



ISSN 2278 – 0211 (Online)

## Emerging Trends of Red Clay Pottery Industries at Vidarbha

**Shashi Prakash Mishra**

Senior Scientific Officer (Rural Craft & Engineering),  
Mahatma Gandhi Institute of Rural Industrialisation, Wardha, Maharashtra, India

**Dr. A. K. J. Mansuri**

HOD, G S College of Commerce, Wardha, Maharashtra, India

### **Abstract:**

*In the present day, the red clay pottery industry has been put forward as a major cottage industry for variety of pottery products used for festivals, decorative pottery, big pots for drinking water, etc. But the sector is backward and using traditional and age old technologies because scientific and technical knowledge is lacking due to illiteracy and poverty. The objective of the present study is to examine the characteristic features of the red clay pottery industry of Vidarbha, and identify the reasons of failure of common facility center constructed under UNDP programme. Also study the impact of newly developed technologies for start-up of new home scale pottery business. Finally recommend appropriate suggestions and guideline for future progress.*

**Keywords:** Red clay pottery industry of vidarbha, red clay terracotta, problems of red clay pottery industries, technologies and machines for red clay terracotta industry, start-up, policy

### **1. Introduction**

The Kumbhar caste is found all over Vidarbha; almost every village will have a potters' community or settlement. Potters are further divided into groups depending on the kind of pottery they make and the skill they provide. In Vidarbha the potters who stay in town, make only clay idols of Lord Ganesh and Maa Durga, they are known as the Murtikars and earn a good amount which made their social status little higher as compared to the potters of rural area. The clay idols are in less demand in rural area, so the potters of rural area are making wheel pottery as well as clay idols as per the demand of local market.

The present status of red clay pottery industry of Vidarbha is traditional age-old in nature; the industrial activities are carried on household basis and are characterized by low technology and low levels of production. The artisan himself is the proprietor and works on his own initiative and with his own capital (Maham, 2013). As scientific and technical knowledge is lacking due to illiteracy and poverty, the techniques of production remain inferior and the products lack standardization (Lalithambika, 2003). The potters do not even know the technological improvements that take place in different parts of the country and hence going on with the same traditional methods based on family experience. While going through survey reports of different organizations regarding rural pottery cluster, it has been clearly opined that the quality of existing terracotta wares produced by rural potters should be improved. This improvement in existing product can be carried out more effectively by finding out Technical needs instead of Socio-Economic needs (Gupta, 2000).

The market of the products is mainly local and partly extended to urban areas. Besides, middlemen play a powerful role in marketing these indigenous products (Kasemi, 2014). They usually place order with the artisan and collect materials at less than the market price. The competition from the substitutes like plastic items is a major problem for its development (Lakhsman, 1966). Under such a situation the decay of this particular sector of employment poses a serious problem and obviously the rational solution seems to develop and make viable the household industries (Suresh, 2010). Younger potters would rather work in factories, or menial jobs in construction to get away from the stigma attached to craft.

A small village Peth, 18 kilometres from Nagpur town is selected for in-depth study and to understand the problem in detail for preparation of appropriate suggestions and guidelines for the development of red clay potter industry at Vidarbha. In this village a common facility centre was constructed under the UNDP programme during 2003-04. But the common facility centre has failed to serve the needs of the potters of the village.

The Mahatma Gandhi Institute for Rural Industrialization (MGIRI), Wardha, a national institute under the Ministry of Micro Small Medium Enterprises, Government of India, has developed some small machines suitable for start-up of home scale viable modern pottery units and issued a potter to start-up home scale modern pottery unit. Result of this is that within three years his complete life style has changed and now his whole family is fully involved in the home scale modern pottery production. He constructed a RCC

house and purchased two-wheeler (Anonymous, 2015). Now he is role model for the potters of not only Vidarbha but for the entire country, India.

Under this study the present status of potters of village Peth, Nagpur, the impact of UNDP common facility centre and the machines given to start-up of home scale modern pottery unit are studied.

