



Environment

Water Community



Solution Exchange for the Water Community Consolidated Reply

Query: *Prevention of River Pollution from Idol Immersion - Advice*

Compiled by [Nitya Jacob](#), Resource Person and [Sunetra Lala](#), Research Associate
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From [Nripendra Kumar Sarma](#), Public Health Engineering Department, Guwahati
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I work in the Public Health Engineering Department (PHED) of Assam in the Water Supply and Sanitation sector. I have noticed an alarming rise in water pollution levels as a result of the immersion of thousands of idols of gods and goddesses as well as the disposal of religious offerings in rivers and surface water bodies, especially during the Dussehra season. Earlier studies have shown that these idols are painted with pigments containing lead, chromium, nickel, cadmium, zinc and other heavy metals. These are the source of pollution.

In Guwahati too, the large-scale immersion of idols happens during the Pujas at two locations on the River Brahmaputra, namely Kacharighat and Pandu. It is significant that the intake points for the Guwahati water supply scheme at Panbazar are very near the place of idol immersion at Kacharighat. More importantly, the intake point is downstream of Kacharighat. There is one more water intake point, meant for another water supply scheme, that is located downstream of the other idol immersion point at Pandu.

Both these water intake points draw raw water from the River Brahmaputra to the respective water treatment plants. Therefore, the chemical contamination of water upstream is a matter of grave concern. One solution is to prohibit the immersion of puja idols at these sites and instead select alternative sites for this purpose, keeping in view the seriousness of such large scale contamination of river water. The water treatment plants are not designed to eliminate heavy metals from the river water.

I request the Water Community members to please share with me the following:

1. What are the options available for mitigating the effects of immersion of idols in rivers?
2. What precautionary measure can be taken to ensure that contamination is contained in rivers as a result?

The information will be helpful to adopt regulatory/precautionary/remedial measures in Assam to reduce water pollution from the puja idols.

Responses were received, with thanks, from

1. [V. Kurien Baby](#), District Collector, Thrissur, Kerala
2. K. D. Bhatt, GSFC Science Foundation, Vadodara ([Response 1](#)) ([Response 2](#))
3. [Murali Kochukrishnan](#), Action for Food Production (AFPRO), Bhubaneswar
4. [T.C. Chandran](#), Data Energy Sdn.Bhd, Malaysia
5. [S. D. Garway](#), Anacon Laboratories Pvt. Ltd., Nagpur
6. [Pronob Borah](#), Indian Institute of Technology, Guwahati
7. [Ajit Seshadri](#), The Vigyan Vijay Foundation, New Delhi
8. Gautam Choudhury, National Informatics Centre, Department of IT, Ministry of Communications & IT, Govt. of India, Guwahati ([Response 1](#)) ([Response 2](#))
9. [Surajit Rath](#), Usha Martin Limited, Ranchi
10. [T. N. Anuradha](#), Food and Agriculture Organization (FAO), New Delhi
11. [Rupa Mukerji](#), Intercooperation, Hyderabad
12. [Ashok Ghosh](#), Department of Environment and Water Management, A.N.College, Patna
13. [R.B.S.R. Prasad](#), Pricewaterhouse Coopers, New Delhi
14. [Arunabha Majumder](#), Jadavpur University, Kolkata
15. [Uday Bhawalkar](#), Bhawalkar Vermitech Pvt Ltd, Pune
16. [Shrikant Daji Limaye](#), Ground Water Institute, Pune
17. [R. Jagadiswara Rao](#), Sri Venkateswara University, Tirupati, Andhra Pradesh
18. [B.L. Kaul](#), Society for Popularization of Science and Progressive Educational Society, Jammu
19. [Binukumar G.S.](#), Institute for Resource Analysis and Policy (IRAP), Hyderabad
20. [Ashok Kumar Pathak](#), Development Consultant, Uttar Pradesh
21. [Rajesh Shah](#), Peer Water Exchange, Bangalore
22. [Shashikant Kumar](#), Green Eminent Research Centre, Vadodara
23. [Suman Swarup](#), Independent Consultant, New Delhi
24. [Atul Rawat](#), DMV Business and Market Research Pvt. Ltd., Hyderabad
25. [Vijayeswari](#), The Gandhigram Institute of Rural Health and Family Welfare Trust, Dindigul, Tamil Nadu
26. [S. V. Vijaya Kumar](#), National Institute of Hydrology, Kakinada
27. [Sejuti Sarkar De](#), Society for Natural Resource Management and Community Development (SNRMCD), Ghaziabad
28. [Ramakrishna Nallathiga](#), Centre for Good Governance, Hyderabad
29. [Ajay Agrawal](#), Pioneer A.D. Corporation, Bilaspur, Chhattisgarh
30. [Hitesh Chakravorty](#), District Elementary Education Office, Hailakandi, Assam
31. [Diponkar Bordoloi](#), Public Health Engineering Department, Guwahati
32. [Sadgir Parag Ahilaji](#), Government College of Engineering, Aurangabad
33. [Arjun Kant Jha](#), Narisanstha, Jaipur
34. [M. Jahangir](#), Drinking Water Pakistan Discussion Group, Islamabad, Pakistan
35. [Pathak R. Kripal](#), National Horticulture Mission, Ministry of Agriculture, New Delhi
36. Subodh Kumar, Udyog Bharati, Ghaziabad ([Response 1](#)) ([Response 2](#))
37. [Sibasis Panda](#), PHED, Sunabeda, Orissa
38. [Ranjan Kumar](#), Magadh Mahavidyalaya, Nalanda, Bihar
39. [R K Srinivasan](#), Centre for Science and Environment, New Delhi
40. [Mahendra](#), Solution Exchange Karnataka Community, Bangalore
41. [Vijay L. Ghugey](#), Nisarg Vidnyan Mandal, Nagpur
42. [Seema Raghunathan](#), WaterHealth India, Secunderabad *
43. [Ashwani Wanganeo](#), Environmental Science Barkatullah University, Bhopal *
44. [Venkatesh. P.](#), Medical College, Bangalore *

**Offline Contribution*

Further contributions are welcome!

