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# Inextricable Cultural Heritage Intrinsic in Terracotta Figurine of Panchmura, Bankura District, West Bengal

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**Abstract:** Each and every place has its own cultural identity and Panchmura is no exception to this. This identity may become a resource for the further development of that place. So is happen in the case of Terracotta Hub of Panchmura. Panchmura is famous for its terracotta work especially for animal figurine. First of all, the study is focuses on to the exceptional method off making terracotta in Panchmura. This paper is also trying to figure out the reasons for choosing these motifs of animal figurine along with its association with folklore, cultural setting and traditional oral belief system. This paper trying to find out is Panchmura developed for the sake of temples surrounding or temples are developed based on Panchmura. So, this study trying to investigate the phenomena of temple based terracotta or terracotta based temple which prerogative are responsible for the development of Panchmura Terracotta Hub.

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**Keywords:** Panchmura, Terracotta, Temple, Animal Figurine, Cultural Heritage, Folk Deities, Folklore

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## Introduction

The term 'Cultural Heritage' may be defined as the entire corpus of material signs either artistic or symbolic handed on by the past to each culture and, therefore, to the whole of humankind. It should be considered both in time and in space (UNESCO 1989). Cultural heritage may be divided into two types- A. Tangible cultural heritage and B. Intangible cultural heritage. Tangible cultural heritage includes architectural complexes, material things. It not only includes rural heritage and countryside but also urban heritage, industrial design etc. On the other hand, Intangible cultural heritage covers non-physical cultural heritage including signs, symbols, oral narratives, belief system, rituals, value system etc. The tangible terracotta culture and products gives us a complete platform to identify the intangible culture, history, myth, belief system, societal dilemma of panchmura. The word 'Terracotta' is derived from an Italian term, which means 'baked clay' and 'fired clay' in Latin. Tangible materials are generally associated with certain intangible cultural heritage which passes from one generation to another. Terracotta art play an important role in understanding the socio-economic

and religious aspects of the human culture. This study has shed light on different tangible and intangible aspects associated with the practice of worshipping animal figurine in panchmura. Traditional and functional role related to the survival of terracotta tradition has been studied, observed and recorded.

Intangible cultural heritage is studied through the documentation of associated religious and ritualistic practices in and around panchmura. The data are collected through participatory field work in villages of Deulvira, Joypur, Adhkara, Radhanagar, Kanaipur and off course in Panchmura Mouza, Taldangra block, Bankura district, documentation of terracotta making tradition and its associated form of worship, photography, and interviews of the elders and the craft specialist to understand the religious, rituals and legends related to terracotta tradition.

## **Objectives of the Study**

The major aims of the work consist of the following:

1. To understand the making procedure of panchmura based terracotta craft includes source and preparation of clay, different techniques of making the objects, firing technique, coloring and decoration.
2. To explore the reasons for choosing these particular motifs in making terracotta and to understand the intangible cultural heritage and belief system associated with them.
3. To examine the causes behind for the development of panchmura terracotta hub and its influence on surrounding folk culture, rituals and social attributes.

## **Present Approach and Methodology**

Ethnoarchaeology play a significant role for making the hypothesis for this study based on panchmura terracotta hub. Ethnoarchaeology is the use of ethnographic observations of contemporary societies to explain patterning of cultural remains in the archaeological record (Gould 1996). In the present study it can be seen that ethnographic observations around panchmura help to explain the patterns of Socio-cultural dilemma of Panchmura and probably it also help to understand the origin and development of Panchmura terracotta hub. Even the terracotta products produced in panchmura is a reflection of the socio-cultural aspects of the society around and in panchmura. Ethnoarchaeology advocates two major approaches, 1. Direct historical approach which argues that specific parallels can be drawn from present to past if preferably there are indigenous people living near the site (Steward 1942) and 2. General comparative approach in which the source of analogue is not a direct evolutionary descendant of the archaeological subject. Hence, it refers to broad cross-cultural correlations throughout prehistory (Lyman & O'Brien 2001). In the present work both the approach is more or less used in this study. It is also mentioned that, direct historical approach is directly applied in more fields than the latter one.

## Techniques of Data Collection

In this present study various pragmatic and well-known techniques have been employed for collection of data. Mainly three techniques such as- i) Direct Observation ii) Interviewing in Structured and Semi-Structured manner. iii) Group discussion with the artisans is involved for collection of data. But it is also mentioned that in this study in maximum deduction are drawn through direct observation.

