

## TRADITIONAL KNOWLEDGE ON DHOKRA CRAFT OF MAYURBHANJ

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### *Abstract*

*Dhokra casting is a very old practice used by the caster community in India. The indigenous knowledge of casting is still put to practice by these communities. The products of Dhokra artisans are elephant, horses, peacock, owls, religious images, lamps, bowls and are in great demand in local market as well as foreign markets. The socio-religious links for the Dhokra craft are strong in the Hindu society, during different festivals like manobasa and laxmi puja, the Dhokra materials are purchased and worship in the house.. They worship the Dhokra religious images during different festivals. They are highly appreciated because of their finer design and decorative art. Earlier craftsmen's use to create traditional items but now days a lot of new design product like door handle, boxes, hanger and other new design products are available. The Dhokra motifs have been inspire by the tribal community and the cast group "Rana" creates Dhokra craft from brass, bronze, bell metal and aluminum. Dhokra cast people are settling near small towns, were they purchase the required materials comprised mostly of scrap metal. Craft work is done by hand, without any advancement technology. The Dhokra technique has managed to survive in Odisha through some caster community.*

**Keywords:** *Dhokra craft; Lost wax casting mould; Clay soil; modeling stick*

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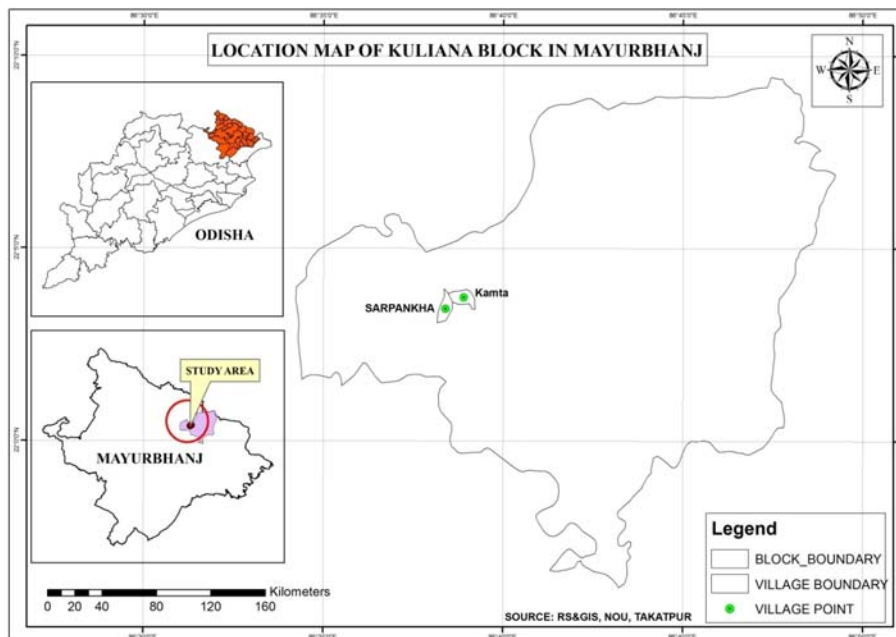
### **Introduction**

Lost wax process was practiced in India since the Bronze Age (3000-1800BC). The beautiful doming girl image found in Mahenjodar is evidence of the metal craft. Metal craft is an integral part of Indian culture. At the time of feudal state the king Purna Chandra Bhanja Deo had called the Thatari, that were already familiar with the cost wage problem and cast tools, weapons, ornaments etc.. This family moved from the village Kuruma near Karanjia subdivision of Mayurbhanj district which is 120km away from the present village (Fig. 1). The family was preparing utensils for the royal family. According to the district gazette "thatari caste are a class of brazier and brass workers. Their number is rather few in the district." (N. Senapati 1967: 115). Mayurbhanj is home to several cultural rich societies. Rana (the bania) family are in close association with metal craft and manufacturing attractive range of decorative objects using a variety of metal like kanga (brass), Pittal, aluminum etc. The technology of metal like high-tin, bronze, kansa (brass) and Pittal melting and tool making was responsible for bringing a great revolution in human life. Earlier this family was also preparing "eight metal amalgam" (Astodhatu) deities and jewelry for the king. The astodhatu (Eight Metal) consisted

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of Gold (suna) Silver (rupa) Copper (tomba) Iron (luha) Zinc (dosta) Tin (tino) Lead (sisa) and Mercury (paroda).



**Fig. 1.** Location of study area

Dhokra casting is a traditional knowledge which is limited to certain pockets only in Odisha that is Kuliana in Mayurbhanj, Ghigidi in Raygoda, Koramula in Dhenkanal, and Kalmat in Keonjhar district. This paper focuses on anthropological study of traditional knowledge on metal craft Artisan of Sarpankha, village of Mayurbhanj district Odisha. I tried to describe the process of manufacturing and technique related to it. In Mayurbhanj the dhokra craft man are living in the villages like Kuliana, Kamta, Sarpankha, Paniakuili, Pachesahi, Kuliakhunta, Chitrada, Lehakemi, etc.