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Summary of Responses

Every year, several tonnes of religious waste are dumped in rivers and ponds in India. Idols, flowers and other material used in ceremonies are discarded at the end of the festive period. Idols are painted, usually with paints that have heavy metals; when they are immersed these paints foul the water with a chemical concoction that is hard to treat. Additionally, people bundle flowers and other stuff used in the religious ceremonies into plastic bags that they throw into rivers.

The paints contain mercury, lead, cadmium and other heavy metals. The paints form a layer on the surface of the water that reduces the dissolved oxygen levels. The situation is worsened by the flowers and other organic debris.

There are many ways to minimize pollution from this religious waste. The first is to identify and inventorise the pollutants – water quality variations, material used in the idols, number of immersions, immersion points and the stakeholders. The second is to build a database of water quality for analytical advocacy, and develop a water quality monitoring mechanism for horizontal flows of information.

People and agencies working to minimize pollution from idol immersion can meet with the local religious leaders and other stakeholders to work out a plan. As part of the plan, they can identify immersion points and construct separate sites at suitable locations; these can be separated from the main river or lake so the paints and other chemicals do not pollute the main water body. An example is the cremation ground at Nigambodh Ghat, Delhi, where there is a water tank for washing bodies. The local municipality can process the water to remove the pollutants in this isolated site before letting it into the river or lake. They can seek specialist advice if the pollutant load is too high for them to treat. The authorities should take care to site these immersion points downstream of the intake points for the water treatment plants, else it will defeat the purpose.

What is critical here is a well-conceived publicity campaign to educate people about the pollution from idols. At the immersion sites, NGOs and authorities can provide bins for people to throw flowers and other used prayer material. They can create a people's workforce to clean the area as quickly as possible after the event, or employ local ragpickers, and totally ban the public from throwing plastic into the water.

In [Kerala](#), hundreds of thousands of pilgrims visit the Sabarimala temple every year. People throw their old clothes in the River Pampa nearby, and also defecate on its banks even though the authorities have provided toilets. The river is the only source of drinking water local people. Recently, some volunteers have set up wire meshes to stop the clothes from flowing down the river. This is one example of volunteers and authorities working together to reduce pollution.

Along with this end-of-pipe approach, the authorities can stipulate quality standards for the idols. They can specify the material the idols will be made of and the type of paints allowed. For example, they can permit only the use of degradable material for making idols and natural colours for painting them. Along with this, they can specify the regulatory measures for preventing use of non-conforming idols. The local administration can reduce the pollution from these idols by removing them as soon as possible. To be successful, the authorities need to precede this enforcement drive by an awareness campaign.

For example, during Ganesh Chaturthi in [Delhi](#), a voluntary organization worked with religious leaders and local authorities to ensure the floral offerings are composted instead of being thrown into the Yamuna River. As part of the campaign, the NGO ran an awareness and participation for the youth and identified practices that would not hurt people's religious sentiments. Another campaign in Delhi called the [Eco-Visarjan Campaign](#), advocated the use of clay idols painted with natural colours.

In Hyderabad, people immerse idols in the Hussain Sagar lake. The clay content of idols is of less concern than the paint used to colour them and plastic bags. Here again, the authorities need to work with idol makers to use vegetable dyes, and with people to discourage them from throwing plastic bags into the lake. In 2009, the West Bengal Department of Environment took up the idol issue with paint manufacturers, who agreed to produce only lead-free paints; the local prayer organizers also bought idols coloured with these paints. The municipality also provided many dust-bins for people to throw their solid waste; the river was noticeably less polluted.

In Pune, during the 10-day Ganesh festival, the municipality provided large bins along the river for people to throw flowers and other offerings. They also provided large water tanks for idol immersion. They also ran an awareness campaign to inform people about these facilities, instead of following their regular practice of immersing idols in the river.

In [Karnataka](#), the state pollution control board has issued guidelines on immersion of idols in water bodies. These suggest immersions should be conducted in the sea 500 metres beyond the low-tide level, and the public should be encouraged to buy idols made of clay and painted with natural colours. The Bangalore municipal corporation has created an artificial pond near the Halsuru Lake for idol immersion.

Clay idols are ideal for reducing the pollutant load. These can be immersed even at home in a bucket. As they are unbaked and painted with vegetable colours, they melt in the water and then poured into the garden soil.

Organizations or authorities who want to tackle the problem of water pollution caused by idol immersion have to begin the process with an intensive public education campaign. They can work with local religious leaders and people who organize prayer meetings or events to encourage them to use only clay idols painted with vegetable colours. With them, they can identify suitable immersion sites that can be specially created ponds. The organizers can provide bins to collect dry waste like flowers and other left-over material. Once the immersion event is over, the NGO or authorities can deploy volunteers to collect and dispose material, and arrange for suitable water treatment before allowing the water to enter the river, pond or lake.

Comparative Experiences

Delhi

Offerings made during Ganesh festival converted to compost to prevent pollution

(from [Ajit Seshadri](#), *The Vigyan Vijay Foundation, New Delhi*)

During Ganesh Chaturthi a group of activists ensured that a significant volume of nirmalya - floral offerings - made to Ganesh was converted to compost and not dumped into the Yamuna river. Care was taken to ensure that the composting of nirmalya would be done in separate pits, considering the religious sentiments attached to the offerings. The dried flower powders will be used as dry-colour in Holi. The initiative was a success and reached several eco clubs. Read [more](#).

Delhi

Eco-Visarjan Campaign helps raise awareness about pollution among school children

(from [T. N. Anuradha](#), *Food and Agriculture Organization (FAO), New Delhi*)

The Eco-Visarjan campaign, a part of the CLEAN-India Programme of Development Alternatives advocates the use of clay idols and natural colours to decorate them. Awareness workshops have been conducted in schools to make students aware of the significance of these traditions. Most of these workshops have succeeded in creating awareness among students about the significance of these festivals, about celebrating and respecting nature and its resources. Read [more](#).

