

# ECO FRIENDLY IDOLS- A STEP TOWARDS SUSTAINABILITY

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**Abstract**—Festivals are an integral part of Indian culture. The traditions associated with the celebrations of these festivals reflect people's deep rooted faith in deities. At the same time people are ignorant of the adversities they cause to the environment. For instance, the festival of Ganesh Chaturthi, Durga Ashthmi are celebrated in different parts of India. On the last day of the festival the idols are taken out in a colorful and musical procession and traditionally immersed in water bodies. Since immersion is a community activity the place chosen is the one easily accessible like a pond, stream, river or sea. Most of these idols are made of plaster of paris and harmful chemicals. The Plaster of Paris does not easily dissolve in water. This results in the reduction of oxygen level in water. Apart, chemical paints used for decorating idols are hazard to marine life and people. These chemicals contain heavy metals and are bio-accumulative. These harmful substances get dissolved in water bodies in due course of time posing heavy threat to human life by negatively affecting the food chain. This paper focusses on the alternatives to plaster of paris and chemicals. It also reflects on the problems of the artisans, the government schemes and the need for adopting these alternatives so as to take a positive step towards sustainable environment.

**Keywords:** Plaster of Paris, Biodegradable, Clay, Paper mache

## I. INTRODUCTION

Idol worship is an important part of Indian culture. The onset of any festival is marked with 'sthapana' (establishing) of idol at home or at public squares. For example, the festival of Ganesh Chaturthi is celebrated as the birthday of Lord Ganesh. The duration of festival varies from one to eleven days depending on the place and tradition. On the last day of the festival the idols are immersed traditionally in water bodies.

The religious significance attached to this customary practice is the mark of respect demonstrated to the deities and their power. Another reason behind the practice of immersion is the belief that water can wash off all evils and provide purity and sanctity to all activities. The place of immersion is nearby and easily accessible water body like a pond, stream, river or sea. The idols are generally made of plaster of paris and other harmful chemicals. They are mostly decorated with jewelry made of plastic, metals, apart from flowers and cloth etc. When idols are immersed in water all the paraphernalia is also drowned in water. All these together create havoc on environment and on marine life. In few cases people are ignorant about the harm that they cause to environment. But many a times the people are reluctant to change their attitude towards idol immersion due to their deep rooted faith in deities. This poses a heavy threat on the water bodies as the water gets polluted.

## I. DISADVANTAGES OF PLASTER OF PARIS

There is a marked difference in the way idols were made in past that is 50 years ago and the way they are made in recent times. Traditional ways:

- The sculptures were made of mud.
- Vegetable or natural colors were used to paint the sculptures.
- The idols were taken to the river for immersion.
- This process of worship and immersion was meant to represent, the cycle of creation and dissolution in nature.

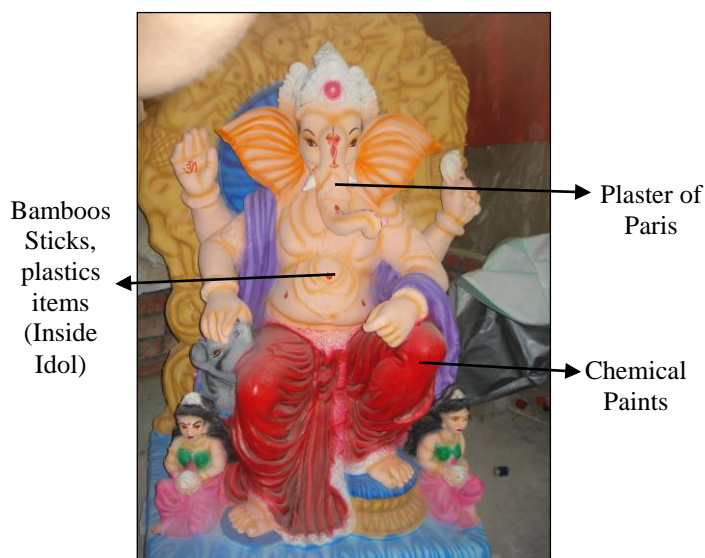
Modern ways:

- The idols are made of Plaster of Paris.
- Toxic colors are used to paint these idols.
- The idols are decorated with plastic and metal jewelry and other non-biodegradable materials.
- The idols are taken for immersion to nearby water body.
- Pomp and show is attached to the celebrations.

