CHAPTER II

Materials and Methods
CHAPTER II

MATERIALS AND METHODS

This chapter describes various methods adopted during the present study. It includes the method of exploration, procedure adopted for comparative analysis of pottery and associated artifacts found in the Early Harappan context from the region of north Gujarat. Also incorporated is the data which focus on the settlement pattern and subsistence economy of the Early Harappans in this region and a trial excavation at one of the sites. Besides, this also describes how the ethno-archaeological data have been formulated in this study.

This study was taken up with an aim to systematically evaluate the group of ceramics, which was first recovered from the burials at Nagwada in 1985. Previous studies reveal that the pottery show several features that do not resemble the feature of the Mature Harappan and Anarta ceramics recovered from the regular habitation levels. A preliminary work had been carried out by the author earlier (1994) and termed this group of ceramic as 'Burial Pottery' because of its context of occurrence. The evidence then indicated that this group of pottery was confined to the region of north Gujarat and parts of Kutch.

Subsequent excavation at Moti Pipli in 1993, in Banaskantha District, about 60km. north of Nagwada, yielded this ceramic type in substantial amount from
the habitation levels, without giving any evidence of burials at the site. This evidence, thus, disproves its identity as 'Burial Pottery' as thought earlier. However, excavation at Santhli, in Banaskantha District, about 10km. north of Moti Pipli, yielded similar pottery from the burials. Further investigation proved that these ceramics were not only confined to the burials but were present in the regular habitation levels.

These early works demonstrated that the Early Harappan settlements were concentrated around a few pockets in north Gujarat. This working hypothesis was confirmed during further explorations in north Gujarat. A village to village survey, carried out with the help of toposheet No. 41M of 1:250,000 scale (1948), divulged distinct clusters of settlements in Radhanpur and Santhalpur Talukas of Banaskantha District, Sami Taluka of Mehsana District and Dasada Taluka of Surendranagar District. Eight sites, apart from the above-mentioned three excavated sites, have been discovered till now yielding the Early Harappan ceramic repertoire. Of these eleven settlements, nine are located in Banaskantha District whereas the other two are in Surendranagar and Mehsana Districts.

Location of the sites were recorded in terms of nearness of water sources, availability of raw material, other noticeable landform details, vegetation and state of preservation. Size of the mound was taken as the size of the settlement though sometimes nature of the distribution of artifacts and sizes of the sites were also recorded by measuring the surface spread of the artifacts. Size of the settlements was measured by pacing around the mound or the artifact scatter.

During the survey, care was taken to collect the entire distinguishable
archaeological specimen from the site. No specific sampling procedure was adopted while collecting the artifacts. However, care was taken to record if there are different cluster of artifacts from a single mound and, if so, separate sampling was done in such cases.

In spite of the excavation carried out at five of the eleven reported Early Harappan settlements the cultural context of Early Harappan ceramic group could not be placed in a proper perspective. Mathutra, one of the settlements belonging to the Early Harappan phase, revealed from the surface collection, an independent existence of Early Harappan ceramic, except for a few stray finds of Post-Urban Harappan sherds. Mathutra, therefore, lent itself as a potential site for clarifying the position of the Early Harappan ceramic in the overall Harappan cultural milieu in Gujarat. It was thus thought necessary to put a trial trench at the site to verify the surface indications.

The artifacts on the surface were scattered in a few small clusters. One of these clusters was located on the northern part of the mound and a 5x5m. trench was laid down here. Because of the ephemeral nature of the deposit nothing notable could be recovered from the excavation. Another cluster of artifacts was located near the centre of the mound. A scraping pit was dug here as it was thought unnecessary to lay down a proper trench. The result of the excavation, when related with the earlier excavations, did provide sufficient insight about the penetration of Early Harappan community into Gujarat as well as their settlement pattern.