Kerala

Pampa River faces pollution as a result of pollution by pilgrims, Pathanamthitta District (from [Binukumar G.S.](#), *Institute for Resource Analysis and Policy (IRAP), Hyderabad*)

The famous Sabarimala temple hosts crores of pilgrims every year and the Pampa River faces pollution as a result. The pilgrims dump their clothes in the river and it is used for bathing, etc. The river water is the main source of drinking water in this area and by lakhs of people downstream. Some volunteer groups have now started collecting these clothes by providing iron mesh and are undertaking other activities to clean up the river as well.

Karnataka

Strict enforcement of municipal policy leads to decrease in water pollution, Bruhat Bangalore Mahanagar Palika (BBMP) (from [Mahendra](#), *Solution Exchange Karnataka Community, Bangalore*)

For the immersion of Ganesha and Durga idols, the BBMP has created makeshift, artificial pond like structures near the Halsuru Lake and ensures that the idol immersions are done in these pond. It has appointed police to monitor the immersion. Sometimes people have to be forced to follow the rules, until it becomes a practice. They have also advised immersion in water buckets or tubs. These measures have helped reduce water pollution in water bodies.

Related Resources

Recommended Documentation

Suggested Code of Conduct for Environment Friendly Immersion of Idols (from [Ashok Ghosh](#), *Department of Environment and Water Management, A.N.College, Patna*)

Report; by Maharashtra Pollution Control Board; Mumbai; September 2005;

Available at <http://www.solutionexchange-un.net.in/environment/cr/res-06110901.pdf> (PDF; Size: 41.3KB)

Suggests Code of Practice for environment friendly immersion of idols, particularly Ganesh idols to prevent river pollution in Maharashtra

From [R. Jagadiswara Rao](#), *Sri Venkateswara University, Tirupati, Andhra Pradesh*

Reviving Traditional and Cultural Practices to restore Water Quality

Letter; by R. Jagadiswara Rao; Sri Venkateswara University; World Water Forum; Japan; April 2002;

Available at http://www.waterforum.jp/worldwaterforum3/for/en/stopic.794_1808.html

Describes how traditional practices need to be revived in India to prevent river pollution as a result of idol immersion, this can be done by involving religious leaders

Need for a workshop on Water in Asian Cities - the Role of Religious Leaders

Letter; by R. Jagadiswara Rao; Sri Venkateswara University; World Water Forum; Japan; October 2002;

Available at http://www.waterforum.jp/worldwaterforum3/for/en/spost.794_5145{0s=0}{9.html

Discusses how religious leaders could play a proactive role in modifying the mindset of the people in order to preventing river pollution as a result of idol immersion

From [Vijayeswari](#), The Gandhigram Institute of Rural Health & Family Welfare Trust, Dindigul, Tamil Nadu

Effects of Ganesh-idol immersion on some water quality parameters of Hussainsagar Lake

Article; by Vikram Reddy and A. Vijay Kumar; Current Science; Bangalore; December 2001;

Available at www.ias.ac.in/currsci/dec102001/1412.pdf (PDF; Size: 23.1KB)

Discusses the need for implementation of central and state level legislations, and awareness programmes to prevent pollution of rivers due to idol immersion

Water quality improvement after shifting of idol immersion site: A case study of Upper Lake, Bhopal, India

Article; by Anju Vyas, Avinash Bajpai and Neelam Verma; SpringerLink; January 2008; Permission Required: Yes, paid publication

Available at <http://www.springerlink.com/content/u100766521125323/>

Highlights the Bhoj Wetland Project to take action for preserving the Upper Lake of Bhopal which was being polluted as a result of idol immersion

Time to Clay (from [Sejuti Sarkar De](#), Society for Natural Resource Management and Community Development (SNRMCD), Ghaziabad)

Article; by Sejuti Sarkar De; Toxics Link; New Delhi;

Available at <http://www.solutionexchange-un.net.in/environment/cr/res-06110902.pdf> (PDF; Size: 784KB)

Discusses how water-soluble clay idols can be used for preventing pollution as a result of Ganesh idol immersion

Recommended Organizations and Programmes

The Vigyan Vijay Foundation, New Delhi (from [Ajit Seshadri](#))

C-3 A/126 C, Janakpuri, New Delhi 110058; Tel: 91-9810248197; lipika.ahuja@vigyanvijay.org; <http://vigyanvijay.org/project.htm>

Ensured that floral offerings made to Lord Ganesh in course of the festivities are converted to compost and not dumped into the Yamuna River

Development Alternatives, New Delhi(from [T. N. Anuradha](#), Food and Agriculture Organization (FAO), New Delhi)

111/9-Z, Kishangarh, Vasant Kunj, New Delhi 110070; Tel: 91-11-26134103; Fax: 91-11-26130817; tara@deval.org; http://www.deval.org/da/esb/esb_focus.htm

Their Eco-Visarjan campaign a part of the CLEAN-India Programme advocates the use of clay idols and natural colours to decorate them to prevent pollution from idol immersion

TARU, Haryana (from [Rupa Mukerji](#), Intercooperation, Hyderabad)

424 Qutab Plaza, DLF City Phase I, Plot No. 541/2, Sector 8, Gurgaon 122002, Haryana; Tel: 91-124-2560424; Fax: 91-124-2560421; info@taru.org; <http://www.taru.org/sectors.html>

Conducted a study on the impact of idol immersion on the water quality of the Hussain Sagar Lake in Hyderabad

Department of Environment, Government of West Bengal, West Bengal (from [Arunabha Majumder](#), Jadavpur University, Kolkata)

Block G, 2nd Floor, Writers Building, Kolkata 700001, West Bengal; Tel: 91-33-22420031; Fax: 91-33-22141003; mic-it@wb.nic.in; <http://wbenvironment.nic.in/html/aboutus/index.htm>

Issued directives to paint manufacturers who agreed to manufacture lead free paint, during Durga Puja which helped to reduce the pollution load in the Ganga River

International River Foundation, Australia (from [Shrikant Daji Limaye](#), Ground Water Institute, Pune)