A few major differences between traditional and modern ways are that in the past idols were made up of biodegradable material which easily dissolved in water causing negligible pollution to the water body. Natural colours were used. But in the present idols are made up of non-biodegradable materials which do not disintegrate easily. Thus when large numbers of idols are immersed it leads to harmful accumulation of non-biodegradable material on the bed of the water body. Chemicals used as colorants on the idols, gets released in the water which cause pollution adversely affecting aquatic life. Offerings that are placed in the water body along with the idol can affect the BOD levels and also contributes to eutrophication of the water body. So far no recycling takes place of the idols and they are simply dumped at a common site which is usually a sea bed or river bed.

The plaster of paris affects environment gradually over a long period of time. Idols made of Plaster of Paris do not dissolve easily in water and reduces the oxygen level in the water, killing the fish and other aquatic organisms.

In terms of health impacts on human beings, paints are a greater source of hazard and most of the colours used for decorating idols are chemical-based. They contain heavy metals like mercury, cadmium and lead, which are neurotoxin (nerve poison) and nephrotoxic (poison to kidneys). These metals are bio-accumulative, meaning that once they enter marine life forms through fish; they pass in the food of human beings. Incidentally, the brighter the color, the greater is its toxicity. Red, blue, orange and green colours are known to have higher content of mercury, zinc oxide, chromium and lead.



**Fig.1: Plaster of paris idols threat to environment**

The various paraphernalia immersed along with the idols and its impact is given in the table below:

Sr. No	Materials immersed	Impact
1	Plaster of Paris	Increases dissolved solids, metals and sludge. Reduces oxygen level in water.
2	Decoration material viz. clothes, polish, paint, ornaments cosmetic items etc.	Contributes suspended matters, trace metals (Zinc, lead, iron, chromium, arsenic, mercury etc.) metalloids and various organic and inorganic matter, oil & grease etc.
3	Flowers, Garlands, oily substance	Increase floating suspended matter organic contamination, oil & grease and various organic and inorganic matter.
4	Bamboo sticks, Beauty articles	Big pieces get collected and recycled while small pieces remain floating in water or settled at the river bed restricting river flow.
5	Polythene bags/plastic items	Adds to the hazardous material and kills the aquatic life
6	Eatables, food items etc.	Contributes oil and grease, organics to water bodies.

## II. FIELD VISIT

The disadvantages of plaster of paris and chemical colors, lead to further research to find an alternative source to these idols. In the course of journey various field visits were conducted and had opportunities to meet people associated with making idols. They are described below:

### A. Rural Technology Institute (RTI), Gandhinagar

The RTI was established in 1979 by the Gujarat government as service institute to rural people. Recently Gujarat Samachar, a daily newspaper, had published an article about the workshop

conducted by RTI in which they had trained artisans for making idols out of clay. RTI had conducted these workshop at three places in Gujarat-Ahmedabad, Surat and Vadodora.

The workshops were conducted by Atul, R K Patel and B S Patel, faculty of RTI who were working on this project since May 2015. So far they have trained almost 1800 artisans in Ahmedabad and 2400 artisans in Vadodora.

According to RTI, “In Ahmedabad they had organized workshop at three different places namely Gulbai Tekra, Vasna and artisans living near ISRO. The workshop was conducted in batch of 30 artisans. Each batch was trained for about four hours a day for 15 days. The program created awareness on the need to safe guard the environment by emphasizing on the need of making clay idols. The artisans were trained in art of making idols of clay using natural colors”.



**Fig.2: Idols made of clay**

The artisans did not have any former knowledge of making idols but have adopted this art from their ancestors. They did not have any specializations in fine arts or clay modeling neither had any knowledge of modern production methods. This has resulted in the low productivity and poverty among these artisans.