CERAMIC ANALYSIS

Pottery finds significance in archaeological studies due to its ubiquity in the
archaeological sites. It has, therefore, been used universally as an important chronological and cultural marker. Though dating a settlement on the basis of ceramic indicators has its own inherent limitations, because of its sensitive nature to any change in the cultural norms, it can be used as an index for preliminary correlation. Ceramic, in this study forms a major reference artifact for comparison and correlation because of its abundance, and sometimes the only form of artifact recovered from the settlements in north Gujarat.

The bulk of ceramic included in the present study was recovered from the excavations at Nagwada, Moti Pipli, Santhli, Datrana and Mathutra and from the surface explorations of other five settlements. Of these, majority of the collection came from the surface exploration and excavation at Moti Pipli. The ceramic from Moti Pipli excavation had been collected in its entirety, without discarding the undiagnostic sherds.

Each site was taken as a separate entity for pottery classification. This has helped in identifying the presence or absence of different pottery types and shapes from each site. All the pottery collected during explorations and excavations were passed through various analytical procedures.

**PRELIMINARY SORTING**

All the settlements, except Mathutra, have Early Harappan pottery mixed with other associated ceramics. The first step was to separate these associated pottery from the Early Harappan wares. As the associated ceramic like the Anarta pottery, the Mature Harappan or the Post-Urban pottery are well documented and studied, it was easier to separate them from the Early Harappan wares. Even in shape, decoration and surface treatment, the Early
Harappan ceramics have a distinct character which stand apart from the associated pottery.1

There are a few very clear examples of imitation of Early Harappan shapes in Anarta ceramic and hence these sherds were grouped with the Early Harappan ceramic corpus. The associated pottery has not been included in the present study as they fall beyond the scope of the present study and are extensively studied elsewhere.

**DIAGNOSTIC/UNDIAGNOSTIC SHERD SORT**

Further the Early Harappan sherds were separated into diagnostic and undiagnostic sherd category on the basis of wares, determined by colour, decoration and surface treatment.2 All the sherds were then counted and recorded. Diagnostic sherds, which can give information about vessel form, decoration and surface treatment, were kept separately for further examination.

**DIAGNOSTIC SHERD ANALYSIS**

At this stage of analysis, the diagnostic sherds were studied to obtain the frequency of various vessel forms, categories and their surface treatment. Sherds with enough shape to permit a complete or partial reconstruction were

---

1 In case of few shapes and decorations the Anarta pottery has a generic resemblance with the Early Harappan pottery. Therefore, it was sometimes difficult to differentiate between the Anarta and Early Harappan ware.

2 All the sherds in the Early Harappan ceramic fall into the fine ware category, though sand is used in all the sherds as temper. Hence, in describing the fabric terms like fine, medium and coarse sandy paste is used.
examined in detail. Sherds, which can be joined together, were also assembled at this stage of analysis.

**Vessel Forms**

Rims, necks, shoulders, bases and body parts which shows some diagnostic features were the most common elements in this analysis. Rim sherds were studied in more detail as they are the single greatest source of information on overall vessel forms. The terminology developed by Dales and Kenoyer (1986) could not be adopted in its entirety as the range of vessel forms from the Early Harappan context does not confirm to those described by them from Mohenjodaro. Also there were very few complete vessels in the assemblage that can be used for statistical measurements.

Major vessel forms found in the study are pot, bowl, dish, pedestal vessel, beaker, jar, basin and lid. Lids are very rare in the collection though there are quite a number of jars with ledge below the rim to hold the lid.

**Surface Treatment**

Treatment of surface of the vessels subsequent to formation process is varied and important. It may be carried out immediately after the formation process when the clay is still plastic. It imparts the most characteristic visual aspect to the vessel. Surface treatment is either functional or stylistic (decorative), but quite often it serve both the purpose (Dales and Kenoyer 1986: 42).
**Slipping**

Surface colour and texture can often be improved by a coat of wet elutriated clay prepared for applying as a slip which is usually a suspension of fine clay in water (Shepard 1965: 67). Slip can also decrease porosity (Hegde *et al.* 1990b). Majority of the Early Harappan pottery have been treated with a slip ranging from buff to cream, light red to chocolate or purplish and black. The colour of the slip was further determined using the Munsell colour chart. At times bitone or polyp tone effect is produced by applying red and cream slips or washes in two adjoining registers on the shoulder part of the globular vessels or the base part of the dish-on-stand.