Level 16, 333 Ann Street, Brisbane QLD 4000, Australia; Tel: 61-7-31237767; Fax: 61-1-31034574; info@riverfoundation.org.au; <http://www.riverfoundation.org.au>

Leading advocate and catalyst for the protection and restoration of the world's rivers established in response to the critical state of many of the world's rivers

Responses in Full

[V. Kurien Baby](#), District Collector, Thrissur, Kerala

As you have rightly identified, immersion of idols made of degradable and non degradable materials painted with synthetic colors which often contain heavy metals pose serious threat to water quality in major rivers and lakes, which are our mainstay of drinking water. I did an evaluation of the Lake Bhopal Conservation and Management Project (LBCMP), and issues related to idol immersion pose serious threat to the water quality of the lake and siltation. As point source pollution is not contained, the pollution spreads across wider catchments/basin downstream as in the case of Bhopal Lake that drains into Kaliasot River that finds its way to Yamuna. Fortunately, though Brahmaputra basin has always minimum flows, the debris and invisible toxins cause serious threat to marine life including dolphins and drinking water quality.

Studies have shown that, parameters like Turbidity, Total Hardness, Dissolved Oxygen (DO), Biochemical Demand, (BOD) Chemical Oxygen Demand (COD) become higher on immersion of idols and water bodies are facing increasing nutrient load.

At the same time, any intervention shall invariably take into account religious beliefs and customs which are very sacred and sensitive. Fortunately, rivers and lakes are also considered as sacred and highly valuable, which can be leveraged for achieving the goals of improved water quality.

I have the following suggestions:

- Build up data base on key parameters like water quality variations, materials used in idols, average immersions in a day, immersion points and key stakeholders.
- Use the data base especially of water quality for analytical advocacy and awareness creation to highlight the perils. Water quality monitoring and surveillance system streamlined for horizontal flows of information.

- Consultation with religious leaders and other stakeholders to arrive at consensus on action framework. The ownership of all concerned especially the Local self governments are the key to the programme.
- Identify the immersion points/stretches and construct separate idol immersion sites in feasible locations and work out pollution abatement/treatment process and release water after treatment to the rivers/lakes, based on the stipulated standards.
- If the impact is very high, in addition to the State Pollution Control Boards, NEERI may also be involved in technical advice.
- Quality standards may be stipulated for idols to the feasible level along with awareness programmes. If possible, identified agencies may be authorized to make affordable quality idols with degradable materials only and the cost of treatment and management may be met through cost recovery.
- Suitable regulatory system may be designed with overriding technical considerations and PRIs /Pollution Boards assigned key regulatory responsibility.
- NGOs working on water themes at local levels can certainly facilitate the process and funding be sourced from GoI/States.

K. D. Bhatt, GSFC Science Foundation, Vadodara (response 1)

Living in an all religion tolerant country, doing away with any of the rituals is rather difficult. The situation however, with respect to the mentioned problem can best be addressed by:

- Encouraging the people in the business to use natural colours in place of paints to minimize heavy metal pollution
- Bringing in some regulation in place (by the concerned authorities) to scale down and fix the size of the idols. This may help in somewhat controlled use of paint; alternatively
- Promoting, through persuasion, the symbolic immersion of idols
- Organizing awareness programmes (media, newspapers, etc.) about the resulting groundwater pollution and related health hazards.

Murali Kochukrishnan, Action for Food Production (AFPRO), Bhubaneswar

Of course, what you have mentioned is a fact. The chemicals used in painting the idol contain hazardous mercury, lead, cadmium and other heavy metals. The presence of such heavy metals in the paints makes it a non-biodegradable. This forms a filmy layer on the surface water after immersion of the idols. That which may reduce the dissolved oxygen (DO) level and it does not allow the sunlight to penetrate into the water and disturb the entire river Eco system. The water may experience rise in acidity as well as traces of heavy metal and decreased DO content.

The following measures can be adopted for saving the river from pollution due to the cultural activities of immersion of deities in rivers:

- The necessary campaign and awareness are to be provided to the community by better IEC activities for imbibing good practices to celebrate any festival in an environment-friendly way. All religions/cultural activities should be twinned with nature unbaked clay idols for immersion with natural color dip as an apt option to curtail the river water pollution.
- Environmentally sound N.G.O'S should be provided with the opportunity and fund to educate the public and make them aware of the harmful environmental effects of immersion of idols in the river and persuade them for generating consciousness and also to build up the Local knowledge and commitment of the people. This may promote knowledge sharing and adoption of the best practices among communities on Idol immersion. These positive, innovative and complimentary efforts will restore the riverine eco system.

- Stringent laws and measures/guidelines needs to be laid down by the Pollution Control Board at the state and central level with punitive action and huge fines with out any fear for a backlash from the Devotees.

Every individual should be made to think and act that: "I know-I can > I know-I will > I know -I must." Save the Mother Earth.

T.C. Chandran, Data Energy Sdn.Bhd, Malaysia

I am very concerned to note the grave situation of your rivers caused by pollution. My suggestions are as follows:

- From your message, I understand that the pollution is caused by paints used on the idols containing chromium cadmium and other heavy metals, etc. Well, the first step I can think of towards a solution is to prohibit commercial paints to be used on idols since the paint is the main source of pollution.
- Paints not containing harmful materials, however, may be allowed. The best way to implement this practice is to hold the temple authorities responsible for the paints they use. If they are found to use unauthorized paints they should be taken to task.
- To implement this, I suggest that a high power meeting should be convened with the temple managers/authorities where they are educated and appraised of the serious problems they are creating to thousands of innocent people who use the polluted water. In the meeting the authorities can be convinced to note that whatever benefits and the Grace of GOD the people get by immersing painted idols in the rivers will all be nullified by the harm they create to thousands of innocent people. This is not at all a pious act but the contrary. Perhaps, the temple managers are not aware of the seriousness of what they are doing. So education is the key!!!
- A government body or a powerful department of the Devaswom should be set up to monitor the activities of the temples that use illegal paints.
- A list of paints approved by the Pollution Control Board of the government can be made available to all the temples with strict instructions that only the paints in the list can be used and any deviation from this will be met with serious prosecution.
- Banning the immersion of idols in the rivers may create religious tension as this may be an age old custom. But, I am sure that using sophisticated paints containing poisonous materials are not prescribed in any religious texts. Moreover, if the idols do not contain any objectionable materials then their immersion will not cause any pollution problems.
- It may be heartening to note that, this could be turned into a business opportunity to enterprising people to manufacture and market safe paints especially for the temples. There may be a very good market for such paints.
- I am sure that authorities will see logic in this proposition.

