan, pointing towards an extensive trading network during this period.

Politically, Period IV encompasses the Late Kushana and Gupta dynasties. The fact that Madras and its adjoining tribes like Arjunayana and Abhira, paid respect to Samudragupta is extensively attested in the Allahabad stone inscriptions (Fleet, 1888: 8; Singh, 2017: 343). After the Kushanas fell out of power, the Madrakas seemed to establish their independence (Agrawal,1989: 49), but Samudragupta kept them subordinate to the Guptas.

Buddhism continued to play an important role in the socio-economic and religious aspect and the site of Ambaran had a major role to play in this process. The active trade route, next to the site, would have resulted in the facilitation of migration of ideas and people. Buddhism's prominence in the area persisted for a long time, as evidenced by the activities at the Ambaran monastic complex. The laboriously crafted Akhnur terracotta images used for

embellishing the walls of the monastery in the "Post Kushana (Gupta) period" at Ambaran (Mani, 2004: 94), as well as the repeated re-construction of the existing structures (IAR 2000-01: 64), indicate the importance of maintaining the complex's value. It must have played a crucial role in commercial activities; therefore, it was relevant in the early phases of Period IV. However, according to Joshi (1967), there was a general tendency of Buddhist collapse in the 'Uttarapatha' in the second half of 1st millennium CE, except for a few areas. At the time of arrival of Hieun Tsang, observes Sarai (2012), Buddhism in Kashmir had passed its prime period mainly owing to the popularity of Saivism. It therefore appears that the reason for the abandonment of the Ambaran Buddhist complex around 7th century CE was primarily due to the decline of Buddhism, rather than the flooding in the area (IAR 1999-00: 52). Flooding as seen earlier was quite frequent in the area and hence cannot solely be responsible for the complete abandonment of the site.

The above analysis therefore helped to place the outer plains of Jammu in the bigger socio-political and economic frame. Although in the protohistoric period, the process of economic interaction with the surrounding areas had started, it was however during 4th/3rd century BCE that the process of settlement culminated in the region. Owing majorly to the political manoeuvring and development of northern trans-regional route or *Uttarapatha*, the research area is actively involved in the socio-economic fabric at a supra-regional level.

The number of settlements see a manifold increase in the succeeding period in various micro zones-the Sirowal belt or the plains, the Kandi belt and the hills, in the respective order. This dramatic increase in the number of settlements is attributed to many factors. The increase in commerce activities was a defining feature of this time (1st century BCE/CE- 3rd /4th century CE), and the research area couldn't escape the influence. In addition, the local geography appears to be favourable to the settlement process. The paleochannel of Chenab is

populated in this period because of the shifting of the branch of the active stream flowing near the old bed.

The Kandi belt with almost the same number of sites and few sites on the hills were probably involved in resource acquisition networking with more sites in the hilly regions of Poonch and Rajouri as documented in the IAR reports. However, since the Kandi belt is in an agriculturally poor area mainly owing to the rainfed agriculture subjected to the availability of rainfall and deep underground water sources, there is a fair chance of intra-zonal agricultural exchange with the agriculturally productive Sirowal belt or the plains. The presence of rice tempered pottery from the sites located in the plains (Fig. V.5, V.9, V.17, V.25, V.53, V.54 and V.55) validate this hypothesis.

The presence of shell ornaments from this period from the site of Tibba Name Shah (Chapter IV section IV.2.1.3) and its general presence from two other sites of Guru Baba ka Tibba (Chapter IV section IV.2.1.1) and Jafarchak (section IV.4.1.1) signifies the involvement of the research area in the intra-regional trade networking. The evidence of intra-regional interactions is further strengthened with the establishment of Buddhist centre in the region and the presence of exotic material in the reliquary obtained from the stupa.

The impetus provided by the trading activity is further seen in Period IV where the sites number slightly increase and the pattern of spatial distribution of the sites in various micro-zones is almost the same. The resilience of the population to withstand the frequent natural calamity is now seen. The presence of intra-regional interactions in this period are visible in the form of Rangmahal ceramic tradition in the area. The movement of ideas via the extensive trade route seems to the logical reason for the similarities of these patterns in different geographical regions.

This period also witnesses the downfall of Buddhism. In the 7th century CE, the main Buddhist centre of Ambaran is abandoned, primarily following the general trend of decline of Buddhist as an ideology in the adjoining areas.

All the sites in the research area are classified under village category based on their size. However, there is a pattern of growing of relatively big sized settlements from period II to III and IV pointing towards the complex site structuring mainly for the procurement of the resources.

With the coming of Urbanism and State societies, as pointed out by Supriya et al., (2021), urban settlements had been the centre of focus. As Kenoyer (1997) in the context of Early historic cities observes, these were self-sufficient in terms of basic subsistence, but the requirement of intraregional trade networks for raw material and finished goods was required. It was primarily done to uphold the socio-economic stratification of society and for ritual purpose. The network of small settlements in the hinterlands would have been employed to procure these status quo materials from far away areas and thus demand further study as have been observed by Parikh and Petrie (2019) in urbanised Harappan context.