## 2. Data Base and Methodology

The present case study is focused to analyse the general and economic performance of the red clay pottery industry at village Peth, district Nagpur, Maharashtra, India, covered under UNDP programme and famous for modern products of pottery. From the cluster all twenty five numbers of respondents were contacted through a well-designed questionnaire. The secondary data was collected from published and unpublished scientific articles.

The study intends to determine the actual field situation in respect to home scale pottery industry and their problems in terms of inputs, labour and marketing of their output and to determine as to how these problems could be solved or at least minimized through the formation of suitable technological support. The study thus aims to provide inputs for policy formulation regarding development of viable clusters of village pottery industry.

## 3. Analysis of Data

The information thus obtained has been analysed and report has been prepared based on the assessments and perceptions of individuals who are the actual participants in the formation and implementation of village pottery industry. The report, thus, presents the ground realities of village pottery industry and the suggestions offered in the report are based on the actual experience of the respondents in existing clusters and other knowledgeable persons who are concerned with the developmental activities. The report, therefore, is expected to be helpful to the Planning Commission, Government of India, while considering appropriate guidelines for Rural Cluster Development.

## 4. Common Facility Centre of Village Peth

In this village a common facility centre was constructed under the UNDP scheme during 2003-04. Big machines used in pottery industry were made available in the common facility centre but all are sitting in idle condition and the CFC is almost abandoned because it is closed since beginning as shown in Fig-1.



Figure 1: CFC made under UNDP scheme

## 5. Problems of Pottery Industries of village Peth

The rural potters are forced to adopt the traditional process for processing of clay, traditional clay turning method and fire the products on traditional kilns because till date not a single machine has been developed according to their Socio-Techno-Economic conditions (Gupta et al. 2004). The problems which the potters are facing can be categorized in to several phases like availability of raw materials, production system, product diversification, marketing strategy, etc. Some main problems are described as follows-

### 5.1. Non-availability of Clay

The potters of village Peth, are using the white clay for pottery from a distance of about ten kilometres from the forest area and black clay from nearby paddy field about two kilometres away. Earlier the white clay was available free of cost from allotted area but now the same area comes under the forest jurisdiction now they are facing a lot of problems to acquire permission from Department of Forest, Government of Maharashtra. The cost of white clay is more than Rs2/- per Kilogram and black clay is Rs0.50 per kilogram.

### 5.2. Clay Processing Machines

The common facility centre was constructed in order to collect the clay from nearby natural resources and after processing supply it to the potters of the village with minimum profit. In the beginning this process was successful but then during rainy season the lean period came and the processing of clay came to a stop. Electricity bills for three phase (440 volts) three horse power operated machine were not paid and it has accumulated in a very big amount. Finally no one was ready to share the bill because it was not viable in any

condition and the electric supply was disconnected. Since long the three phase motor operated industrial size blunger is in idle position as shown in Fig-2.



Figure 1: Industrial size blunger at CFC

So all the potters of village Peth, were forced to process the clay by conventional method which causes high production cost, poor quality products. Traditionally the raw clay is mixed with water in a small pit and stirred manually by entering inside the pit which is a tedious job, specially for the young ladies as shown in Fig-3.



Figure 2: Manually processing of pottery clay

But to start-up the modern pottery industry a small home scale pottery clay processing machine which is operated by domestic electric supply has been developed by MGIRI, Wardha, and it was issued to Mr Motiram Khandare. He is processing the clay with the help of domestic electric supply operated small home scale pottery clay processing machine and family labour. It is operated by half horsepower (HP), single phase electric motor. With the operation of just 20 to 30 minutes an artisan can process pottery clay for a work of two days or in eight hours he can process the pottery clay for a period of one month. This machine is portable and a landless artisan can afford to use it in a small corner of his house. Development of home scale level pottery clay processing machine has reduced the human drudgery of women artisans.



