CHAPTER - III
CHAPTER - III
POTTERY UNDER STUDY

The Kumar is one of the indigenous potter communities distributed in all over Assam. They mostly reside on the banks of Brahmaputra. From the point of economics the settlement pattern has two advantages. The flood plain provides them fertile land for agriculture and in addition to this the area provides them with potting clay in some specific location. The Kumar with their traditional experience and expertise can identify the suitable location of potting clay. Their settlement on the bank of the river facilitates them to carry their products to the clients located to distant areas using the boat. The village under study revealed that the Kumar Potters always occupy an area closer to the settlements of the Brahmin and other high castes. This indicates the linkage of Kumar potter with Brahminical institution. By and large occupational pattern is precisely controlled by caste groups. From such traditional settlement pattern tradition, "it appears that even when occupational mobility taken place, caste inhabitation is not completely broken, it is only temporarily kept abeyance". (Ray Barman, 1968).

On the other hand the majority of the Hiras are occupying the tribal fringe areas as they get considerable responses from the tribals. (Sharma, 2001).

Historically Kumar population is an important segment of Assamese society. The Kumar of this village are traditionally affiliated to Damodaria Satra and are proximal to Hindu religious institution and exist even as an inexorable part
of temple complex. The highest concentration of Kumar potters are found in South Kamrup, which is seat for many religious institution. The Kamakhya and other temples ancillary to it are the religio-economic spot, the circulation centres for the pottery of this village.

Like other Hindu people, Kumar people also practice patriliny. So, inheritance and succession follows in male line. The technical know how of Kumar pottery making passes to next generation through male line. The Kumar people prefers monogamy and customarily endogamous. But at present boys of Kumar community started marring from other caste groups.

As far as the family structure of Kumar people is concerned, it has been observed that traditionally they prefer to joint family system. Probably due to economic hardship and individualism, gradually changes has been taken place in this direction. Now a days a tendency is seen to form nuclear family.

There are some evidences that potters have a low social position (Foster, 1965) in socicties with hierarchically arranged social groups. But in Assam (Gait 1897) potters rank below – those members of castes whose occupation has been traditionally agriculture. Behura in his survey of seven pottery making villages in the Indian state of orissa, found that potters always occurred in the lowest varna or caste grouping called shudra. Within this grouping potters were always in the lowest ranking clean subcaste grouping along with other sub castes like carpenter, weavers and blacksmiths. (Behura, 1978).
Since pottery making is a low status occupation in the household industry but "when the demand for pottery involves mythical, religious or social structural symbols, potters that produce such pottery will have a high social position". (Arnold, 1989). The above mentioned view is applicable to the Kumar potter of South Kamrup. Because of the ritualistic involvement of Kumar pottery, the system gives the social position of the Kumar potter higher than the other indigenous potter community, the Hira. The settlement pattern of the Kumar, which is nearer the high castes people also indicates the higher social position of the group.

It is observed that due to higher social position, the Kumar potters always try to maintain a distance from the Hira in all walk of their life. “Adaptations combining the advantages of both pottery making and agriculture can be made by groups living in marginal agricultural areas to maximize their economic productivity” (Arnold, 1989). Such combination of pottery making and agricultural activity is also seen among the Kumar artisans of Rajapukhuri village in South Kamrup. But the artisans involved in dual practice are a few in number. In Rajapukhuri village majority of artisans are full time craftsman.

In 1838, Montegomari Martin mentioned in the book ‘Eastern India’ that Assamese potter donot use chak (potter wheel). “But it is not appropriate to say that there was no use of potters wheel in Assam. Probably, the Kumar artisans migrated from other parts of India introduced wheel in Assam. (Phukan, 2003). The view given by Phukan on Assamese Kumar potter proves positive, which can also be supported by the following statement. –
"In the 3rd – 4th century, many from the north and central India migrated to Assam (Prestine Kamrup) to escape the harassment of the frequent ‘Hun’ invaders. The migrants consisted of peasants, artist and guild makers. The ruling kings also had open mind to welcome such skilled migrants. (Dutta, 2008).