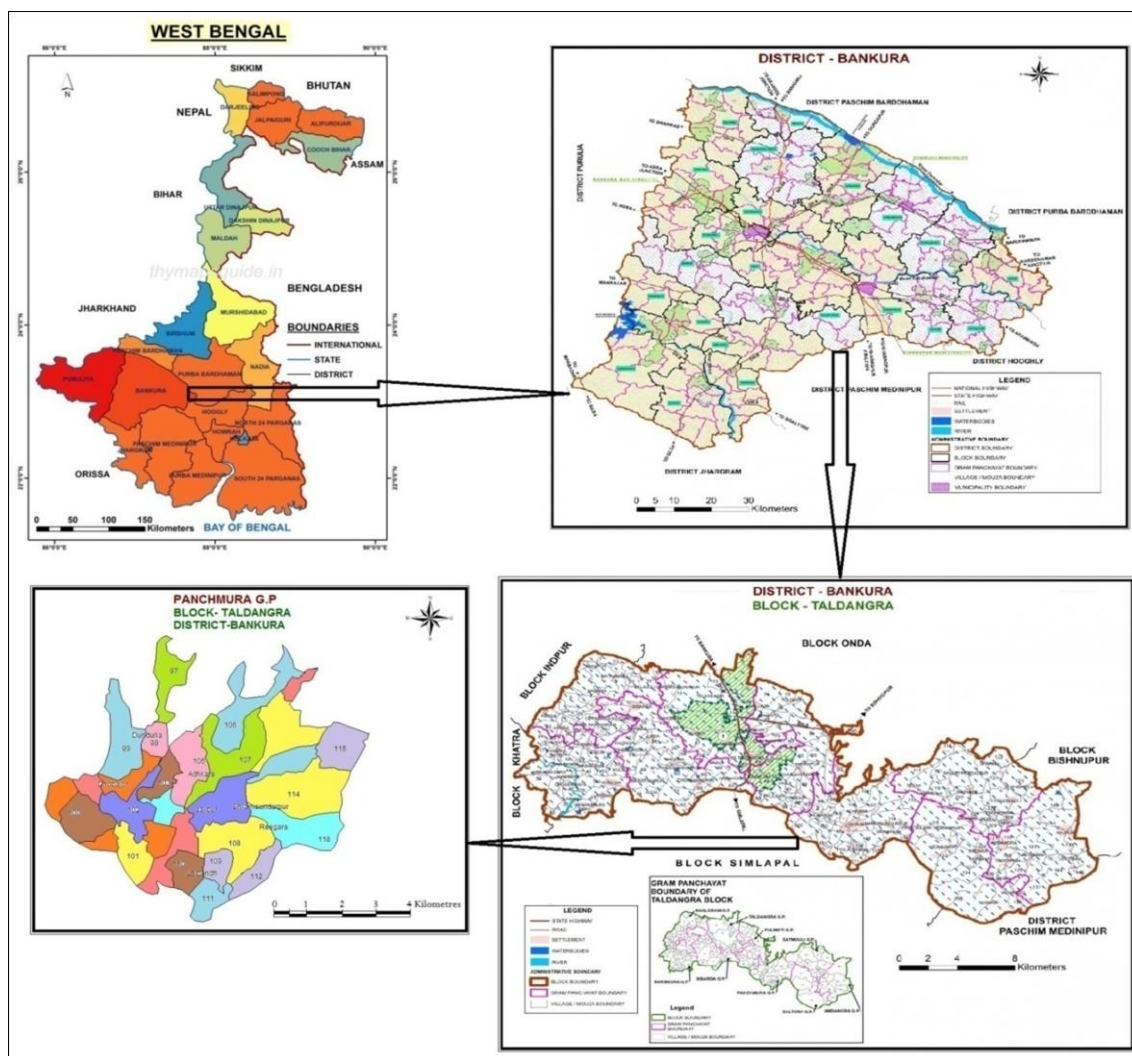


Figure 1: Location map of study area

## Study Area

Panchmura (22.9655° N. and 87.1635° E.) is a small village in Taldangra block of Bankura district with J.L.No. 104 (Figure 1). There are rumors that in Panchmura village there is a junction point ('more') of five (Panch) Mouza named Deulvira, Joypur, Adhkara, Radhanagar and Kanaipur. For this it is named as Panchmura. Its distance from Bankura, Bishnupur and Taldangra is 37 Km, 23Km and 11Km respectively. Nearest railway station are at Piardoba and Bishnupur. At a distance of 3 Km the river Joyponda flows. It is a tributary of River Silaboti.

Panchmura is world famous for its Terracotta Works especially for its terracotta horse. It received Geographical Indication (G.I) tag on 28<sup>th</sup> March, 2018, which will definitely be a huge impetus for Panchmura and also for the rural crafts of Bengal. As per Census 2011, Panchmura had a population of 3719 of which 1854 (49.85%) were males and 1965 (50.15%) were females. Sex Ratio of Panchmura is 94.3511 against state average of 950. In Panchmura, the total number of literates was 2525 (76.65%).

## **Manufacturing Process Involved in the Production of Animal figurine of Panchmura Terracotta**

Terracotta is one of the important and laborious crafts of West Bengal. Availability of Suitable clay ('Entel Mati'), fine sand, moulding techniques, furnace ('Puan') making for burning terracotta plays an important role for terracotta making in Panchmura. Clay is treated very sacred as locally it is treated as mother earth. The terracotta manufacture requires certain step-by-step process which are discussed below.

### **Raw Materials Involved**

**Source of Clay:** It has been previously selected the place from where the clay will be collected. 'Kankar Bihin Entel Mati' (hogging free clay) is best for terracotta. This soil is sticky in nature and considerably less sand content. In Panchmura this clay has been collected from land of co-operatives or from their own land before monsoon (in the second week of Bengali month 'Jaistha'). In most cases the clay is purchased. Generally, each family purchase 10-15 bullock cart full lump of clay and one bullock cart contains 100 'taal' (lump) of clay. Rs. 300 has to be given for one bullock cart. It is noteworthy that, the process of clay collection is very much life threatening. Various people lose their life by snake bite or by landfall. About twenty-five years ago Bhuvanmohan Kumbhakar lost their life during collecting this clay.

**Preparation of Clay:** The unprocessed clay which is brought from the field dumped in a corner of the house especially in a cold place. This is softening by sprinkle water time to time. Then is it cut into pieces with the help of spade. Generally, water is mixed with the clay according to the texture of the soil. The preparation of clay is mostly done in the courtyard of the house or outside the house in an open space. First the clay is cut into small pieces with the help of spade. Kankar (gravel) and other impurities are taken out from the clay with the help of a thin sheet of bamboo (sieve like) called 'chachana' in local term. But generally, panchmura artisans used hand for removing impurities.