Figure 3: Home scale clay processing machine

The MGIRI review committee interacted with Mr Motiram Khadra, Peth, Nagpur, regarding the performance of home scale clay processing machine. The report of MGIRI review committee (Anonymous, 2014) as follows –

- 1) It has reduced the manual effort drastically by mixing the clay with the help of small home scale level machine, whereas as per conventional methods the person has to process the clay by entering the pit and mix the clay and water with his/ her legs.
- 2) The overall process takes just 15-20 minutes and earlier the manual process used to take 2-3 hours of continuous efforts.
- 3) The overall quality of the clay processed through clay processing machine is much superior to the manual process because of uniform mixing of the clay in the home scale clay processing machine. The improved quality of the clay is starkly visible in the crafts produced.
- 4) The clay processing machine development project has not only improved the productivity and quality but is a significant step towards social upliftment of potters by providing them necessary tools.
- 5) Also it would enable more potters to continue the crafts work and provide safety to woman operators who earlier used to get injuries because of the manual process involved. Further, it increases the productivity up to 30-40% which makes the industry viable.
- 6) The newly developed tool can revolutionise the potter's craft.

### 5.3. Non-availability of Suitable Clay Turning Machine

The twenty-four families of village Peth, are using the second generation traditional clay turning machine which is working on ball bearing and it was made available without any cost from Khadi & Village Industry Commission, Mumbai, through an NGO. This machine is traditional in nature and there is a limit for increasing the production. An artisan gets tired very soon also there is limited scope for increasing the production of artistic pottery because productivity of this machine is very low. So ball bearing type clay turning machine is not suitable for viable home scale pottery unit.



Figure 4: Ball bearing type clay turning machine

Till 2012, Mr Motiram, worked with the help of a half horse power AC motor operated clay turning machine but while operating he was totally harassed with the noise of the machine and this exhausted him physically as well as mentally. Besides this the machine consumes excess electric power which causes payment of high electric bills. The condition of Mr Motiram, become miserable because according to the market demand he created new designs of pottery articles and hence was continuously receiving new orders but he was unable to satisfy the supply. So at this stage increasing production using the present machine was very difficult. The Mahatma Gandhi Institute for Rural Industrialization, Wardha, has taken initiative to design soundless, energy efficient, low cost, clay turning machine which can run by multiple power sources for start-up of new home scale viable pottery unit. Now three different designs of clay turning machines has been developed and given to him. The main object of this research is to study the changes of economic status of an artisan and growth of home scale modern pottery industry by introducing a soundless, energy efficient solar power operated clay turning machine.

The MGIRI review committee interacted with Mr Motiram Khadare, using the clay turning machine at Peth, Nagpur, issued to him for start-up of home scale contemporary pottery unit which has resulted in multiple benefits as follows –

- 1) the new design enables them to operate the solar based clay turning machine which directly increases the productivity as the beneficiary no longer has to depend upon the electrical power supply.
- 2) the battery attached to the system stores the power from the solar panels and enables the beneficiary to work as per their convenience and time suitability, thus giving freedom to work at any point of time.





Figure 5: Solar power operated clay turning machine

#### 5.4. Daily Utilization of Clay

The daily utilization of clay directly depends on the productivity of unit which is related to skills of artisan, efficiency of machine, type of product, and quality clay.

S No	Daily utilization of clay, Kg per family	Percentage of families within village Peth
1	<10	4
2	10 to 20	0
3	20 to 30	24
4	30 to 40	44
5	40 to 50	20
6	50 to 60	4
7	60 to 70	0
8	70 to 80	0
9	> 80	4

Table 1: Daily utilization of clay per family

Table-1 shows that around 88 % families are using 35 kilogram clay on a daily average basis. Highest utilization is more than 80kilogram clay per day is used by a single family only and used in preparing idols of Lord Ganesh and Maa Durga and other small pottery articles. The second progressive family consuming more than 50 kg clay per day is the family of Mr Motiram Khandare because he has latest technologies and perfect skill so he is making small value added terracotta articles.