I hope you will be benefited by some of the ideas proposed. I wish you best of luck. I am very touched by your concern on environmental pollution. Only people like you can make our world a safe one.

S. D. Garway, Anacon Laboratories Pvt. Ltd., Nagpur

This is a good concern. It is high time to decide whether we want dead lakes or we want to conserve the habitats of fish and other species. A few steps that we need to implement include:

Awareness campaign through print and visual media to:

- Buy the idols of smaller size and with less flashy paints.

- Instead of having plaster of paris idol, one can worship metal idol and it can be kept for many years.
- Encourage the purchase of clay idols without paint.
- Buy the idols painted with natural dyes.
- Create awareness to use the idols made from paper pulp.
- Immerse the idols at their respective houses in buckets, wells etc.
- Reuse the larger idols for future years, which could minimize the water pollution, scarcity of water to immerse and the costs of the idol.
- Idols made from paper pulp which is biodegradable can be used which will also help to reduce the pollution.
- Bring about awareness to the general public about '*Symbolic Immersion*', wherein a large idol is saved for subsequent use, a small idol, symbolizing the large idol is immersed.
- Telecast in Doordarshan and other channels, broadcast in AIR and other radio channels bi-lingually about the problems and request to maintain and protect the tank by showing the damage to the water body, fish population, and water quality.
- Create awareness of immersing small idols in a bucket full of water & reusing the same for gardens.
- Create man-made water bodies for immersions instead of polluting Lakes or Ponds. After the immersion is over the water can be treated and used for other purposes such as gardening.

Pronob Borah, Indian Institute of Technology, Guwahati

Immersing idols in rivers might be an age-old tradition which poses a grave threat to water bodies. During the Hindu festive season, hundreds of idols of God and Goddess were immersed in the rivers polluting the river's eco-system. Earlier the idols were made of clay and are decorated with natural colours. However, the present day idols are decorated with synthetic colours which are non biodegradable in nature.

It has been reported that the concentrations of some of the chemical pollutants like calcium, magnesium, molybdenum, silicon, arsenic, iron, lead and mercury were found to increase by many folds after immersion of the modern day idols.

The lack of awareness among our people is the main reason behind such an environmental pollution. We should first try to make the people of the city aware about the toxic effects of immersion of idols in the water body. Environmental awareness campaigns and meetings may be organized to make the public aware of environmental damage caused due to immersion of idols into the river system. Different communication media may serve as a useful tool for such a campaign.

The district administration ought to be made aware of the situation and should be asked to remove the idols as soon as possible before the harmful chemicals are completely dissolved in the water body. Implementation of strict legislation may be another option to control such a problem.

Another alternative may be the use of some non-hazardous, harmless biodegradable substance in the process of fabricating the idols.

Ajit Seshadri, The Vigyan Vijay Foundation, New Delhi

We write below an experience of our efforts on eco- friendly celebrations of festivals by our NGO.

Report by Vigyan Vijay Volunteer Vandita Jain at Site- Majnoo ka tila, Delhi:

This year the popular religious festival of Ganesh Chaturthi came with a definite green lining in Delhi. Awareness- campaigning and persuasion with certain Puja Samithies/authorities in Delhi by a group of green activists has ensured that a significant volume of nirmalya - floral offerings made to Lord Ganesh in course of the festivity - will be converted to compost and not dumped into the Yamuna river, which cuts the National capital.

"We are proud to be a part of this initiative. The compost generated from the nirmalya will be used in our Institutions' and public gardens and parks as manure," says Volunteer Gita Sehgal of Bharati College, Delhi University.

A care would be taken to ensure that the composting of nirmalya would be done in separate pits, considering the religious sentiments attached to the offerings, she said. Also dried flower-powders will be used as dry-colour used in Holi- festivals

Also the mud oven-baked nirmalya pots would be placed at high-visibility locations at various idol immersion points by the Puja samithies, so that people could utilize the opportunity of doing a unique green deed this Ganesh festival. And also during the Durga-Puja immersions, the same will be extended by youth volunteers at the Chaat festival which comes a few months later. Propagation of these practices of using local mud baked pots is the outcome of Vigyan Vijay's volunteering efforts. "The move was a result of several suggestions made to us by Environmental NGO - Vigyan Vijay civil society groups and a Lead Ngo in the area .We are taking every step possible to make Ganesh Chaturthi eco-friendly," she said.

Certain school and college principals in banner of Eco-Clubs of Delhi have tried to address green issues in Delhi and are a part of the Green Chaturthi campaign, kicked off by NGOs said: "The mud pots will certainly curtail water pollution, because earlier people had no option but to dump the heaps of nirmalya/ pujas into the Yamuna river." "We have also started an online campaign which is aimed at educating people on the importance of celebrating a green Chaturthi in these environmentally challenging times," Vigyan Vijay volunteer Geeta said.

The campaign involves emails, Facebook causes, lobbying with government officials and informing people who matter about the importance of an eco-friendly Ganesh Chaturthi/ Puja / Chaat. Another thrust of the online campaign is to create public opinion against the use of plaster of paris (PoP) idols, which although banned, continue to have a market because they are comparatively cheap and have better finishing.

"Unlike clay idols that dissolve in water instantly, PoP contains gypsum, sulphur, phosphorus and magnesium floats, disintegrates slowly and in the process poisons the water bodies viz. lakes, ponds, rivers and seas," also a part of the Vigyan Vijay Green Chaturthi/Puja/Chatt/endeavour.