The artisans were following two methods for making clay idols. In the first method the moulds (Fig 3 and Fig 4) were made of plaster of paris in which liquefied clay was poured. The other method was to prepare the idols directly from clay. After the idols dried up they were given a finishing touch of distemper so that the idols do not break and colors are easily absorbed. At last, the idols were painted in attractive colors. The process was long and artisan took five to seven days to complete a clay idol of one feet.



**Fig.3: Moulds for making clay idols**



**Fig.4: Moulds for making clay idols**

An idol making workshop conducted by RTI at Parthmik Shala Samiti, Vasna, Ahmedabad. There were 100 artisans who were trained for 4 hours every day. They were provided with necessary equipment and other raw materials required for making idols by state government. The trainees were making the idols with hands without using moulds. One idol was completed in 5 days if made by an expert artisan otherwise it took 9-10 days by an amateur artisan. They applied a coat of distemper and painted the idols with attractive colors.

There the artisans were making the clay idols. Most of the artisans like Nathu and Deviben (Fig 5) were attending the workshop to get a certificate and increase their earnings. The trainers Arjun Rathore and Kamleshbhai encourages the artisans to use clay for making idols rather than plaster of paris.



*Fig.5: Interaction with artisans*

Another workshop conducted by RTI was Clay Art, Vadtal. There the artisans were trained to make clay idols ranging between 3 feet to 9 feet. The workshop lasted for 15 days in which 31 artisans from 15 districts of Gujarat were trained. The white clay was brought from Porbandar (Fig 6) which was in form of solid rock. It was put in machine which converted it into powder. Gum was added and a paste was prepared (Fig 7). This paste was poured in the moulds made up of rubber and Plaster of paris or rubber and fiber. Coconut coir was also filled into the idol to bind the clay and to make the idol strong. After 3 days when the



*Fig.6: White clay*



*Fig.7: Mixing of clay with gum*

idol had completely dried, a coat of distemper was applied. With the help of spray gun and brush idols were painted. After giving them finishing touch the idols were ready for dispatch to various parts in India. Natural colors were used. The black color was made from falsa, yellow from turmeric. Other colors were made by mixing basic colors.

RTI was successful in its endeavor in training artisans in the art of clay modelling. The artisans were ready to use clay instead of Plaster of paris. They also suggested that government should provide incentives to the artisans using clay for making idols.

RTI were also researching on alternative colors which are more effective than water colors and are biodegradable. They were also researching on innovative methods to avoid cracks on clay idols.

## *B. National Institute of Design (NID)*

The NID, Ahmedabad functions as an autonomous body under the Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, Government of India.

Ms. Neelima, a faculty in NID is working on preparing Ganesh idol made out of paper mache.

### *Making of Ganesh Idols Using Paper Mache*

Ms. Neelima had used waste paper and newspaper to make the idols. Firstly, she prepared mould then filled it with paper mache and then covered it with layers of paper. Water based colors are used as colorant. 20 idols of paper mache can be made in a day.

The only drawback of these idols was that, the idols were very light in weight. So further research is going on to increase the weight of such idols.

NIDians are also researching to find how much time these idols will take to dissolve in water. According to them it took 2-2.5 hours for the paper mache idols to dissolve completely in water.

The NIDians are also researching on gum which can be used efficiently without harming the nature. Saras, animal glue abstracted from animal leather, is being recommended. They are planning to teach artisans to make products other than idols from paper mache so that they get employment for the whole year.

## *C. Fine Arts College*

Fine Arts College located in the Ambavadi area of Ahmedabad, is one of the oldest educational institutions in Gujarat established in the year 1912.

The Principal of C N Fine Arts College, Mr. Ratilal Kansodaria was against the clay idols. According to him "Clay idols do not dry easily and situation worsens during the rainy season. The clay idols crack and break easily while joining different parts". So he suggested

- Idols could be made of rubber, which would be more like balloon. Air could be taken out during immersion and rubber could be collected back for recycling.
- 3-D painting of the idols made either on paper or cloth.
- Idols with low relief which means idols could be made with features and decoration in front and back side of the sculpture is either covered with cloth or paper.
- Idols made of wheat flour.