#### 5.5. Energy Efficient Low Cost Kiln

Under common facility centre a box type gas kiln of capacity one cubic meter was installed for baking of quality product. During demonstration it was observed that the consumption of gas for baking of around 100 kilogram ceramic products was 28 kilogram per batch which was a very costly affair. After that no one was ready to bake the product in gas kiln because cost of the product will increase and this is not profitable. This is a proof that the kiln was not purchased / developed as per the requirement of potters.

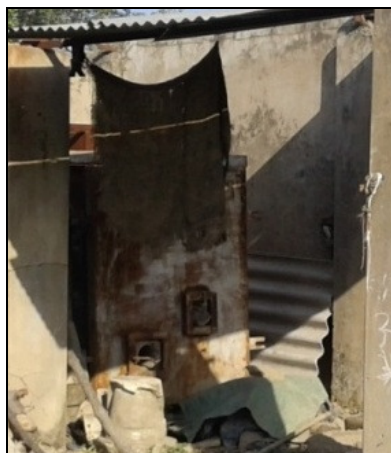


Figure 6: Box type gas kiln at CFC

So finally the potters of the village decided to bake the product in the updraft kiln run by fire wood. Usually the potters use “aawa” type traditional kiln, but the potters of village Peth, had developed small size up-draft kiln as per their own requirements because they make only small terracotta articles which are used only during different festivals. In this kiln temperature can be controlled by controlling the input of fuel. Previously wood was easily available and it was the cheapest option for fuel but now due to non-availability of wood, the cost keeps on increasing. Now firing on this traditional kiln is not economical. So there is an urgent need to develop cheap biomass as fuel as well as energy efficient kiln of different capacity.



Figure 7: Up-draft pottery kiln

#### 5.6. Daily Expenditure on Fuel

Previously wood was easily available as fuel at village site, free of cost. But now a days, due to non-availability of appropriate quantity of fuel in the surrounding area, potters have to pay more than Rs6/- for per kilogram of fuel. Economic consumption of fuel depends on the technique of baking of product at required temperature like 750 degrees centigrade, for example, for baking of good quality Diya which consumes less oil, good quality small pot used as Kalash during worship of Ma Durga which holds water for longer duration.

S No	Daily expenses on fuel per person, Rs	Percentage of families within village Peth	Average daily production, kg/person	Average price received for per kg product, Rs
1	10 to 15	28	8.7	10.34
2	15 to 20	24	7.9	11.05
3	20 to 25	16	10.9	12.37
4	25 to 30	18	12.0	9.62
5	>30	16	17.7	8.55
6	19 (Mr Motiram)	4	12.3	29.27

Table 2: Daily expenditure on fuel as compared to production and income

The above table indicates that the daily expenses on fuel, average daily production & return from sales directly depend on the skill of artisan and quality of product which directly depends on technique of firing and quality of processed clay. The daily production and return from sale of first two groups is almost equal. The daily expenditure on fuel per person increases and simultaneously the daily production per person also increases.