Historically, the Kumar male folk used potter wheel in Pottery making. The Kumar potters of South Kamrup like to say the Chak (potter wheel) as their status symbol.

A tendency towards male involvement in pottery making is associated with increasing internal stability between the sectors of the society, political interaction and class stratification and thus indicate that male potters tend to be associated with more complex societies. (Arnold, 1989). Here also in South Kamrup the malefolk is associated with Kumar pottery production with increasing internal stability within caste frame work. Historically, they came to the then Kamrup under the great patronage of different rulers. During that period reorganization of society started and the cultural elements from the neighbouring cultures started flowing to culture of Kamrup. That resulted in the formation of a complex society in the soil of the area under study.

Murdock and Provost (1973) also suggest that ‘pottery making by males is associated with intense and complex agriculture such that as the intensity and complexity of agriculture increases, pottery making tends to be assigned increasing to males’. The emergence of peasant economy on the flood plains, leads Assam to
the successive phases of cultural transformations both in terms of time and space. The transformation from egalitarian economy to specialized occupation based on fluid in nature. Economy under the Brahminical system gave birth to religion based occupational groups. The Kumar are the resultant of that process.

3.1 Technology:

Technology is like a open window through which one can visualize and understand a culture. Technology is the combination of techniques common to group devised by man for his existence on this earth. "The study of technology is essential for an understanding of culture, just as a comprehension of the material basis of social life is indispensable to those concerned with human group behaviour. Interest in technical problems serves as the foundation of a large number of groups in human society. By technology one means manipulation, doing things- behaviour of a specialized nature". (Basu, 1957).

Technological aspects of a culture is more important than any other aspect of culture, when some one measure the advancement of culture. But innovative technology is less influential in spiritual sphere of human culture than the utilitarian aspects. Because mostly religious practices are dominated by some magical exercises, which people believe as technical activity of primitive base and without attempting to test it empirically, apply it in their spiritual activities.
According to Herskovits, technology is the only aspect of culture susceptible of objective evaluation. (Herskovits, 1974). These evaluations follow a pattern that, with the rise of scientific tradition and of a system of production based on the power machine, has become very congeries to the human culture. Herkovits also opined technology is indispensable as a means of approach to economic and sociological activity. (Herskovits : 1957).

Pottery is an important element of material culture, where different techniques are applied by different groups of people. Chard opined “ceramic technology has been called the beginning of science.”

The present study in South Kamrup reveals that two pottery traditions are there in South Kamrup and each tradition follow their own technique for moulding pottery. Finest pottery made without wheel is the result of the coil process, which done, under expert fingers. In South Kamrup, the Hira represents of this tradition, who moulds utilitarian pot by this method of South East Asian in origin.(Roy,1977).

Another class- the wheel made pottery associated with settled life based on agriculture in some form. The invention of the potters wheel belongs to old world. Probably the earliest wheel made pottery is that of Mesopotamia, dating to 3000 B.C. and the mechanical contrivance seems to have spread to Egypt and Mediterranean. (Sing,1979; Ghose,1981). The Mediterranean people who migrated to India probably carried this method of pottery making by wheel to India. Because “The Mediterranean people showed great skill in domestication of plants and
animals, in weaving, in pottery, in erection of stone monuments and such other factors during the Neolithic period". (Basu Roy, 2005).

Finally, the Aryans brought this technology of pottery making to Assam (Prestine Kamrup). The Kumar potters of Assam is the true representative of wheel made pottery tradition, which is distributed in both banks of Brahmaputra from Majuli in the east to Goalpara in the west. But in the sense this tradition is still alive in South Kamrup with long cultural heritage.

Kumar Pottery being an element of material culture always provides clues to understand social, cultural, economic and technological attainments in totality. Field study in Rajapukhuri Kumar chuba reveals that among the Kumar artisans two types of technology could be seen—visual and non visual. The visual technology is expressed through chak or Potter wheel. Kumar Pottery with the help of wheel can produce more numbers of pot within a short span of time to fulfill local needs. Tangible aspect of Kumar pottery has its intangible counterparts.