The Water Community members can learn from this report noting the following:

- Awareness and participation campaigns involving youth are to be encouraged protecting water, soil, land, air and general environment. Youth volunteer efforts can play a lead role.
 - Certain easy do-able practices not affecting the religious sentiments to be initiated and progressed with adaptations etc on all these festivals/festivities.
 - All successful green initiatives to be documented and replicated with adaptation, if required in communities in order to get the desired care on environmental impacts.
 - Festivals that lead to air pollution like Lodi, Dussehra, Diwali are also applied with green initiatives for natural protection of ecology and environment.
-

Gautam Choudhury, National Informatics Centre, Department of IT, Ministry of Communications & IT, Govt. of India, Guwahati

Nripendra Sarma has raised an important issue, which has not been discussed in any of the forum until now so far as I know. I want to add one more ghat for idol immersion in Brahmaputra which is gradually becoming popular these days. This is the Chunsali ghat in the eastern part of Guwahati. Interestingly, the intake point for Guwahati Refinery Water Treatment plant is also in this ghat. The refinery supplies water to its colonies and also to the neighbouring areas for domestic use through this plant.

For me, the solution seems to be following:

- Instead of immersing the idols in the Brahmaputra, we can dump them in a certain area and recycle the clay and other material for use next year.
- If point 1 is not feasible, we can use the clay material to fill up the low lying areas.
- By not dumping our idols in the river, we can not only stop pollution as has been mentioned by Sarma, we can also reduce silting of the river bed to some extent.

Please note besides Durga Puja, these ghats are extensively used during Chat puja as well.

Surajit Rath, Usha Martin Limited, Ranchi

Water is the life line of civilizations. In the olden days civilizations grew near rivers. Unfortunately, over time we imbibed the habit of discarding wastes into rivers or in other any form of surface water. Starting from dead bodies, flowers, ashes, bio degradable/non degradable materials, human excreta, industrial waste, and immersion of deities and so on and so forth – all these wastes find their way in the water. In fact it is difficult to take a dip in the Ganga at Haridwar because of all the materials floating in the water. This is a peculiarity of south Asian countries.

After constantly polluting the water we go for river water purification campaign. We need Behaviour Change Communication (BCC) along with stringent laws for punitive action against those who create environmental pollution in any form. Regarding immersion of deities, the municipalities/corporations have to earmark special water bodies and immersion in any other place should be banned. The question is can we achieve that?

In Europe, the rivers flowing near cities like Moscow, Budapest, Paris, London, etc are clean and attract tourists whereas our rivers like the Yamuna, Ganga, etc are most polluted in the world. Hence we have to address the issue in totality and not in a piecemeal manner.

T. N. Anuradha, Food and Agriculture Organization (FAO), New Delhi

The Eco-Visarjan campaign (please visit <http://cleanindia.org/btonature/visarjan.htm>), a part of the CLEAN-India Programme of Development Alternatives advocates the use of clay idols and natural colours to decorate them. Awareness workshops are conducted in schools to make students aware of the significance of these traditions, and how lately the consumerist approach is affecting natural resources. Most of these workshops create awareness among students regarding the significance of these festivals, which is just about celebrating and respecting nature and its resources.

Having been a part of the campaign, we even encouraged few potters to make clay idols but since there was no demand they went back to POP based idols painted with all kinds of synthetic colours. In Delhi, the Diwali markets are full of these idols and later immersed into the River Yamuna.

But there are still a few shops that sell clay idols and the issue lies with creating the demand for such idols. I myself buy clay idols and immerse them in a bucket and use the water for plants.

I think it is just a question of creating the demand and getting back to nature and respecting it.

Rupa Mukerji, Intercooperation, Hyderabad

This has been the most interesting discussion. I have been living in Hyderabad where deities have been immersed in the Hussain Sagar Lake in the centre of the city for years. As part of TARU, we looked at the impacts on the water body. In terms of clay added as silt, the impacts are marginal even in a stagnant lake. The impact of metal frames used in the larger idols, dyes and the huge volume of puja material (flowers, other offerings) packed in plastic bags and thrown in with the idols, in the water and the lake environment is a greater concern. Working with idols makers, puja committees and the municipality one can agree on restricting the size of idols and then agree on the use of approved paints. An overall awareness campaign to deal with plastic bags is in any case needed in most cities. However, I am curious about two aspects from the case of Guwahati - the use of the ghats must have been prevalent for years - why were the intake points not chosen taking this into consideration? Also, tanker supply seems quite common. It is a strange sight to see little tempos scurrying around carrying water when the massive Brahmaputra flows by the city. Is the supply system improvement not a greater concern for citizens than periodic idol immersions in a fast flowing river with massive volumes of water?

Ashok Ghosh, Department of Environment and Water Management, A.N.College, Patna

You have raised a very important issue for our society. Immersion of thousands of idols of gods and goddesses, as well as the disposal of religious offerings in rivers and surface water bodies is serious problem throughout India, and mostly, we followers of Hindu religion are responsible for it. Hindu religion never says to pollute rivers and lakes for religious purposes. Traditionally, idols were made from mud and clay and vegetable-based dyes were used to paint them. However, modern technology changed all that, and we started using non-biodegradable materials such as plastic, cement and plaster of Paris and painted with toxic dyes. In my opinion the options available for mitigating the effects of immersion of idols in rivers are:

- Advocating use of idols made from mud and clay and vegetable-based dyes through mass awareness programme.
- Ban the use of toxic substances in making of the idols.
- Preparing artificial ponds insulated from ground water for idol immersion.

I am attaching a document related to code of conduct to be followed during idol immersion of our festivals. For more details please read <http://www.solutionexchange-un.net.in/environment/cr/res-06110901.pdf> (PDF; Size: 44KB)

R.B.S.R. Prasad, PriceWaterhouse Coopers, New Delhi

This is a very important discussion. My view is that I am not very sure to what extent any guidelines/code of conduct, etc might work in solving this problem as it would be an extremely costly proposition for the government/implementation authorities to prescribe point of immersions, checking of compliance of neighbourhoods to the guidelines and treatment of water bodies at the end.