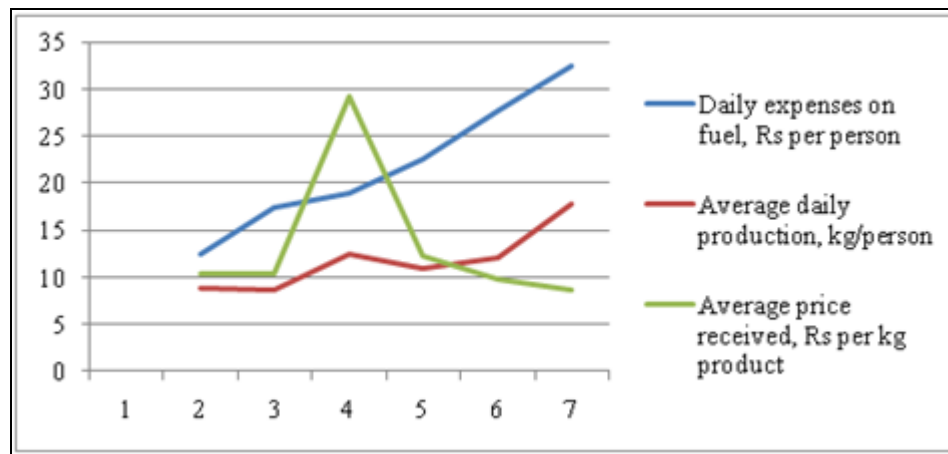


Figure 9: Daily Expenses on Fuel as compare to Production and income

The figure-9, reveals that the potters spending Rs22.50 daily on an average for fuel are economically sound as compared to the first two groups because they receive maximum return for per kilogram of product. The family of Mr Motiram is also spending Rs19/- per day for fuel which comes in between group second and third but the daily production is more than first four groups which earns maximum return Rs29/- per kilogram of finished product in the village. So it proves that the highly skilled potter can make an economic use of fuel which will obtain maximum return from sales and also earn good profit.

#### 5.7. Daily Production & Monthly Income

It is very difficult to assess the condition of pottery artisan based only on the daily production because if the artisan produces pottery articles in a big quantity like small pots for different festivals then they will earn a good amount but if the quality of the product is not up to the mark then it is impossible for the artisan to earn good profit. In the table -3, the daily production of pottery products is compared with cost of fuel for fired product, unit cost of product and monthly income per person.

S No	Daily production kilogram per person,	Percentage of families within village Peth,	Cost of fuel per kg of fired product, Rs	Average unit cost of product, Rs	Average monthly income per person, Rs
1	<10	44	1.9/-	30/-	1,672/-
2	10 to 20	48	2.0/-	21/-	2,784/-
3	20 to 30	4	1.1/-	10/-	3,333/-
4	12.3 (Motiram)	4	1.5/-	20/-	7,500/-

Table 3: Daily production compared to cost of fuel, unit cost of product and monthly income

For discussion Mr Motiram Khandare is consider as bench mark. Mr Khandare's daily production per person is 12.3 kilogram which comes under second group. Also the cost of fuel for per kilogram of fired products is less than average cost of first two groups and unit cost of product is equivalent to average cost of second group and monthly income is more than 2.5 times of average monthly income of second group.

The daily production of third group is on an average 25kilogram and unit cost of product is as low as Rs10/- per kilogram but monthly income is Rs3,333/- which is higher than first two groups but less than half of Mr Khandare, this may be so because he produces clay idols in large quantity as compared to baked pottery which reduces the overall production cost but doesn't earn very good income. Now it is clear that just increasing the total production will not fetch good income but improvement in quality and design are essential parameters for best sale. So this proves that by making the articles which are in demand in optimum quantity will fetches maximum return and make viable business.

About forty four percent family's daily production is less than 10kilogram per day per person. The average unit cost is as high as Rs30/- because the production per person is low and the average daily income per head is lowest. If the daily productions increases than unit cost of product will gradually decrease. The main reason for low production is that the potters are not aware of the technological improvements which take place in different parts of the country and hence carry on the same traditional methods which are based on family experience. They need training and exposure to the latest developments of the sector.

#### 5.8. Daily Wages per Person

The skill of each artisan is compared with daily productivity, wages and sale. A very clear picture is depicted between the comparison of income earned through sales in production of traditional and contemporary pottery.