Little has been done as far as rural setup in the urbanised period is concerned. This chapter therefore was designed to highlight the contribution of the area with small village settlements throughout its chronological discourse in the functioning of the supra regional economic and political developments.

Table VI.1. Details of geographical context and size of sites in the study area

Sr.no.	Site Name	Zone	Elevation (m.)	Size (ha)	Proximity to water source	Periods of Habitation
1	Malpur	Kandi belt	310	-	Surrounded by Khads	I
2	Nadi	Plains	267	-	0.3 km- left bank of Kholi stream	I(?), II, III
3	Kot Garhi-Lehrian	Plains	300	0.49	Just on the right bank of Chenab	I(?), II, III, IV
4	Premachak Tibba	Plains	270	0.3	2 km- right bank of Gurore nadi	I(?), II, III, IV
5	Manda	Kandi belt	324	-	Just on the right bank of Chenab	I, II, III, IV
6	Tibba Name Shah	Plains	265	1	0.3 km- left bank of Balrl nala 0.3 km- right bank of Palauraali stream	II, III, IV
7	Guru Baba Ka Tibba	Plains	276	1.4	0.5 km- right bank of manor Khad. Small streams in the vicinity	II, III, IV
8	Ambaran	Kandi belt	320	-	Just on the right bank of Chenab	II, III, IV
9	Muggoali/ Bla Tibba	Plains	270	0.3	3-4 km- right bank of Gurore nadi.	II, III, IV
10	Saikhurd Tibba	Plains	261	0.8	Just on the left bank of Aik nadi	II, III, IV
11	Satowali	Plains	264	0.64	8 km – left bank of Tawi 8 km- right bank of Gurore and Aik nadi	II, III, IV
12	Baba Potho/Botho	Plains	264	0.87	Just of the right bank of Balrl nala.	II, III, IV
13	Mana Tibba	Plains	267	0.64	2 km- right bank of Gurore nadi	II, III, IV
14	Dohana Chak Tibba	Plains	270	2.25	8 km- left bank of Tawi 8 km- right bank of Gurore nadi	II, III, IV
15	Abduleyan	Plains	258	0.36	6 km- left bank of Tawi	II, III, IV
16	Biyan/Piyan Tibba	Plains	267	2.25	5 km- right bank of Gurore nadi	II, III, IV
17	Kalali	Plains	276	1.56	Just on the left bank of Tawi	II, III, IV
18	Deoli Tibba	Plains	286	0.36	5 km- right bank of Silwan khad	II, III, IV
19	Marjali	Kandi belt	317	0.37	Surrounded by khads 0.8 km – right bank of Palgeri khad	III

Sr.no.	Site Name	Zone	Elevation (m.)	Size (ha)	Proximity to water source	Periods of Habitation
20	That	Kandi belt	327	0.01	Surrounded by khads	III
21	Gajansu	Plains	271	-	1.5 km- left bank of old bed of Chenab	III
22	Galwadde	Plains	275	-	2.5 km- left bank of old bed of Chenab	III
23	Malchal Brahmana	Plains	276	-	0.6 km- left bank of Manor Khad	III
24	Nagbani	Plains	291	-	0.4 km- right bank of Bagear Khad	III
25	Paroah	Plains	275	-	1.5 km- left bank of Manor Khad	III
26	Bhulwal	Hills	493	-	Surrounded by Khads	III
27	Ghaink	Kandi belt	445	0.01	Surrounded by Khads	III
28	Kairi	Hills	582	2.25	Surrounded by Khads	III
29	Kotli Gujaran	Kandi belt	458	0.01	Surrounded by Khads	III
30	Nargara	Hills	729	0.56	Surrounded by Khads	III
31	Pahta	Hills	719	0.56	Surrounded by Khads	III
32	Palaura	Kandi belt	456	-	Surrounded by khads and 1.5 km away from the right bank of Tawi	III
33	Chak Sanga	Kandi belt	351	0.4	Surrounded by khads and 0.2 km away from theleft bank of Chenab and	III
34	Kotli Panditan	Kandi belt	382	0.56	Surrounded by Khads	III
35	Partara	Kandi belt	346	0.75	Surrounded by Khads	III
36	That Jandial	Kandi belt	336	-	Surrounded by Khads and 0.7 km away from the left bank of Chenab	III, IV
37	Tikri- Akhnoor	Plains	278	-	Left bank of Wadi Choi Nala	III, IV
38	Kalyanpur Jhiri	Plains	299	1.44	1.7 km- left bank of old bed of chenab	III, IV
39	Dharm Khu	Kandi belt	332	1	Surrounded by Khads	III, IV
40	Bakore	Plains	261	-	Just on the right bank of Chenab	III, IV
41	Guda	Kandi belt	340	-	Surrounded by Khads	III, IV