**Sand:** 1/10 sand is added and mixed with the clay ('Entel Mati'). This fine sand has been collected from local river (Jaypanda), nala, jhora etc. According to local Panchmura Artisans, the reason for using sand is that sand contains silica which prevents the terracotta products from cracking during firing. The clay is then mixed by feet for 2-4 hours. This process is locally called as 'Tal Kara' or 'Mati Thasa'.

**Colour:** Mainly natural colours are used by the panchmura potters for dying the figurines of terracotta. Though these colour agents are coarse but it is easily mixed up

with water two types of natural colours has been used in terracotta making of panchmura- 1) 'Gad' (Yellowish) and 'Banak' (Reddish). This 'Gad' and 'Banak' clay are brought from some particular place. Generally, it is brought from nearby Jaypanda River or buys from local vendors at Rs.5-6/kg. This is completely different from the clay by which terracotta objects are made. Both 'Gad' and 'Banak' mixed with water in big pots and kept for 10-15 days. After that the sand particles stagnated at the bottom is carefully removed. After 2-5 days, fine sand particles again removed in the same manner. By this the precipitated material is used as colour. Panchmura artisans gave three coatings of colour before firing.

**Process of Firing:** Basically four kinds of raw material are needed for terracotta making. Firewood is one of them. Dry Straw, leaves, sal wood is kept primarily to provide direct fire on the products. From 70-80 years artisans of Panchmura collect 'Jhati' leaves from nearby Sal forest of Deulvira. This jungle is locally named as 'Kumor Jungle'. But now problem of firewood became critical. First, sometime local artisans have to face elephant to collect firewood and secondly by social forestry project initiated by Govt. of West Bengal. Sal trees is replaced by eucalyptus, dry straw contain huge carbon accumulation so by this color of terracotta changed. Firing is done in closed kiln locally termed as 'Pon' or 'Poyan' or 'Bhati'. It is located outside of the house in a separate place. It is mentioned that before firing the terracotta products are sundried for 10-15 days. In the day of firing, the sun-dried products are carefully arranged in the kiln in the layers. This kiln or 'Poyan' is looked like 3-4 feet wall based 4-5 feet radius big pot. In the middle of Poyan a hole was made from where fire comes out. On the top of which terracotta materials are placed. Heavy products are placed on the bottom and products relatively less heavy and small are placed on it. A layer of broken pots is given on the top of the arrangements. On the top of the broken pots a layer of straw is given which is then covered with mud. These products are burned upto 2-4 hours in low heat and after that for 4-6 hours in high heat. 4-5 minutes break are needed during the burning process.

**Tools Used:** Terracotta is basically a small-scale industry. For making of terracotta various tools especially small tools are used. Spade ('kodal') is used for initial cutting of soil. Sieve-like thin sheet of bamboo ('chata') is used for taking out the impurities of the clay. For shaping and beating of the clay in order to give its desired shape bole and 'pitna' is used. Wheel of both spoked and non-spoked variety is used to wheeling. Single and double moulds of plaster of paris and terracotta are used in moulding technique. For designing sharp and pointed implements including sticks, iron rods ('boki'), pen nibs, knives, etc. and for painting brushes are used. For coloring cloth, cotton, and sometimes spray gun, etc. are used.

## **Terracotta Products and Their Possible Usage**

There is no existing available record of how the artisans of panchmura learnt the art of Terracotta. Even discussions with potter's families failed to throw light on this. But it could be easily guessed that these art motifs evolved primarily out of the traditional

folk festivals, ritual practices, belief system practiced through centuries in panchmura. Horses, elephant, bull, manasa Ghat or manasa Chali are widely used in variety of rituals or in the puja of 'Gram Devata' (Fold Deity). It is also used aesthetically in urban and semi-urban area. Variety of ornaments such as necklace, bangles, earrings have a great demand among urban or semi-urban women or girls. Terracotta tiles are increasingly becoming popular among urban people. Urban people also bought horse, manasa Chali or manasa Jhar etc in large quantities for home decoration. But in the present paper we will focus on ritualistic use of terracotta items in the following section and its attachment with folklore.

### **Folk Deities and Associations of Terracotta**

Rural West Bengal worshipped a wide variety of local gods and goddesses which cannot be assigned to "high god" category of Brahmanic forms of Hinduism. Panchmura is excellent examples in it. These are regional deities and associated with villages and towns. It ranges from mother Goddess to Gram Devata (Fold Deity). Their symbols also varied from Serpent to Horse. Deities and their symbols also vary significantly.

In Panchmura, terracotta items are purposively associated with 'Manat' (wish). They offer terracotta items during setting wishes and wish fulfillment in 'Than' (local place of worshipping) and also in temple. They also offer terracotta horse and elephant to local graves. In the following section terracotta items and its attachment with folklore and popular legend are presented for better understanding-

### **Popular Legend and Folklore Associated with Terracotta Snake Figurine**

The practice of serpent worship in India is very old (Banerjee 1956) and can be dated back to the neolithic period as evidenced from the excavations in Bihar (Dhavalikar 1977). Naga figures in Mohenjo-Daro sealings prove the existence of a serpent cult in Harappan times (Biswas 1981). The mention of snake gods and serpent worship was also prevalent in ancient Indian literatures. For example, Atharvaveda gives the names of some snake gods; Mahabharata mentions about Nagaraja Takshaka; Buddhist tradition also mentions about Naga cult (Biswas 1981). Medieval period also witnesses the worship of snake goddess in Bihar and Bengal (Bhattacharya 2006, 2007). Evidence of image of snake goddess are reported by Enamul Haque from Bengal. This indicates that there is continuity in serpent cult through ages which is practiced in present day in the form of Manasa. Manasa Mangal Kavya also tells us the story of the acceptance of Snake Goddess or Manasa within the so called Hindu Brahmanic tradition.