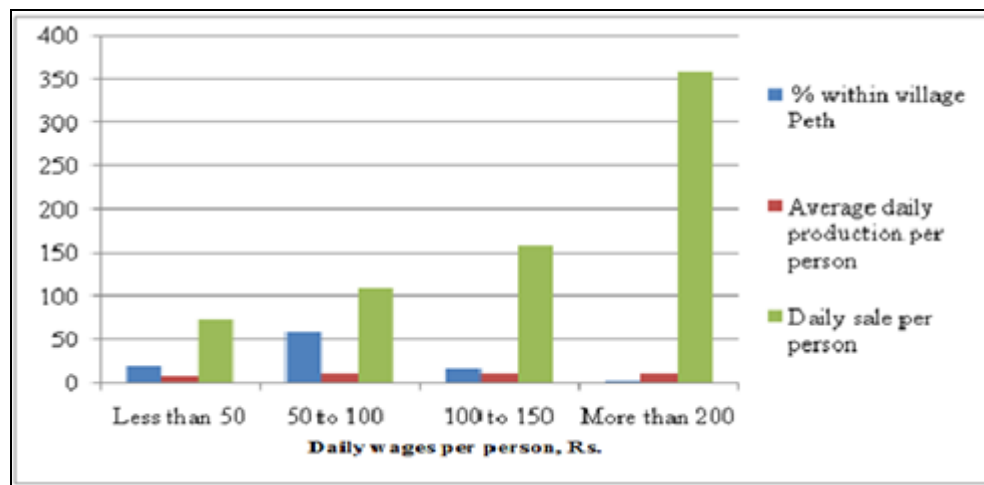


Figure 9: Daily Wages per Person compared to average daily Production and daily Sales

A direct relation is observed between daily wages and daily production, those who are highly skilled they are able to earn higher wages as well as higher sales. Monthly wages of 80% potters is less than Rs100/- per day and 16% get less than 150/- per day. The family of Mr Motiram, receives Rs317/- their daily wages and Rs360/- is their daily sales which is the highest in his village because he produces maximum production with products of best quality with the use of machine. So in the same village and in the same profession about 75 percentage families are below poverty line and with the help of latest technologies Mr Motiram's business is boosting up day by day. This progress is achieved due to the technology, developed for start-up of home scale contemporary pottery unit.

#### 5.9. Number of Persons Involved in Pottery Production

At village Peth, every member of the family including the small children are involved in the production of pottery products. Some families consist of up to seven members while some have just two members. If the productivity of home scale unit is able to increase with the help of small, soundless, energy efficient machines then the artisan will get time to produce new and better designs of better quality. This will help to improve the lifestyle of entire village.

#### 5.10. Type of Products

The potters at the village Peth, usually prepare the traditional pottery products which are mostly used during for different festivals. Up to now not a single effective product development programme has been organised at the village Peth, such a programme can improve the quality and design of product. KVIC, Mumbai, has taken initiative to depute Mr Khandare to attend the different exhibitions. He has now developed contemporary products, based on the exposures received from different exhibitions. Now some potters are trying to copy the product of Mr Khandare, but they are not able to give the expected quality and finishing. So the initiative taken by other potters is not giving them the expected return. They are not able to attract the new customers but still they are trying their level best. During the time of production Mr Khandare, doesn't allow any potter to visit his unit because design and creation of product is his own trade secret. The type of products made by potters at village Peth, are as follows –

S No	Type of products,	Percentage of families within village Peth,
1	Traditional pottery products usually used for different festivals	88
2	Idols of God Ganesh & Goddess Durga	8
3	Contemporary pottery as per latest demand	4

Table 4: Type of products

During the survey it was observed that the quality of pottery products are not upto the mark and this is the reason that most of potters are not able to earn a good profit. If the productivity is increased with the help of latest machines and the potters are able to supply their orders in time and also they are earning a good profit, then they will focus to improve the quality and design of product. So it is the need of hour that government must take initiative to make the machines available in subsidised price because the income of ninety percent potters is less than Rs3,500/- per month. Moreover it is necessary to organise training cum demonstration for the creation of superior quality product and innovative design according to the demand of the market.

#### 5.11. Marketing of Pottery Products

The potters of village Peth, receive orders at their own work place, through different agents from Nagpur, Wardha and Yavatmal, because the village Peth, is just 18 kilometre from Nagpur and also the quality of pottery product is superior and most suitable for festivals as compared to other area, because it is able to hold water and oil for a long time. But this is the main reason why potters of



village Peth, are not receiving enough exposure for creation of new and innovative products because they do not themselves go outside their village for sale of their product.