Sr.no.	Site Name	Zone	Elevation (m.)	Size (ha)	Proximity to water source	Periods of Habitation
42	Pinjore/Panjor	Plains	293	-	Just on the left bank of old bed of Chenab	III, IV
43	Bathur	Plains	270	0.36	Just on the left bank of old bed of Chenab	III, IV
44	Abdal	Plains	295	2.25	4-5 km- right bank of Devaka nadi 4 km- left bank of the stream of Aik nadi	III, IV
45	Bansultan	Plains	293	0.36	3 km- right bank of Gurore nadi 4-5 km- left bank of Tawi	III, IV
46	Devigarh Tibba	Plains	265	0.9	2 km- left bank of Aik nadi	III, IV
47	Kullian	Plains	277	-	Just on the left bank of old bed of Chenab	III, IV
48	Lower Kalyanpur Tibba	Plains	292	-	2 km- Left bank of old bed of Chenab	III, IV
49	Lalyal (Border Area)	Plains	284	-	Just on the left bank of old bed of Chenab	III, IV
50	Sui Simbli	Plains	287	-	1 km- Left bank of old bed of Chenab	III, IV
51	Raipur (Behind School)	Kandi belt	305	-	Just on the left bank of old bed of Chenab	III, IV
52	Lalial- Beli Azmat	Plains	278	-	Just on the left bank of old bed of Chenab	III, IV
53	Raipur (Roadside)	Kandi belt	301	-	Just on the left bank of old bed of Chenab	III, IV
54	Chowala Pir Tibba	Plains	277	-	5 km- left bank of Tawi	III, IV
55	Nandpur	Plains	287	0.36	3 km- left bank of a stream of Aik nadi	III, IV
56	Tikri- RS Pura	Plains	279	0.01	2 km- left bank of Kholi stream 3-4 km- left bank of Tawi river	III, IV
57	Kalah – locality 1and 2	Kandi belt	305	-	Surrounded by Khads	III, IV
58	Balowan	Hills	513	2.25	Surrounded by Khads	III, IV

Sr.no.	Site Name	Zone	Elevation (m.)	Size (ha)	Proximity to water source	Periods of Habitation
59	Dhanu	Kandi belt	470	0.25	Surrounded by Khads	III, IV
60	Galali	Kandi belt	444	1	Surrounded by Khads	III, IV
61	Kurwanda	Kandi belt	477	1	Surrounded by Khads	III, IV
62	Sajwal	Kandi belt	437	1.44	Surrounded by Khads	III, IV
63	Sarot	Kandi belt	400	1	In between Jandiali khad and Ramni khad	III, IV
64	Kot	Kandi belt	439	-	Surrounded by Khads	III, IV
65	Chak Bowal	Kandi belt	446	2.25	Surrounded by Khads	III, IV
66	Seri Panditan	Kandi belt	446	1.05	Surrounded by Khads	III, IV
67	Amb	Kandi belt	414	4	Surrounded by Khads	III, IV
68	Grahi	Kandi belt	381	3	Surrounded by Khads	III, IV
69	Ghurota	Kandi belt	363	-	Surrounded by Khads	III, IV
70	Jafarchak	Plains	279	-	Just on the left bank of old bed of Chenab	IV
71	New Hamirpur	Plains	254	-	Just on the right bank of Chenab	IV
72	Bandwal-Shahjamal Tibba	Plains	274	0.8	1 km- right bank of Chenab	IV
73	Ghattala	Plains	278	-	0.4 km- on the left bank of old bed of Chenab	IV
74	Sainth	Plains	256	1	1-2 km- right bank of Chenab	IV
75	Sakrampur	Plains	294	-	Just on the right bank of Chenab	IV
76	Balu Chak Tibba	Plains	263	-	2 km- left bank of Aik nadi	IV
77	Atta Wala Jeora	Plains	262	1	0.6 km- right bank of Aik nadi	IV
78	Jindermelu Tibba	Plains	261	0.8	3 km- Right bank of Deoli Saler nala	IV
79	Khojipur Jhak	Kandi belt	301	0.36	1 km- Left bank of Pati khad	IV
80	Gowal/Kishenpur Tibba	Kandi belt	312	-	2 km- left bank of Bari khad 1 km- right bank of Cher Khad 2.5 km- right bank of Pati khad	IV

Sr.no.	Site Name	Zone	Elevation (m.)	Size (ha)	Proximity to water source	Periods of Habitation
81	Gadwal and Chak Salarian	Kandi belt	322	1	2 km- Left bank of the stream of Aik nadi 2.5 km- on the right bank of Degh nala	IV
82	Mukh Mehra	Kandi belt	320	-	2 km- Left bank of the stream of Aik nadi 3 km- on the right bank of Degh nala	IV
83	Airwan-Locality 1 and Locality 2	Plains	295	1	1 km- left bank of Ujh	IV
84	Jamraal	Plains	300	1	1 km- left bank of Ujh	IV
85	Sumwan	Kandi belt	316	-	2 km- left bank of Ujh	IV
86	Gorra	Hills	554	0.01	Surrounded by Khads	IV
87	Dharma Mohalla (Barn)	Kandi belt	429	0.42	Surrounded by Khads	IV
88	That Ranjan-	Kandi belt	359	0.6	Surrounded by Khads	IV