## Methodology

The present study is an approach to study the alarming situation of the Dhokra artisan group of the Mayurbhanj district. The selection of the village for the study was made on the basis of availability of the artisan caste family in the village. This is a completely empirical study in the village Sarpankha of Kuliana Block, Mayurbhanj district, Odisha.

### *Aim and objective*

The scientific inquiry into the area of traditional knowledge is basically an effort to rediscover appropriate means to cope with the problems of modernity, which affects the lives of the poor caster families. The traditional knowledge provide livelihood to the caster caste (Bania) family.

The study follows several objectives.

- To explore and document the technology of dhokra casting.
- Highlight the problem of the dhokra caster groups.
- To know their present status, skill and products
- To highlight the art and their importance in the society.

***Tools and materials***

Dhokra casting artisans use various equipments that can be found in nature and some self made tools. The basic materials Resin, salt, clay, sand, paddy chaff and wood can all be found in the vicinity of the craftsman. The following materials are required for the preparation of the dhokra items: Working board-maham pidha (working wood board), modeling stick (kelub kathi). Beeswax-(Maham) is purchased from the village, where it was collected by the tribal people. Resin (jhuna), grinding slab (the clay paste is ground with this stone) and hand stone (silo putta) iron blade, (Arisi patia) the wax press (Janta), clay (mati), lado ( fired clay) the fired shards of the clay forms are finely ground and mixed with the fresh clay to make it stronger against high temperature. cow dung (gobor), sickle (daa), hammer (Hatudi), Chisel (Chhini), weight machine (dandi), brass (pittal) when the brass objects like bowls, water vessels, measuring bowls worn out such items are sold to scrap metal dealer at half rate. Salt(luno), long picher (Bada Sanduasi), hand blower earlier the villager were using goat skin as a blower, (funka), fire pit cover with broken earthen pot,(kalasi vanga).

***Mould preparation***

The dhokra technique started with the preparation of mould (chhancha) of different vessel animal, household object, and figures, all prepared with clay. The clay core defines the hollow space of the brass object. It shows the desired objects in a smaller and simpler forms. There are two types of core used by the caster, the opened core and the closed core. In open core casting there is one or more opening forms used to scrape out the clay core after firing the core paste. Gobar mati (cow dung mixed with soil) is used. The soil from the paddy farm which contains less is collected after the harvesting of crops. Initially the artisans pound the soil, sieved and soaked in water and mixed with cow dung. They use 3:2 soil and cow dung as per the necessity of proportion. The soil is kneaded until it reaches the leather hand condition and is then ready for mould building. After the preparation of the mould as per their own requirement, the clay core is dried under the sun. When the clay core is dry the surface is smoothed out with the thumb and rubbed with the green leaves. The leaves juice helps to create a better adhesion of the wax. For the closed core paste (Chitamati) sticky clay with sand is used for preparation. 6:4:1 (Clay:Sand:Jute). These potato jute bags are used as jute after cut in the small pieces. Clay doesn't need to be removed after casting. When left in the hollow from a solid casting can be feigned and thereby a higher price claimed for the greater weight.

***Wax preparation***

The wax is purchased from the market at the rate of 300/ kg. The wax from wild bees is rarely available. To make it more pliable resin (Jhuna) is mixed with wax 1:10 proportion (resin:wax). A clay pot is set on fire. Resin is melted on that clay pot then the wax is added. The mixture is brought to a boil for ten minutes while being constantly stirred with a bamboo stick. Then the wax is filtered through a cloth. The boiled waxes are filtered over a vessel filled with water. The liquid wax which is lighter than water congeals on the surface of the water.

***Production of wires***

Two wooden press sticks (Jhanta badi) of one meter long are needed for the production of wires. One is the (Andiapata) male plank another is female plank (Maipata). The (Janta phungi) socket consists of a self cast brass or an aluminum cylinder which has heirloom with symbols engraved around the rim. Various round sieves are prepared with Indian aluminum. Coins (Chaki) can be inserted into the cylinders bases with holes using various sizes nails. The wax is needed and pressed until it reaches the desired ductility. The wooden plunger (Sulat) is fitted with the brass or aluminum cylinder (phungi). The brass or aluminum cylinder (phungi) with wooden plunger is kept on female plank (Maipata). The wooden plunger is pressed with male plank (Andia pata) on to the wax. Pressure occurs through the use of the whole body with the abdomen pushing to male plank towards. The things in this manner wax threads formed through the sieve coin.