## 6. Conclusion

The present study concludes with the following points as follows –

- 1) The pottery industry at Vidarbha, is suffering from non availability of raw materials, lack of working capital, obsolete technology, lack of diversification of products, lack of good marketing facilities, and lack of Research and Development efforts, etc. The artisans are often exploited by the middlemen who always squeeze the profit.
- 2) The machines installed under UNDP scheme are not suitable for home scale pottery industry by any means. All the machines are operated by three phase (440 volts) electric supply which is not feasible for home scale pottery industry.
- 3) The latest technologies issued under start-up to Mr Motiram Khandare, has improved the production, reduced the cost of production, and increased the overall income as well as profit margin.
- 4) A comprehensive R&D on fuel and energy efficient kilns will be greatly helpful for potters. It could be worthwhile to explore eco-friendly fuel by using local materials such briquettes from agro waste, etc. for consistent firing results.
- 5) There is urgent need of multi-directional approach with an overview on the entire system of input - process - production - management and marketing elements. In every village there is an urgent need of intensive training cum demonstration of latest technologies and new designs as per demand of market.
- 6) Government should make available the latest machines on 75 to 90% subsidised rate based on the status of artisan because with the help of traditional method potters are not able to earn even minimum daily wages and eighty percentage potters comes under Below Poverty Line (BPL) category.
- 7) New education policies should be developed for artisans by which artisans will become as an entrepreneur. This education will cover the application of latest technologies, creation of new design as per demand of market, knowledge of marketing strategies and overall management of professional unit.
- 8) The technological, financial and marketing supports to village industries should be made available by a permanent organisation of the particular village or location i.e. Trade Facility Centre (TFC) and it will be managed by a progressive entrepreneur of the area. The TFC will work in similar fashion to ITC's e-choupal. The network of TFCs will be managed by independent professional organisation, Government of India.
- 9) The Central Government and different State Governments of India should create a new "Ministry of village industries and artisan welfare" which will arrange the overall holistic development of village industry because for artisan and village industry's overall development no single ministry is responsible.

## 7. References

- i. Anonymous, 2014, "Evaluation study of projects of MGIRI", Submitted to Ministry of MSME, GOI, Unpublished report, pp. 132-135.
- ii. Anonymous, 2015, "Annual report of MGIRI 2014-15", Submitted to Ministry of MSME, GOI, Unpublished report, pp. 50.
- iii. Gupta. A.K., Singh. K.C. ,2000, "Technical need assessment (TNA) survey of the pottery cluster – Gorakhpur "UNDP – KVIC Project, report submitted to MBI, KVIC August 2000.pp 1-5.
- iv. Gupta. A.K., Nagesh 2004, Techno-economic roadmap for up gradation of rural potters & their terracotta products, report submitted to MBI, KVIC, pp 3.
- v. Kasemi, N, 2014 Problems of pottery industry and policies for development: case study of Koch Bihar district in West Bengal, India, International Journal of Advanced Research in Management and Social Sciences, Vol-3, No-7, pp 238-247.
- vi. Lakshman, T.K. 1966, Cottage and Small Scale Industry in Mysore. Rao and Raghavan. Mysore, pp.129-149.
- vii. Lalithambika, 2003, Techno-socio-economic survey on the living and working conditions of the traditional potter communities of Kerala, unpublished report of IRTC., pp 22-45.
- viii. Maham A, 2013, Artisanal craft Red Clay Pottery ( Terracotta) in South Asia (and Ethiopia) and the potential for expanding markets locally and globally, unpublished M Phil. by practice Thesis, pp. 23-61.
- ix. Suresh, L B. 2010, Rural artisans- indigenous technology: an empirical study on village potters in Warangal, pp 1-10, <http://community.eldis.org/?233@@.59e8c693!enclosure=.59e8c694>.