This intangible aspect is unseen but very powerful and started controlling the technological and morphological aspects of Kumar pottery. This non visual technology can be termed as "Mechanical symbol". These mechanical symbols are preserved by the artisans in their life time and subsequently these are inherited by their next generations. In the production of Kumar pottery, the artisan just converts the inherited 'Mechanical symbols' from their mind to ceramic objects. It is nothing but a mind to matter relationship. How this conversion process completed? It means, the artisans mind controls the whole mechanism. The mind commands the
muscles to activate the fingers according to mechanical symbols, which finally expresses through certain rhythmic activity of fingers. Such rhythms on clay give expected shape of the pot. As the shape of ritualistic pots are varies from one to another, so the rhythmic activity changes with the types of pottery. The pottery types are nothing but the transmission of mechanical symbols. The rhythmic activity of the fingers on Kumar pottery production is the non visual technology. It is a process from intangible to tangible presentation. A natural vista is incorporated in total concept of Kumar pottery production in South Kamrup.

The configuration of the present pottery tradition under study is a creation of visual and non visual variables or factors as the case may be. The value attributed to each pottery is invisible but the form it takes as resultant of between technology and variables are visible and fixed almost. So, the typological variation should be taken as reflection of cultural variables both in terms of visual and non visual.

Kumar pottery as they have been existing as an integral part of the 'Brahminical institution', through the involvement of their product with it; so, the direction of these institutions might be there. According to Kumar artisans of Rajapukhuri village, there are some legends which are associated with the technique of Kumar pottery production.

According to my informant Mr. Dharani Kumar (60), a Kumar artisan and Ojah (anchor of religious song) in Rajapukhuri village, Goddes Padma is the creator of Kumar mati (soil uses by the kumar pottery), who directed Lord Brahma to creat the Kumar, who can make pottery for religious purpose. Respecting the
request of Goddess Padma, initially, Lord Brahma created the Kumar and also the Sikia banka (carrying pole) to carry Kumar mati. (clay). Afterwards, he directed Lord Biswakarma to make pottery with Kumar mati (clay used by Kumar) and transfer the technology of pottery production to the Kumar artisans. Immediately God Biswakarma borrowed the God Vishnu's Chakra (Vishnu is wheel on hand) and gave the to Kumar to use it as potters wheel. Subsequently, to detach the completed pot from plate of wheel god ‘Brahma’ offered to the Kumar one of the threads from his Sacred thread. Another legend goes as such: Lord Krishna or Goshai (The God) landed on this part of world (i.e. the plains of Assam) with his devotees and the Brahmin priest to worship Him. The temple was ordained by Viswakarma (the celestial architect) to install Him. The mali (the flowerman) came with flower and garland. But where is the Ghot (the earthen pitcher) the most important and integral part of worship? It occupies the central position both materially and symbolically in the ‘classical codes’ (i.e. puja).

The ghot encapsulates the central theme and spirit or symbol of ‘classical codes’ in material form. Amid such unwarranted situation the priest got out of it. His devotional exercise was in a state of ending in fiasco, the whole system was about to collapse. At this stage, the Goshai (Narayana) came to the rescue of the priest. He offered him of his Chakra that stands for the ‘spin and power’; this Chakra became Chak (the potter wheel). The Brahmin priest tore off his lagun (the sacred thread) and used it as a mean to cut off ghot from the clay lump (the mother earth). This act is comparable to the detachment of umbilical chord or nari of the baby from his mother. The priest, first by tearing off his sacred thread got himself
degraded from his Brahmin-hood; secondly, by detaching the pot from lump on wheel, he lowered his hierarchical position further. This work is comparable to naricota, an expertise reserved for the Dhai. (midwife, a professionally a low caste). He is no longer a Brahmin; he became a Kumar, this act refrained him from taking part in ritual performances but his clay products or ahila (pottery) became an integral part of ritual system. He through his produces became a integrated part of the temple and by virtue of the closest association of his produces in ritualistic performances, the Kumar although being a potter, received a higher hierarchical position than that of the Hira in particular. There simmers a tacit sense of repulsive feeling between the two groups. That does not affect the structure of the society negatively; because both of them have taken their relative distance or position within the given socio-economic structure granted. A Hira potter merely expresses his reflexive sentiment against a Kumar by dabbing him a narikota. (Roy, 1977). They say this when asks of his social position of the two. (Roy, 2004).