### ***Coiling of wax thread***

The craft man covers the surface of the mould with wax thread with a diameter of 0.5 to 1.5mm coil. The thread is laid tightly without flattening it. Different portion of the model like head, arm, leg, neck are separately decorated by wax. If the spiral coils do not join up, then the modeling stick (kalup kolhi) is used. A saddle (Pidha) of 42 X 17 X 8 serves as marking block for handing wax. The semi-rounded hand block (situni) is used for rolling wax into thread or pounding it into sheets on the working block. The spur is either pressed or welded on to the area where it optimally benefits (Fig. 2).

### ***The first clay coat***

After the completion of covering the wax threads, a clay coat mixed with cow dung (palkhania gabarmati) is applied. The clay coat consists of the same materials as for the core paste in the open-core technique, with the mention that the water quantity is higher in this case. The first clay consists of 3:2 (soils: cow dung) and it's used to produce all the details of the wax surface. The larger is applied to a thickness of 0.4 C.M. However, on the spur a coat of 0.8 C.M. is applied. No inclusions should be allowed to develop; otherwise during casting process metal could be filling it. For smaller item one channel is provided and for the big items more than one channel is provided. Then the embedded form is kept under the blazing sun to dry.

### ***Fixing the closed core***

The tin triangles are prepared in a zigzag manner with a hammer and chisel, a piece of iron is place on bottom to chop in properly. These tin triangles are gently trapped all around through the clay and waxes. The core needs to be fixing, otherwise it would move freely in the hollow space created when the wax has melted away. The triangles fly in all direction at intervals of about 4cm.



**Fig. 2.** Monaranjan (a craftman) working with wax

### ***The second clay coat***

The soil clay is mixed with sand. Initially soil is pounded, sieved and soaked in water. The soil, sand and jute (proportion is 6:4:1), then the jute is mixed and needed in to a lump of clay with water. The coat is applied about 0.8cm thickness. When working with the clay a bowl of water is always kept nearby because sometimes the first clay coat needs to be moistened with water so that the binds batter with the second one. The lumps of clay are completely covered. According to the caster family the size of the wax model is permits, up to four of them can be combined into casting form. The clay is then laid out to dry overnight.

### ***The form receivers a funnel***

The Chunga or channel is developed from a lump of clay (balimati). It is a fix path way for transformation of molten brass from the funnel like container of molten brass to the wax. The channel is placed over the wax plug in such a manner that the plug remains visible below. The joint reins forced on the outside with a thick layer of clay and make it dry under sun.

***The metal and its cover***

Brass metals (dhatu) are purchased from the market. Worn out brass objects like bowl, bells, measure pot, are obtained from the market at half rate of the new one RS- 500/- all are broken up in to scrap and prepare for the casting feed. The clay form channel is overfilled according to the size of the wax items. A large pinch of salt is added to the metal for flux. The cap is laid over the metal and the cap and channel are joined by using clay mixture. The clay mixture paste prepare with clay, sand and jute in 2:2:1 proportions. A thick roll of clay spread to the middle of the channel and make it dry.

***Melting the metal by firing***

The wood is purchased and placed on fire pit (salo – Fig. 3). Two larger or three smaller forms are placed carefully the metal facing down, when the fire is kindled. The wood pieces catch fire. The flames turn yellow when the wax melts and burn away. The lost wax these leaves a hollow form behind into which the metal can later flow. The hard blower machine is used for increasing heat. Upper portion of clay shared placed on the top of the over to prevent the heat from escaping too quickly. It takes over to one and half hour to complete the burning when a light smoke rises and the flames turns green. It is ready to be cast using long pincher the glowing form is clasped at its upper and pulled from the fire pit and laid down on to the clay ground. Then the crucible end with the pitcher tilted up for the casting. The glowing form is cautiously and calmly laid down on to the clay ground. It is astonishing how the melting metal easily flows through quite a number of corners through the pressure of the casting head. The forms are placed upside down against a wall. After cool down b the casting coat is carefully broken and some extra rough bits retained during casting. It is bough carefully and rubberier with sand to get smooth glaze.



**Fig. 3.** Wax items under semi-construction and the dhokra metals melted in the fire pit.

**Conclusions**

During federal state the Dhokra objects were prepared for local folk, selling in local market. It has some religions importance in this area so they prepare, Laxmi, Ganesh, Elephant, Laxminarayan which are honored and worship in Orissa in the month of margarita (mid NOV. to mid DECEMBER) and purchased by the local people. Caster have to also face 15 to 20% damage during casting and 10 to 15% semi damage which are loss of labor as well as metal and wax. The dhokra art is a time consuming and link with weather condition. During bad weather casting cannot be done. Price changes in the dhokra material because of the increasing rate of the materials and available of traditional market. Hard labor with group work and less financial gain make the Craftsmen to seek new job or force them to do other jobs. The dhokra casting is an indigenous craft facing many problems then also producing their craft material for the survival of their traditional act. In spite of institutional intervention; artisan continues to operate with traditional technology, tools, designs and informal training. Wages do not match favorable with the skill and experience of the artisans.

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