However, considering the religious sentiments of the people of our nation, the government may plan a suitable long-term consultative approach to change the behaviour of the people towards appreciating and using water bodies.

In any case, it may be better to ban immersions on an immediate basis in enclosed water bodies/lakes in and around cities considering their low carrying capacities and the ever increasing demand for water for various other useful and important activities.

Arunabha Majumder, Jadavpur University, Kolkata

The major sources of river pollution are:

- Discharge of untreated or partially treated sewage/sullage from cities and towns
- Discharge of untreated or partially treated wastewater from industries
- Surface run-off carrying insecticides, pesticides, agricultural waste, etc
- Dumping of municipal solid waste and industrial hazardous waste in river or mixing of leachate from solid waste dumps
- Discharge of cattle-shed waste
- Disposal of dead bodies in rivers.

In addition, open defecation, washing of clothes, etc is also contributing to the pollution load in rivers. Immersion of idols along with flowers and puja materials are practiced in rivers. Idols are finished with paintings which normally contain lead. After the immersion of idols the lead content in the river water increases. If water intake structures are close or downstream to the idol immersion ghats then there would be a risk of lead contamination in public water supply. The risk periods will depend on the river flow and the extent and magnitude of the lead pollution will depend on the number and size of idols.

This year, in Kolkata the matter was successfully dealt with during Durga Puja to save the River Ganga from excess lead pollution. The Department of Environment, Government of West Bengal and WBPCB discussed the matter with the paint manufacturers who agreed to manufacture lead free paint. Idol makers were motivated to use lead free paints through awareness and sensitization campaign. The community Puja organizers were also motivated to worship idols manufactured with lead free paints. In the puja competitions, the use of lead free paint in idols was given due weightage.

The Kolkata Municipal Corporation and some other municipalities situated by the side of Ganga kept the required numbers of large bins along the banks of the Ganga at the idol immersion ghats. All puja organizers cooperated with the municipal bodies and as such solid waste dumping in the river was less. I think you can initiate such an action plan for the Brahmaputra and in and around Guwahati.

Uday Bhawalkar, Bhawalkar Vermitech Pvt Ltd, Pune

Our traditions have worshipped temple/village ponds, lakes, rivers and the sea for the past 10,000 years, not idols alone. So, they cannot abuse the water bodies for waste management. All our traditions are based on recycling; there is no 'disposal' or 'management by dilution'. These are modern trends. If we give enough time to crack the secrets behind the religious practices, we find that:

- Nature is well designed.
- Man has steadily progressed over these years, without the tools of 500 years old modern science and technology.

- All regions are scientific. They have packages of practices suitable to the given ecology. These keep on evolving with time, like modern science.
- Idols are first charged by performing Puja (worship) and then immersed in water bodies, along with the Puja flowers. This is to purify the water bodies and air.
- Clay idols and natural plant-based colours were used in the past when water bodies were clean. No city or industrial effluents were going into them.
- Idols with POP (plaster of paris) painted with synthetic colors, are an anti-dote for the polluted water bodies. Modern scientists do use heavy metals to purify water and wastewater.
- Please find newspaper reports during the past 100 years wherein fish were alive before the festival and there was massive death after the immersion. There are none.
- Pollution Boards have tested the river quality before and after the festival and has been no difference in the water quality.
- We often attack regions because it is easy, we do not attack industrial pollution, though industry introduces new drug molecules each year.

Shrikant Daji Limaye, Ground Water Institute, Pune

In Pune, during the 10 days Ganesh Festival, the Municipal Corporation is providing large bins on the river bank for putting in flowers, garlands & other offerings made to Ganesh idols and large water tanks for immersion of idols. This has reduced the additional pollution load in the river (which is already polluted to a high level, due to waste water, lack of sewage treatment etc)

Many educated persons have switched over to Silver idols. I purchased a silver idol of Shri Ganesh, weighing one kilo, for Puja during the Festival. In front of this idol, I also keep a Beatle Nut (Supari) for Puja and immersion. Instead of immersion in the polluted river water, I do it with filtered tap water in my garden. So people are finding alternatives to traditional methods.

Educating the public about using smaller (token) idols and the manufacturers of idols about using eco-friendly dyes, is gradually picking up.

Some people, however, say that all urban rivers are highly polluted. Adding a little-bit more should not attract much criticism. So the main problem is improving the urban rivers which have attained the status of open sewers.

International River Foundation (IRF), from Brisbane Australia is engaged for the past several years in improving the rivers on a global scale. Each year, during the Brisbane River Festival and Symposium in September, the IRF gives prizes of Aus \$350,000 and \$ 200,000 to any organization that has improved the river through concerted and devoted work over a period of 5 to 10 years. Please visit website <http://www.riverfoundation.org.au> for more details. IRF has a network of 10 global Ambassadors and the Author of this Note is one of them. I would like to know if any organization in India or in other south Asian nations is involved in river improvement with the cooperation from various stakeholders.

R. Jagadiswara Rao, Sri Venkateswara University, Tirupati, Andhra Pradesh

The problem posed is found not only in Assam but also over India. In the semiarid tracts of India with no perennial rivers, wells are being used for this purpose leading to severe groundwater contamination.

Although lead is no longer used in petrol and large beverage companies in the corporate sector voluntarily stopped using pigments containing harmful metals in preference to organic pigments,

the Government of India has yet to take a decision to ban usage of harmful pigments as was done by certain developed countries. I discussed these problems in the virtual forum on "Human values for water and sanitation" conducted as a prelude to the 3rd World Water Forum of 2003 (http://www.waterforum.jp/worldwaterforum3/for/en/stopic.794_1808.html), in my presentation on "Water and Human Values & Culture in India" at the Regional Consultation Workshop on "Water in Asian Cities – The Role of Civil Society" in October 2002 at Manila (http://www.adb.org/Documents/Events/2002/Water_Cities/program_cities.pdf), and further suggested on the need to organize a workshop of religious leaders to modify various religious rituals that have been leading to contamination of water bodies (http://www.waterforum.jp/worldwaterforum3/for/en/spost.794_5145{0s=0{9.html).