Serpentine figures with or without incised circlet decorations in half human and half snake form are found from early historic sites of West Bengal. In panchmura these serpentine figures are widely represented as manasa ghat/ manasa chali/ manasa jhar. Villagers of panchmura generally do not worship *manasa* idols. It is symbolically worshipped by manasa ghat or manasa chali. In the month of Jaistha (May-June),

Ashar (June-July), Shraban (July-August), manasa is hugely worshipped in panchmura but it is also mentioned that they worshipped and make wish in local 'than' all year round. Local people believed that Manasa protects and cures the villagers from snake bites. So, fear psychosis was a dominant factor in the evolution and conception of manasa in Panchmura. Generally manasa than are always located at the boundary of the village, the border of the entrance to the forest or jungle or in the forest area. Villagers of panchmura believed that manasa or snake Goddess drives away evil spirits and protects the household. *Manasa* is also related to fertility cult as snake symbolizes the male genital organ since they produce numerous eggs at a time (Ghosh 2002).



Figure 2: Deulvira Parsnath Temple (3.2 Km from Panchmura) Protected by Archaeological Survey of India (Note: It is believed that 'Mansa Chali' and 'Mansa Ghat' first made in Panchmura created in imitation of the sculpture of the temple)

But the question is why manasa or snake Goddess makes an important part of panchmura? Why manasa is widely worshipped in panchmura? The sole reason is religious belief, mystical power or else? Through this study it is identified that Deulvira Parsnath Temple (Figure 2) which is situated at a distance of 3.2 Km from panchmura make a great impact on making serpentine figure of panchmura. Deulvira parsnath temple dedicated to 23<sup>rd</sup> Jain Tirthankara Parsnath. It is made at about 13<sup>th</sup> Century and now it is conserved and protected by Archaeological Survey of India. In Deulvira Parsnath Temple 23<sup>rd</sup> Jain Tirthankara Parsnath's identification symbol serpent (Figures 3 and 4) is engraved in front of the temple. Local people of Panchmura believed that it is Mansa (Snake Goddess) and her serpent symbol engraved in it. From this study it is come up that first serpentine figure are made in Panchmura in imitation of this sculpture of this temple.





Figure 3: Idol of 23<sup>rd</sup> Jain Tirthankara Parsnath in Deulvira Parsnath Temple

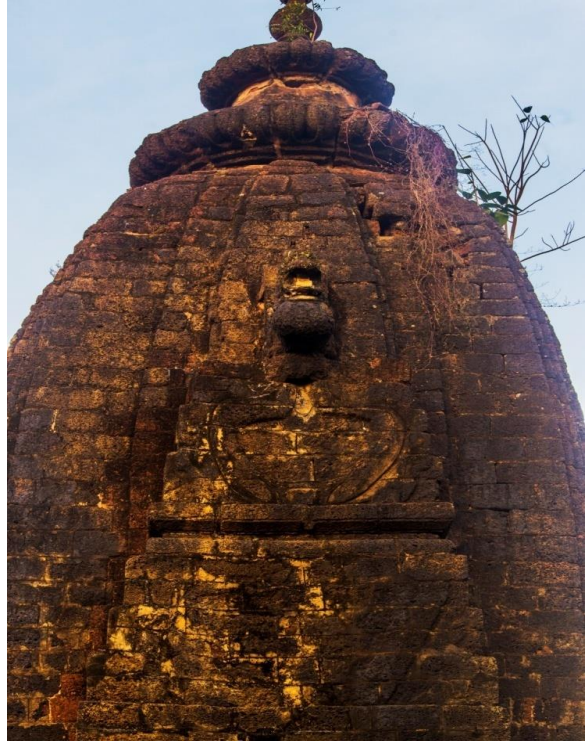


Figure 4: Parsnath's identification symbol 'Serpent' engraved in the front of temple

### **Popular Legend and Folklore Associated with Terracotta Horse and Elephant Figurine**

In ancient times, horses and elephants were universally attached to the kingly affairs. It is well known that ancient Indian kings used to keep horses and elephants which were used in their military campaigns. Thus, horses and elephants were considered as a symbol of royal authority and off course power. Thus, it is evident that horses and elephants played significant roles in the life of ancient Bengal people. In present day also apart from their ritualistic use, the decorative terracotta horses and elephants serve as a status symbol. Economically affluent urban and semi urban people buy these decorative and large sized horses and elephants which are either used as aesthetic objects in urban setting or as the objects for offering in rituals in rural setting.

In panchmura, horse and elephant ('Bonga Hati') are the most extensively used terracotta items associated with Pre-wish and Post-Wish offerings in various than and sacred groves in Panchmura associated with Manasa, Chandi, Dharmaraj and Gramdevata (Figure 10). Shrines and thans in panchmura are always accompanied by terracotta horses and elephants of a variety of sizes with Sindur (Vermillion) marks. In panchmura, the sacred grove, especially the Gramdevata and Dharmaraj occupies an important position in each of the villages. Dharmaraj or Dharmathakur is the most powerful and most common God worshipped in Bankura district especially in Panchmura. Dharma Thakur is originally a Sun God which is represented in black stone placed generally in the open.