The study of Kumar pottery in South Kamrup reveal that technology acts as a vital and active force that conditions the social identity of the Kumar. The identity of a community does not stand in isolation; it is a part of traditional socio-economic system. A Kumar's identity lies in their technology and the production types of Pottery. The chak (the Potter wheel) is the Kumar's identity and status symbol. "The Kumar might have introduced wheel in pottery tradition in this area around 6th century A.D." (Roy, 2004).
The *Chak* – the potters-wheel exclusively operated by the males and the produces thereby receive sacred attribution. For the need of technology, the very attribution of impurity assigned to the females is ignored. She becomes a part of the process of the production. She is merely a part of the technology. (Roy, 1992). The Kumar makes their pottery on the wheel, it is primarily a masculine craft; the female contribute their share by giving final shape to some pots made on the wheel. When the female become an indiscrete part of male dominated technology, she cannot be separated from the wheel. The female produce some pottery without using wheel; these are either exclusively hand made or sometimes they use a kind of rotating dis placed on tumbler. However all are considered ritualistically pure irrespective of the involvement of sexes. Clay while leather hard is molded to have required shape. Then it is dried and it gets ready for firing. This stage is called pre firing stage. This is mechanical mixture. At this stage, once water is added to it, it gets disintegrated instantly. The next stage is firing either controlled or open conditions. If the pot is fired above 746 degree Fahrenheit, silica that constitutes a major part of the clay vulcanized and it gets transformed into glass and other minerals also undergo chemical changes simultaneously. It becomes a chemical compounds and it never returns to its previous state. It becomes resistant to heat and water actions and survives for an indefinite period of time.

It is interesting to note that the sheds for potter wheel are built in the north or eastern direction. The deviations are there under rare compelling circumstances. They consider the east and north direction as auspicious. The production remains
suspended for thirty days during Assamese calendrical month, the Bohag. 
(April/May). This is observed for the reason that when a Kumar detach the pot from 
the wheel by using thread, it is compared with detachment of umbilical cord from 
the main nerve as mentioned earlier. It is considered impure. For that they observe 
pollution period for a month. Now-a-days it gets reduced to three to seven days.

During Ambubachi or Amoti, they do not dig the earth. The Kumar believe 
that during that period Goddess earth enter into menstruation for three days.

The economic control of the temple over land gets loosen, the moment the 
Government gave ownership of land to each occupational or service group. This 
directly hits the technology of production of the Kumar near the adjoining area of 
Kamakhya temple. In most of the families, the wheel no longer rotates, even if it is 
encountered, it is found almost idle and the patting sound in rhythm has become 
faint or is heard seldom. (Roy, 2009). But such occupational and technological 
 mobility has not seen in rural South Kamrup. The Kumar still preserve their craft in 
Rajapukhuri and adjoining areas with their traditional technology.

So, from such legends circulated among the Kumar in South Kamrup clearly 
expressed the linkage of technique of pottery production with Brahminical 
institution. We have attempted to give an outline of the technology involved in 
production of pottery by this potter group. The types are shown along with their 
mode of circulation. (See Table - 6).
### TABLE – 6
THE KUMAR’S POTTERY AND ITS CIRCULATION IN TRADITIONAL CONTEXT (URBAN AND RURAL AREAS)