**Multiple Grooving**

Horizontal grooving were applied to plain vessel exterior. These grooves were confined to beaker shaped vessel with converging narrow mouth and carinated at the base. This form of decoration is common in Bhoot ware, named after a Early Harappan mound in Bahawalpur region of Pakistan. These grooves are made by a sharp tool. It seems that each groove was made individually as the grooved lines are very irregular.

**Heavily Textured Surface**

Fairservis first defined a distinctive surface treatment called ‘wet ware’ during his early surveys in Baluchistan (1956: 269-270). Apparently, a cloth or some other similar material was patted against the exterior of vessels while the paste was still very plastic. The result is a roughened surface that when carefully done presents an attractive decorative effect. There are many varieties of so-called wet wares found throughout Baluchistan and Indus Valley during the
Early and Mature phases of the Harappa culture (Dales and Kenoyer 1986: 46). A few examples of this type have been found from the ceramic assemblage of Moti Pipli.

**Painted Decoration**

Painted decorations, usually in red, black or dark brown on either a buff, creamy, red or chocolate slip, or on a natural surface, range from simple horizontal band on the neck or thin horizontal lines on shoulder and body to intricate combination of geometric motifs. The colour of the decoration was also determined by the Munsell colour chart.

**CERAMIC CATELOGUE**

A large number of sherds were drawn as part of the last analysis. The total assemblage of ceramic was scrutinized for both special and representative vessel shapes, including all decorated sherds, except for the special surface treatments. This will help in providing a complete view of the variations in vessel forms as well as the complete corpus of decorations. The pottery illustrations will also facilitate the comparative study of the Early Harappan ceramic from north Gujarat with those from other reported Early Harappan sites in the Indian sub-continent.

**COMPARISON AND CORRELATION**

With the completion of three different stages of ceramic sorts, and the pottery drawing, a morphological typology of the Early Harappan ceramic from north Gujarat was complete. The next step was to compare and correlate this group
of ceramic with the pottery recovered from Early Harappan context in the Indian sub-continent. Comparison was done with the major groups of ceramics belonging to the Early Harappan horizon, like the Amri ware, Kot Diji ware, Sothi ware and Nal ware. Major source for these ceramic assemblage were the excavation reports and articles published in various journals.

This would help in identifying the closeness of the ceramic from north Gujarat with the above-mentioned groups and to check if there is any variation in shape and decoration of vessels in this region.

A few more artifacts, other than ceramic, were also recovered from the excavation at Moti Pipli which seems to fall in the Early Harappan category. These evidences were also taken into account to form a comprehensive catalogue of the Early Harappan occupation in Gujarat.

ETHNO-ARCHAEOLOGICAL STUDIES

Finally, an ethno-archaeological survey was thought necessary to have a general understanding of the settlement pattern of the Early Harappan community in this region.

As the Early Harappan settlements in north Gujarat were of ephemeral nature, because of the superficial occurrence of deposit and distribution of artifacts in clusters, it could be inferred that these were temporary camps of the pastoral communities. Pastoral nomads frequent this area even today with their group of herds as this region has a rich growth of grass favourable for their herds.

Though the author could not carry out an field survey to gather information
about the nomads and their pattern of movements, previous surveys carried out by various scholars in this region (Bhan 1990; Choksi 1991, Choksi and Dyer 1996) have helped in understanding the behaviour of the present day pastoral nomadism. A brief overview on pastoralism have been carried out in the present study based on these earlier works.