Figure 5: Horse and Elephant offered to mother Goddess in Shadebpur Chandi Than



Figure 6: Mansa Chali offered in Shadebpur Mansa Than (Temple)



Figure 7: Ramshackle Dharmaraj Temple at Sankari Bazar under Bishnupur Municipality (Constructed around 1200 years before under the reign of Malla kings)

Generally the carrier of Dharmathakur is the horse. In Dharmapuran, Uluka or Owl has been shown as carrier of Dharma Thakur. There is also Dharma Thakur in Bankura District named 'Hati Raj' (Master of Elephant). It is believed that first temple dedicated to Dharmaraj is made in Sankari Bazar under Bishnupur Municipality (Figures 7 and 8) around 1200 years ago under the reign of Veer Hambir. Second Dharma Thakur temple (Figure 9) was made at Nimtala under Bishnupur Municipality around 350 years ago during the reign of Malla Kings. In Past, if any desire of a worshipper is fulfilled he would offer terracotta horse and elephant to the Dharma Thakur. In Gajan festival of Dharma, local people also gave terracotta horse and elephant extensively as offerings.



If we look closely to Dharma Thakur temple in Sankari Bazar and Nimtala a black stone considered as Dharma Thakur (Figures 9 and 10) has been observed. It is also observed extensive terracotta horse; elephants are given as Manat (Pre and Post offering) in these temples (Figures 9 and 10).



Figure 8: Handmade Terracotta Horse, Bonga Hati (Elephant), Manasa Ghat offered to Dharmaraj in Dharmaraj Temple at Sankari Bazar (Note: It is believed that terracotta works first made in Bankura to be offered to God Dharmaraj in this temple)



Figure 9: Renovated Dharmaraj Temple at Nimtala under Bishnupur Municipality where lotus in the centre signify Dharmaraj

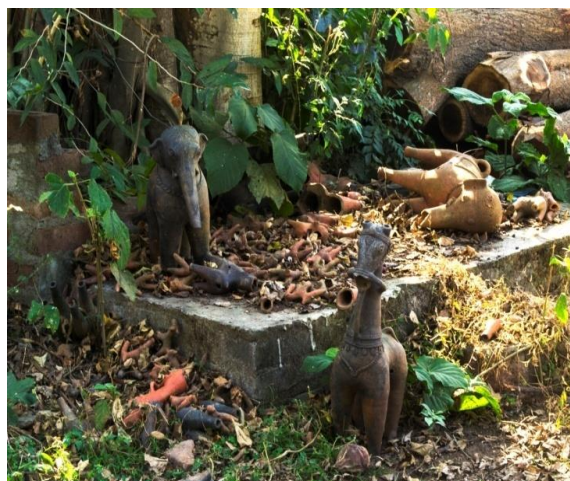


Figure 10: Behind the Dharmaraj Temple at Nimtala Terracotta Horse and Elephant (Bonga Hati) offered to Dharmaraj God for wishing peace to the soul of the loved one

Also in different occasions like Ambubachi, Dasahara, Sankranti, New Moon and Full Moon people make terracotta offerings. In panchmura village, Dharma Thakur is worshipped, which is located mostly under a tree in or at the outskirts of a village, and remains in the form of a black stone. Offerings of terracotta horses and elephants are made by the devotees for obtaining blessings with children by barren women, for cure of eye-diseases, rheumatism, etc. The number of pieces offered generally varies with the scale of importance of the desire ('Manat') of the devotee. In panchmura, extensive



terracotta products are given as offerings in more or less all temples. If we closely look into Shadebpur Chandi Than (Figure 5), Shadebpur Manasa Than (Figure 6), Choto Maa Manasa and Baro Maa Manasa Temple (Figures 11-13), Roktogeria Durga Temple (Figure 14), 77 para Manasa Mandir (Figure 15), Katabesiya Manasa Mandir (Figure 16) etc. we can easily figuring out that extensive terracotta products are being offered in these temples.



Figure 11: Choto Maa Mansa Temple



Figure 12: Mansa Chali and Mansa Ghat offerings in Choto Maa Mansa Temple



Figure 13: Mansa Chali and Mansa Ghat offerings in Baro Maa Mansa Temple





Figure 14: Mansa Chali and Mansa Ghat offerings in Roktogeria Durga Temple



Figure 15: 77 Para Mansa Mandir



Figure 16: Katabesiya Mansa Temple

In panchmura village, it is believed that sacrificial rituals previously used to incorporate real horses and elephants. Through the passage of time, this sacrifice became symbolic and now being represented by terracotta horses and elephants. In panchmura shrines indicate the place of ancestral spirits. Local people believed that they are pleased by the offerings of terracotta horse and elephant as because they have an idea that these horses and elephants became alive in dark and they carry the village ancestral spirits to drive off evil spirits from the village. Therefore the evidences of horse and elephant should not always be considered as symbol of royal affairs and power but these can also be associated with the aspects of village life like village ancestral spirits and local tribal god, hence, having ritual significance.