### *Problems and views of artisans*

During conversation with local artisans we came to know that artisans were still using Plaster of paris to make idols. They gave various reasons for the same: -

- Production of clay is very less as compared to Plaster of Paris. The artisans could make three Plaster of paris idols in a day whereas it takes five days to complete one clay idol.
- Another reason was that the clay idols broke very easily during transportation, while Plaster of Paris idols can be transported over a long distance without any damage.
- The people preferred idols of more than 5 feet in height which was difficult to make from clay.



- The artisans believed that Plaster of Paris idols didn't cause any harm to human health and environment and they were also of the view that Plaster of Paris was a natural substance obtained from sea salt.



*Fig.8: Artisan making clay idols*

- The artisans were also infuriated with the state government because in 2013 the government had banned the idols made of plaster of paris. But 2 weeks prior to Ganesh Chaturti the government removed the ban and artisan were allowed to make idols from plaster of paris. The artisans wanted that the government should change their policies and totally ban Plaster of Paris.
- The artisans also suggested that the state government should provide incentives to those who are making idols from clay.
- On explaining them and clearing their misconception on the harmful effects of Plaster of paris and that it's an artificial substance with many harmful chemicals added to it, they agreed to adopt clay to make idols but will not stop using Plaster of paris until the government clears its stance on plaster of paris idols.

#### A few solutions

- The problem of formation of the cracks in the clay idols was solved by using the white clay brought from Porbandar and mixing it with gum.
- The artisans guaranteed by the trainers from RTI that the idols will not break even if they were transported 1000 km.
- The problem of making big idol was also solved by using Porbandar clay.
- Natural colors were used effectively and it solved a major problem of chemical colors.



*Fig.9: Artisans making clay idols*

#### Government Policy

The Gujarat state government has started the skill upgradation training program for the artisan with the help of Rural Technology Institute (RTI), Gandhinagar. Under this program the artisans are provided free toolkits worth Rs.5000 after the successful completion of training. The toolkit included colors, brushes, stand and other items. At the end of training program, the artisans were awarded with a certificate certified by state government. The certificates will act as collateral to take a loan from a nationalised bank. The artisans were given Rs.100 every day as stipend and Rs.20 for snacks.

The state government further encouraged the artisans by providing them financial support. The government has decided to provide an incentive of Rs.100 on one foot of clay idol, Rs.200 on two feet idol and so on sold by the artisans. The policy also contains that the artisans will be provided clay/mud at subsidised rate and moreover government will arrange for the marketing and transportation of idols. This policy is under

pipeline. This policy will be implemented first in Ahmedabad, then in Vadodra and Surat. Moreover, the state government is thinking to ban Plaster of Paris idols from 2016. State government will also introduce Matikam Swarajgari Bankable Yojna (MSBY) and Electric Potter wheel and Pug Mill Scheme. The Bankable scheme is implemented with a view to enhance the productivity, to provide equipments, working capital and modernization of production methods for artisans.

The Nationalized Banks are also instructed to give loans up to Rs. 30,000/- to the beneficiaries. This is an important scheme for self-employment generation for small artisans in rural areas. To provide Electric Potter wheel and Pug Mill to clay art workers, 50 % subsidy will be provided by the state government.

### III. CONCLUSION

After visiting various institutes and workshops it was found that the Plaster of Paris adversely affects environment gradually over a long period of time. The chemical colors which are used for coloring the idols are more harmful for the environment. The need of the hour is to replace the Plaster of Paris idols with other eco-friendly alternatives and natural colors.

The main concern in making clay idols was the formation of cracks and difficulty in transporting them over long distances. The problem of cracks can be solved by using the white clay from Porbandar. When this clay is mixed with gum, the clay becomes elastic and durable. There are less chances of cracks and breakage while transportation.

The other alternatives suggested were the idols made of paper mache, rubber, wheat flour etc. The only drawback of paper mache idols is that they are very light in weight. Research is still going on to make them more viable, environment and user friendly.

The government is also encouraging artisans to use clay in making of idols. The government is offering various incentives to the artisans to move from Plaster of Paris to other alternate sources.

In the coming years, more awareness will spread among the stakeholders connected with this industry bringing a positive change.

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