<table>
<thead>
<tr>
<th>Types</th>
<th>English Name</th>
<th>Local /Name</th>
<th>Function</th>
<th>Ritualistic</th>
<th>Utilitarian</th>
<th>Period of Production</th>
<th>No. Pottery</th>
<th>Months of maximum Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (MF)</td>
<td>Pitcher</td>
<td>Kalash</td>
<td>Storing</td>
<td>Storing water</td>
<td>Almost throughout the season</td>
<td>500</td>
<td>January to May</td>
<td></td>
</tr>
<tr>
<td>2 (MF)</td>
<td>Perforated</td>
<td>Sahashre dhara</td>
<td>Marriage &amp; ritualistic</td>
<td>Utilitarian **</td>
<td>April – May</td>
<td>2000</td>
<td>March</td>
<td></td>
</tr>
<tr>
<td>3 (MF)</td>
<td>Miniature Vessels</td>
<td>Ghat or Tekeli</td>
<td>Marriage &amp; ritualistic</td>
<td>Utilitarian</td>
<td>March-May</td>
<td>1000</td>
<td>January to February</td>
<td></td>
</tr>
<tr>
<td>4 (MF)</td>
<td>Bowl</td>
<td>Malsa</td>
<td>Ritualistic</td>
<td>Utilitarian</td>
<td>January – May</td>
<td>200</td>
<td>January</td>
<td></td>
</tr>
<tr>
<td>5 (F)</td>
<td>Bowl</td>
<td>Charu</td>
<td>Ritualistic</td>
<td>Utilitarian</td>
<td>January – May</td>
<td>200</td>
<td>January</td>
<td></td>
</tr>
<tr>
<td>6 (F)</td>
<td>Shallow Bowl</td>
<td>Bhog Charu</td>
<td>Marriage &amp; ritualistic</td>
<td>Utilitarian</td>
<td>January – May</td>
<td>500-700</td>
<td>January</td>
<td></td>
</tr>
<tr>
<td>7(F)</td>
<td>Shallow Basin</td>
<td>Chaki</td>
<td>Marriage &amp; ritualistic</td>
<td>Utilitarian</td>
<td>January – February</td>
<td>500</td>
<td>January</td>
<td></td>
</tr>
<tr>
<td>8(f)</td>
<td>Basin with pinched lip</td>
<td>Chaki (small)</td>
<td>Marriage &amp; ritualistic</td>
<td>Utilitarian</td>
<td>January – February</td>
<td>2000</td>
<td>January</td>
<td></td>
</tr>
<tr>
<td>9(M)</td>
<td>Vessel on stand</td>
<td>Gacha</td>
<td>Marriage &amp; ritualistic</td>
<td>Utilitarian</td>
<td>January – February</td>
<td>2000</td>
<td>January</td>
<td></td>
</tr>
<tr>
<td>10(M)</td>
<td>Bi – conical on stand</td>
<td>Mukut</td>
<td>Marriage &amp; ritualistic</td>
<td>Utilitarian</td>
<td>January – February</td>
<td>30-40</td>
<td>January</td>
<td></td>
</tr>
<tr>
<td>11(M)</td>
<td>Lamp stand</td>
<td>Gacha</td>
<td>Marriage &amp; ritualistic</td>
<td>Utilitarian</td>
<td>April</td>
<td>25-30</td>
<td>January</td>
<td></td>
</tr>
<tr>
<td>12(M)</td>
<td>Perforated disc</td>
<td>Ghat</td>
<td>Marriage &amp; ritualistic</td>
<td>Utilitarian</td>
<td>February – June</td>
<td>3000</td>
<td>August to September</td>
<td></td>
</tr>
<tr>
<td>13 (M)</td>
<td>Incense disc</td>
<td>Dhup dia</td>
<td>Marriage &amp; ritualistic</td>
<td>Utilitarian</td>
<td>February – June</td>
<td>60</td>
<td>August to September</td>
<td></td>
</tr>
</tbody>
</table>

Note: Sex involved in the production of pottery are shown as shown as: M = Male, F = Female, MF = Male & Female both (Statistics of one family is given). ** Consumption period is very short and functions of the items centre round the ritual. (Roy, 2001)
**Remarks:** Previously the potter of the village used to supply 12 coking vessels (Type – 1) to the Kamakhaya Temple every day. (Roy, 2001)