Table 1: Directional Analysis of Temples around Panchmura and its surrounding Area

Sl. No.	Temple	Direction	sin $\theta$	cos $\theta$
1	Satyam Shivam Sundaram Temple	70°	0.93969	0.34202
2	Tamli Bandh Kali Temple	78°	0.97814	0.20791
3	77Para Mansa Temple	99°	0.98768	-0.15643
4	Katabesiya Mansa Temple	148°	0.52991	-0.84804
5	Deulvira Parshnath Temple	166°	0.24192	-0.97029
6	Deulvira Parshnath Temple	175°	0.08715	-0.99619
7	Roktozeria Durga Temple	249°	-0.93358	-0.35836
8	Nityananda Hari Sova Temple	256°	-0.97029	-0.24192
9	Mansa Temple	264°	-0.99452	-0.10452
10	Radha Madan Mohan Temple	286°	-0.96126	0.27563
11	Shadebpur Ashram	298°	-0.88294	0.46947
12	Shadebpur Chandi Temple	309°	-0.77714	0.62932
13	Shadebpur Mansa Temple	330°	-0.5	0.86602
14	Choto Mansa Temple	328°	-0.52991	0.84804
15	Sudha Nanda Kalika Ashram	337°	-0.39073	0.9205
16	Adhkora Durga Temple	355°	-0.08715	0.99619
17	Adhkorasini Temple	357°	-0.05233	0.99862
$\Sigma=$			-3.31536	2.87797

Mathematically the resultant vector of these as the component:

$$X_r = \sum \sin \theta \dots \dots \dots (i) \\ = -3.31536$$

$$Y_r = \sum \cos \theta \dots \dots \dots (ii) \\ = 2.87797$$

Mean direction and length of the resultant given by:

$$L_r = \sqrt{X_r^2 + Y_r^2} \\ = \sqrt{(-3.31536)^2 + (2.87797)^2} \\ = \sqrt{10.99161 + 8.28271} \\ = \sqrt{19.27432} \\ = 4.390252840$$

The magnitude of  $L_r$  contains the dispersion of the datasheet. For a sample size (n) the mean resultant length is given by:

$$L_{TM} = 4.390252840 / 17 \\ = 0.258250167$$

It has the unique property that higher values of  $L_{TM}$  less value of variance:

$$\alpha = (1 - L_{TM}) \\ = (1 - 0.258250167) \\ = 0.741749833$$

The value of  $\alpha$  ranges from 0-1. A value of 0 means uniform dispersion of temples. A value of 1 means complete concentration of temples in one direction.

Source: Compiled and Prepared by Authors

## Terracotta Based Temple or Temple Based terracotta

There is no existing record why and when Panchmura Terracotta Hub is established? Approximately 150 years ago from today there is mention about Panchmura Mouza and its Kumbhakars. Even in famous Play 'Post office' by Rabindranath Tagore there is



mention about the village Panchmura. But the natural landscape of Panchmura portrayed by Tagore in his play was totally different from this village. But from Government documents, stamps, and the temples around this village bears the witness to existence of Panchmura. 70-80 years ago there are only 8 Kumbhakar families and now it is bifurcated and turned into 75 to 80. Through personal interview, group discussion even if it can get some idea about the establishment period of Panchmura. But the Question of Why Panchmura Terracotta Hub established in this particular place still vague in nature. So this paper specially highlights the associated nearby landscape and cultural setting around Panchmura to explore two important questions- i) why Panchmura Terracotta Hub is established in this particular place? ii) Is their product are the reflection of the cultural setting around Panchmura or its cultural settings are the reflection of Products produced in Panchmura.

Deulvira Parsnath Temple (22.9524°N. 87.1615°E.) which is 3.2 km from Panchmura which is made at about 13<sup>th</sup> Century have a significant influence on Panchmura. Other famous temples like Katabesiya Mansa Temple (22.9636°N., 87.1620°E.), 77 Para Mansa Temple, Tamli Bandh Kali temple (22.9690°N., 87.1843°E.), Choto Maa Mansa Temple, Baro Maa Mansa Temple, Kurkutiya Mansa Temple, Shadebpur Kali Temple, Shadebpur Mansa Temple etc are all more than 300 years old.

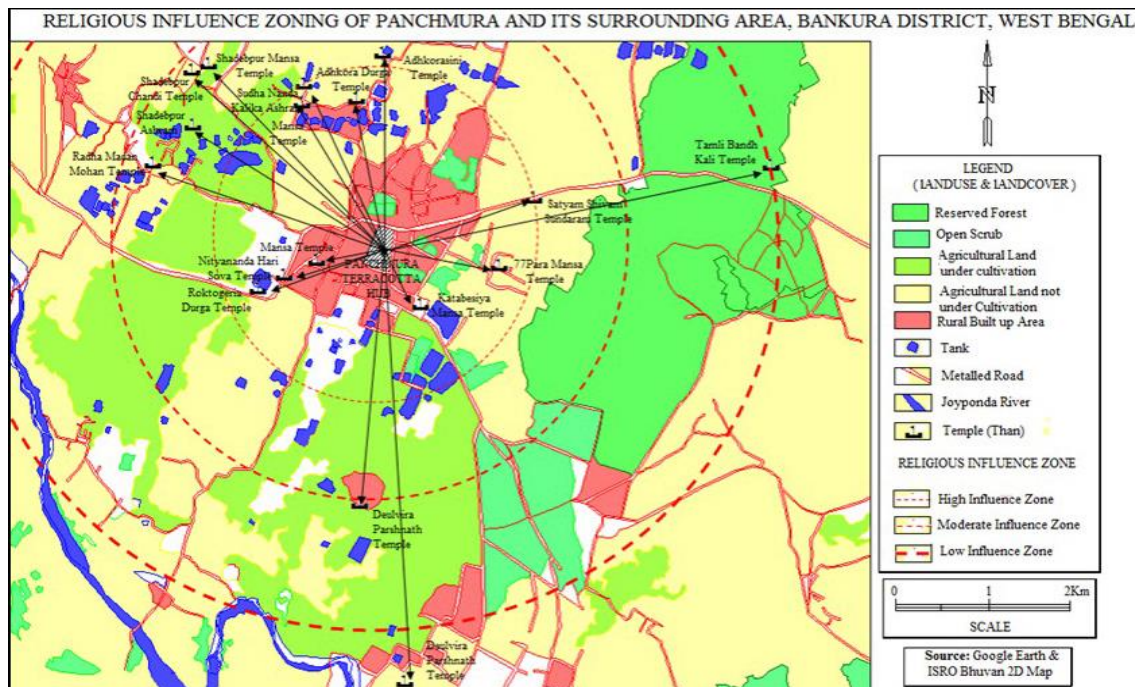


Figure 17: Religious Influence Zoning Map of Panchmura and its Surrounding Area  
(Source: Compiled and Prepared by Authors)