<table>
<thead>
<tr>
<th>Type</th>
<th>English Name</th>
<th>Local Name</th>
<th>Function</th>
<th>Client</th>
<th>Non-traditional</th>
<th>Nos. of Production (Annually)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cooking vessel **</td>
<td>Lurki</td>
<td>Cooking</td>
<td>Traditional</td>
<td>Non- traditional</td>
<td>250</td>
</tr>
<tr>
<td>1 a</td>
<td>Non-specific typologically similar but functionally different</td>
<td>Eak Poa, Adha Poa and so on.</td>
<td>For preserving sweet and curd in shop</td>
<td>Non – traditional (belong to sweet shop)</td>
<td>2000</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Wide mouthed</td>
<td>Charu</td>
<td>Coking</td>
<td>Mostly non- traditional</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Pitcher</td>
<td>Kalash</td>
<td>Carrying &amp; preserving water</td>
<td>Traditional</td>
<td>Mostly Tribal population</td>
<td>400</td>
</tr>
<tr>
<td>3 a</td>
<td>Miniature variety</td>
<td>Ghati</td>
<td>Carrying liquor</td>
<td>Traditional</td>
<td>Mostly Tribal population</td>
<td>1500</td>
</tr>
<tr>
<td>4</td>
<td>Pitcher</td>
<td>Janga</td>
<td>Brewing / Preserving liquor</td>
<td>Traditional</td>
<td>Mostly Tribal population</td>
<td>500</td>
</tr>
<tr>
<td>5</td>
<td>Vessels for steam</td>
<td>Sarupitha</td>
<td>Vessels for stream boiling rice cake</td>
<td>Traditional</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Storage vessel</td>
<td>Mahajani</td>
<td>Storing liquor</td>
<td>Non-traditional</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Wide mouthed Bowl (Sturdy &amp; Big)</td>
<td>Kota</td>
<td>For Curd</td>
<td>Traditional</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>
Some of Chak (Potter wheel) holders in Rajapukhuri village are mentioned below :-

1. Karuna Kumar (58)
2. Lalit Kumar (70)
3. Sarudhan Kumar (40)
4. Maloibya Kumar (47)
5. Ashweni Kumar
6. Madhab Kumar (40)
7. Lalmohan Kumar (55)
8. Nirmal Kumar (55)
9. Bul Kumar (30)
10. Prasanna Kumar (15) (his father died few years back. In absence of his father, he inherited the Chak. Due to under age, his mother has not encouraged him to use the Chak. Generally a Kumar artisan starts using potter wheel after 25 years of age).
3.2 Resources:

Availability of suitable clay material for potmaking is the pre-requisite condition for this industry. “The availability and suitability of the resources necessary to make pottery provide the most obvious and most frequently cited factor favouring the development of pottery making. The presence of suitable clay, for example, is often viewed as being the primary environmental factor responsible for the craft. (Linne, 1925; Oliver, 1967; Hogbin, 1951; Radcliffe Brown, 1933; Rhodes, 1970; Solheim, 1952; Tuckson, 1966; Nicklin, 1979). The manufacturing of Kumar pottery in South Kamrup is also solely based on sand free clay collected from the area around agricultural field. Conversely, the presumable absence of good quality clay allegedly explains the absence of pottery production (McBryde, 1947; Hunting Ford, 1950; Buck, 1938). Probably, due to availability of *kumarmati* (pottery clay) in abundance influenced the Kumar artisans to settled in these areas of South Kamrup.

The minimal resources necessary to make pottery are: clay, water and fuel for firing. Temper (or non plastic material) is not as important as clay because all raw clays usually contain some naturally occurring non plastics materials. (Roy, 1976; Shepard, 1956). The distribution of different forms of clay is widespread. But all types of clay may not be suitable for making pottery. The sufficient plasticity and mineral composition of the clay is very necessary condition for selecting potters clay. If the raw clay is too plastic, however, the potter must add some non plastics to the paste in order to improve workability. This counteract against shrinkage and facilitates drying (Shepard, 1956; Roy, 1976) and manipulate firing properties. (Roy, 1976; Gait, 1897).
Kumarmati (Clay used by the Kumar artisans) is sticky and almost black in colour. The adhesive quality of the clay make it easily pliable. The Kumar potter in South Kamrup most commonly uses burnt husk as tempering (or non plastic) material. According to Roy, burnt husk is also added to maintain purity of pottery instead of using other non plastic and non sacred materials.