The age of some temple like Kurkutiya Mansa Temple, Choto Maa Mansa Temple, and Tamli Bandh Kali Temple are 700 years old. It is previously said that, Panchmura terracotta hub is established around 150 years ago. So, it is evident that Panchmura is developed after the establishment of these temples. So, there is hardly any influence of

Panchmura on establishment of these temples rather it can be said that Panchmura is development by the influence of these temples. If we minutely observe the offerings of these temples, we could easily predicts that in all temples Terracotta horse, elephant is offered as pre and post offerings to the deities which is made in at Panchmura. So it can be easily concluded that Panchmura is developed based onto these temples.

In this section, a religious influence zoning map of Panchmura terracotta hub is prepared from data obtained through direct observation and Google Earth (Figure 17). Three zones were prepared such as High Influence Zone (1.5 Km), Moderate Influence Zone (2 Km) and Low Influence Zone (3 Km) where 9 temples, 5 temples and only two temples like Deulvira Parsnath Temple and Tamli Bandh Kali temple fallen in these respective zones. More or less all temples except two are fallen in high-moderate Zone (1.5-2Km). So, it can be summarized that, there was a direct relationship between these temples and development of Panchmura Terracotta Hub. It is previously mentioned that the in past animal figurine produced in Panchmura are offered to these temples. So, it may be concluded that Panchmura terracotta hub is developed to serve the demand of offerings of these temples or thans.

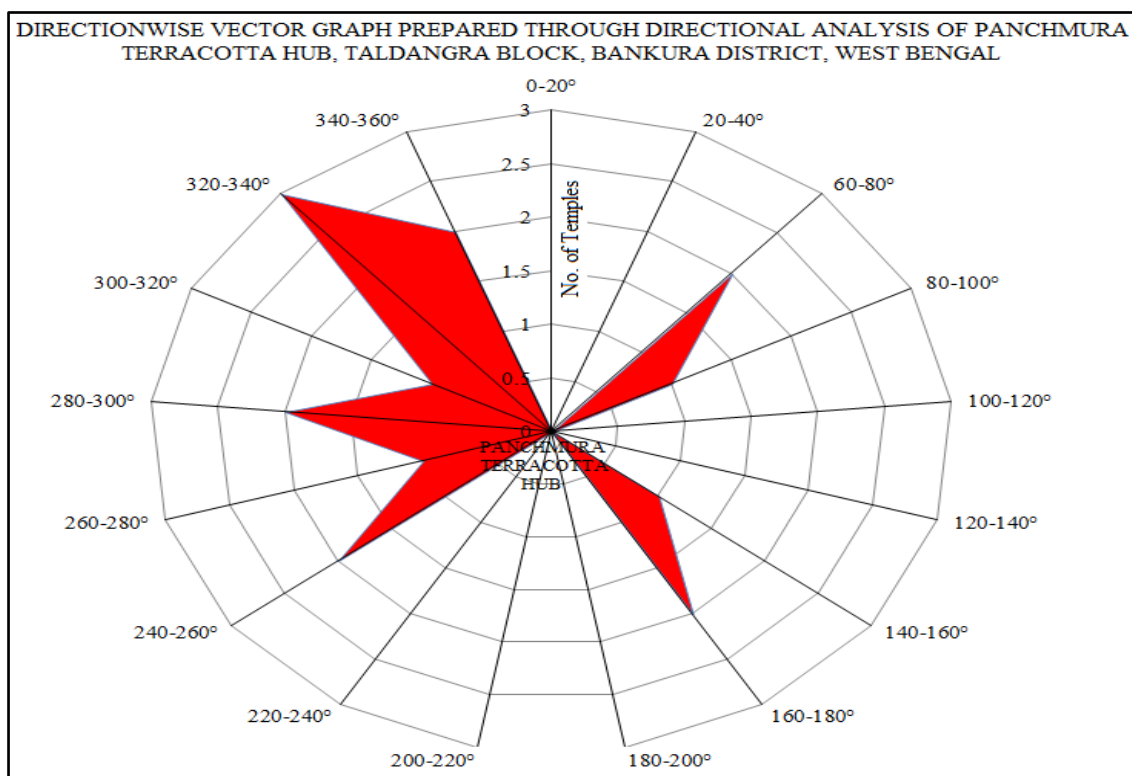


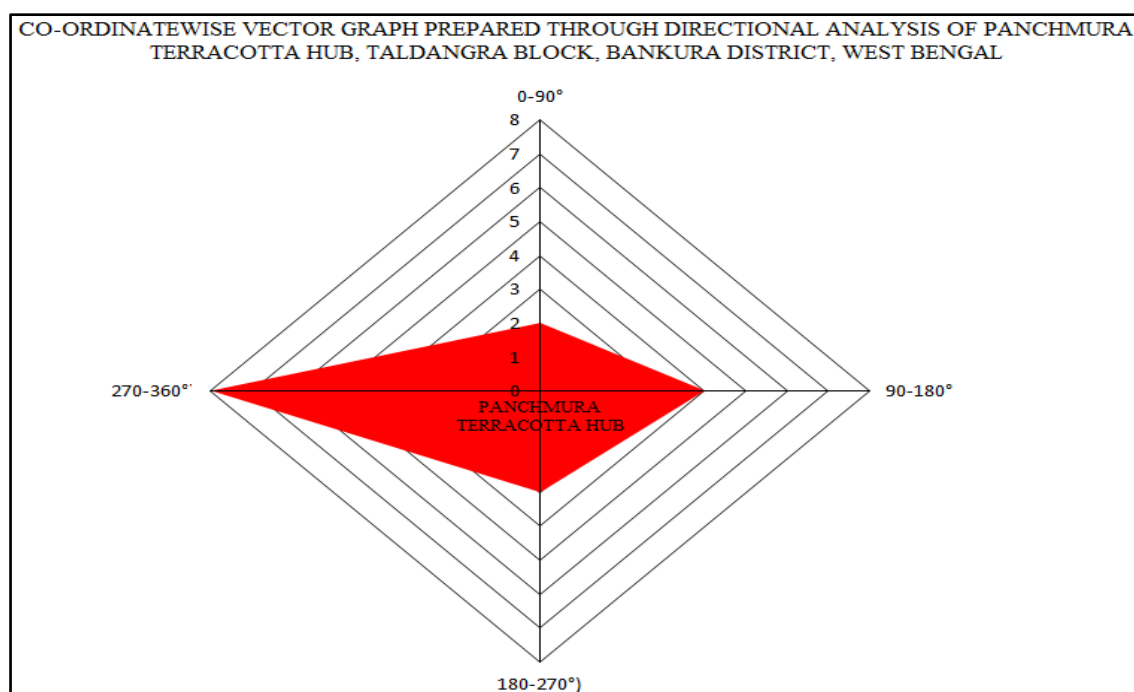
Figure 18: Direction wise Vector Graph of Panchmura Terracotta Hub  
(Source: Compiled and Prepared by Author)

Directional Analysis is an important and interesting subject in analysis the directional or oriented data. It concerns data measured in terms of angles or azimuth or bearing from North. Data which can be easily oriented in a circle and in which one end of the line can be distinguish by the line end is called Directional Data.

Table 2: Co-ordinate wise Directional Analysis of Temples around Panchmura and its surrounding Area

Direction	No. of Temples	Co-ordinates	No. of Temples
0-20°	-	North-East (0-90°)	2
20-40°	-	South-East (90-180°)	4
60-80°	2	South-West (180-270°)	3
80-100°	1	North West (270-360°)	8
100-120°	-		
120-140°	-		
140-160°	1		
160-180°	2		
180-200°			
200-220°			
220-240°	-		
240-260°	2		
260-280°	1		
280-300°	2		
300-320°	1		
320-340°	3		
340-360°	2		

Source: Compiled and Prepared by Authors

Figure 19: Co-ordinate wise Vector Graph of Panchmura Terracotta Hub  
(Source: Compiled and Prepared by Authors)

The simplest presentation of directional data marked of a periphery off the circle with the lines to the centre of the circle. With these circular data the distribution graph is

made off segments of circle with radial proportion to frequency. The graph is called Vector Graph. Through directional Analysis (Figure 18) this phenomenon is pretty much clear. From Vector Graph (Figure 19) derive from Directional Analysis it can be seen that 8 temples, 3 temples, 4 temples and 2 temples are fallen in North West (270-360°), South West (180-270°), South East (90-180°) and North East (0-90°) Coordinates respectively (Table 2). The value of  $\alpha$  ranges from 0-1. A value of 0 means uniform dispersion of temples. A value of 1 means complete concentration of temples in one direction. From Table 1, we figured out the value of  $\alpha$  is 0.741749833 which denotes towards one directional concentration of temples and if we carefully look into the development and growth of Panchmura Terracotta Hub we can easily see the North Western Development of Panchmura Terracotta Hub (Figure 18) from where we can make a final deduction that Panchmura Terracotta Hub's development is Temple centric and local cultural setting, belief system, religious dilemma make a deep impact on Panchmura terracotta hub.

## Conclusion

The study reflects that contemporary terracotta products and usage in Panchmura have a potential to throw light on the past. In concluding the present work, it is important to point out intangible aspects of human cultural settings which are relevant to interpret archaeological data and understand the continuity of terracotta tradition of Panchmura. The patterns of usage, oral histories, and myths, spatial and cognitive dimensions associated with present day terracotta objects might help in interpreting socio-cultural heritage of Panchmura.

This study provides a lucrative opportunity to study the social and cultural significance of the craft of Panchmura, but there are several constraints which make it difficult to work on. First, there is no existing available record of how the artisans of Panchmura learnt the art of Terracotta. Even discussions with potter's families failed to throw light on this. Second, there is no public document or historical data, so we have to depend upon the observation of socio-cultural settings around and in Panchmura.

In this context, however, if more detailed study is carried out at Panchmura about its forms and analogy more information on the nature of terracotta use in the past can be known about Panchmura. Meanwhile, it is extremely important to document the existing oral narratives as people are fast losing these narratives with the effect of rapid urban growth and spread of electronic media. With the loss of these narratives related to the use of terracotta objects archaeologists and historian would certainly lose valuable historical records of Panchmura forever.

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