Arnold opined that the clay is found all over the world in natural condition. It is a combination of aluminum silicate and hydrates. It has quality of producing any desired shape. However, suitable type of clay which is the most important and salient resource of pottery manufacturing is considered as primary environmental factor. (Arnold: 1989). The Kumar artisans here have no efficient method for selecting quality clay, but culturally they acquired the art of the capability selecting the right clay having required plasticity. The Kumar artisans in South Kamrup called this particular type of clay as Kumarmati. This is a matter of personalization of the natural object with a given community.

The clay preparation process of the contemporary potters of Assam is diversified. It should be mentioned that principal component of the ceramic production of the Kumar contains the following particles. These are – sand (21.0 %), silt – (49.5%) and clay – (29.5%) and the clay used by the Hira contains – sand – (47.5%), silt – (27.0%) and clay – (25.0%) – (Medhi, 1992).

Kumar pottery are generally red in colour and to make it red potters usually uses kind of haematic (Fe$_2$O$_3$), which is reddish brown in colour. In South Kamrup this haematic is locally known on Gerumati. According to some potters in Rajapukhuri ‘Kumar chuba’, in earlier days this Gerumati was collected from some particular areas of Goalpara district located 30 km away from Rajapukhuri.
As the particle size and amount of non-clay minerals decreases, drying becomes more difficult. Since drying involves the escape of moisture from the interior of the ware, the extremely small particles and pore spaces do not permit the water to escape easily. (Grim, 1968). Here, in South Kamrup, the Kumar potters use burnt husk as non-clay material for quick drying the pottery. (Roy, 1992).

Besides clay and temper (non-plastics), fuel may also have varying qualities, which affect firing success. In India cowdung retains higher temperatures longer during firing than sawdust (Gupta, 1969). In Pakistan, Rye and Evans (1976) noted that dung is the best fuel for pit firing because it provides the most even heating. The Kumar in the area under study is also no exception to it. Besides cowdung, they also carefully select specific varieties of wood, bamboo, husk, Paddy stover, straw etc. Artisan here opined that in earlier days necessary fuels were readily available and could be collected free of cost. Now, these are becoming very costlier and has become uneconomic. Here, in South Kamrup, generally, the potters collect paddy stover during the winter and preserved it for entire season.

The distance of the sources from the potter's house is not random, arbitrary or unimportant but rather provides an important feed back relationship for pottery production. In order for pottery making to originate in a society and develop into a full time craft, a population must have raw materials available in the vicinity of their work area. Ceramic resources must be close enough to a population of potters in order to be easily exploited. (Arnold, 1989).

Artisans of Rajapukhuri village opined that few decades back neighboring government grazing lands were the hot spots for suitable clay. But
now, these lands are encroached by some peoples for agricultural purposes. This incidental losses finally forced them to go distant locations for suitable clay. Now a days Kumar potters transported clay from distance places by manpuller cart and autovan. The distance of exploitable territory of clay indirectly increased the investment in their industry.

The cost / returns of exploitable territory for a population can be usefully described as a curve with the cost / returns along the Y axis and distance to resources along the X axis. The cost curve rises geometrically as distance increase from the habitation site. Distance and associated costs have four major components : (1) Geodesic distance or the straight line distance between two points (2) Pheric distance, or the time necessary to cover the topography (3) Transport cost and (4) The social and Psychological cost. (Braowman, 1976). Arnold opined that this E.T.T. (Exploitable territory threshold) model can also be applied to the utilization of ceramic resources. (Arnold, 1989).
Following the Exploitable territory threshold model, cost / returns of exploitable territory for Kumar population at Rajapukhuri village has been drawn (Fig - 8).

The quality of ceramic resources and friendly environment for draying and preserving pottery influences the pottery production to a great extent. If the utilized resources are of sufficient quality minimum cracking and crumbing encouraged the artisans to settle in an area and continue pottery production, permitting the craft to develop into a full time specialization. Probably in the area under study, the craft have experienced a congenial atmosphere from resources, physical and socio – cultural environment; that resulting into a full-time craft specialization.