In ancient India there were highly powerful and enlightened religious leaders with excellent knowledge on all aspects of life, while most common people were so illiterate and ignorant that the religious leaders had to inculcate in them human values, better water governance, hygiene etc through religious dictation. The common people were made to believe that the worship of Goddess Ganga, which was the personification of holy water, cleanses the people from dirt and sins, while remaining pure and clean at all costs. This made people to use water bodies for performing various water-based religious rituals, besides abusing them as public toilets, bathing places, burial and cremation grounds, and dumping grounds of solid and liquid wastes of biological, agricultural and industrial origin.

Most people in modern India continue to remain highly religious and continue to perform the age-old traditional water-based religious rituals in a big way even now. Instead of Government interfering with these activities, the best thing would be for the civil society, the modern religious leaders and the temple authorities to bring radical modifications in the water-based religious rituals presently practiced to save our water bodies from contamination. In addition, the people should be preached that they could get rid of their sins and attain salvation better by showing their respect towards the Goddess by not letting any pollutants in the water bodies besides cleaning them periodically.

It may be noted that the non-resident Indians (NRIs) living in developed countries, where stringent laws for protection of water bodies are in vogue, have already modified the religious rituals they perform without leading to contamination of water bodies.

B.L. Kaul, Society for Popularization of Science and Progressive Educational Society, Jammu

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Binukumar G.S., Institute for Resource Analysis and Policy (IRAP), Hyderabad

As a religious country we are forced to agree with these kinds of rituals in almost part of India. In the same time the overwhelming concern related to water contamination cannot be taken in a religious way. If it is not addressed the after effects will be very high. I think we can do a lot with the help of civic bodies and political or religious organizations. I like to suggest some alternate ways to tackle this situation.

- Bifurcate the river for offering these rituals at the period and collect all the debris in the same spot. It can be done by making concrete walls and ask the people to use that separated portion to do the things.
- The water and debris flowing through this marked area can be collected and treated with technical measures. This filtered water can be allowed to flow back into the river.
- A ban on synthetic paints used for coloring the idols can be made regulatory and the pollution issue may be brought down in an extent.
- An alternate model for the idols can be developed and it should be free from pollution or contamination of water.

In Kerala the famous temple "Sabarimala" is hosting crores of pilgrims every year and the river Pampa is facing these kinds of problems. The pilgrims are dumping their clothes in the river and using for bathing and even for attending the nature's call. The river water is the main source of drinking water in this area as well as this water is used by lakhs of people in the downstream. The authorities are providing maximum facilities to the visitors and a percent of people still not using these arrangements. The avoiding clothes not only making contamination but also blocking the flow of the river. Now some volunteer groups started to collect the clothes by providing iron mesh and other measures.

So human intervention is very important to tackle this alarming issue and from the authorities should be taken with the consensus of religious and welfare organizations.

Ashok Kumar Pathak, Development Consultant, Uttar Pradesh

Prevention of river pollution from idol immersion is a herculean task, as there are no fixed sites for idol immersion, which can be controlled and regulated. But I think, involving the local community, like Panchayat in rural areas and Nagar Nigam/Nagarpalika in urban areas, may help up to some extent. As of now, there is no massive IEC campaign on paints being used in idols and its hazardous impact on public health. Also, there is a need to strengthen campaign against use of plastic bags and its disposal in the water sources. For this, involvement of voluntary organizations and media sensitization is also very important.

Rajesh Shah, Peer Water Exchange, Bangalore

In Bangalore this year the 'Green Ganesha' movement was launched. Here are some excerpts from the many emails on the subject that still exist in my inbox. First, the Environment Support Group (ESG) conducted a workshop:

Identifying Traditional and Responsible ways of Celebrating Ganesh Chaturthi, A One Day Workshop for Children (Ages 9-14)

Ganesh Chaturthi is the birthday of Lord Ganesha, the elephant-headed Hindu God. As we all know, He is a very popular god in India and has become a popular symbol around the world too. Ganesha in different art forms has broken many boundaries of caste, race, religion, and nation and has found a space in many living rooms around the world. He is a favorite among the children too. The story of his birth and the variety of delicacies made on this day are enjoyable for children. Over the last few decades, there has been a considerable shift in our societies across the country from celebrating the festival in a traditional way to a more ostentatious occasion, with little regard to the socio-economic, cultural and environmental impacts.

The workshop is aimed at helping children identify the traditional and historical significance, ways in which it was celebrated in the past, the importance of the traditional foods made on this day and ways in which the festival can be celebrated without causing harm to the environment around us. The workshop will take children through interesting stories, videos, making clay idols, learning to make traditional decorations, learning through some games and learning to take responsibility.

- Those who want unbaked, uncoloured Ganesha vigrahams of the size that can be dissolved at home in a bucket of water and poured back to join your garden soil can contact the following number: 080-3419177
- We have decided to celebrate the Ganesha Festival in a unique way. Ganesha will be placed on a cycle with cycling as the theme for the festival. Ganesha is the god of wisdom and intellectual divinity. When it comes to traffic and our daily mobility there is lack of wisdom, compassion and equality.
- The solution that is provided for mobility problems is like eight blind men identifying the elephant. As a society, this is the way we are attempting to solve this elephantine problem?
- Cycle as a vehicle for commute is promoted in Europe and other nations. Cycle infrastructure and planning started almost decades back in Europe. Our nation did not have so many vehicles ten years back, however the craze of personalized transport with availability of easy loans led to massive increase in the vehicles.
- Ganesha stands for wisdom, intellectual ability to remove all obstacles. Ganesha is the only god whose postures can be designed with lot of innovation. After all, is he not the God of innovation? Please visit <http://cyclejangama.net/> for more.
- The Ganesha that one does Puja to is made like a tiny cone. That is all. Add water to cow-dung or turmeric, knead and shape into a cone, the size less than that of your middle finger. Place it on a plate of Akshadai, put kumkumam on it, string a sacred thread around it, and it is ready for the Puja.
- That is how the clay came into the picture. So that children could create their own little personal Ganeshas. I remember that when we were young it was an accepted and non-violable tradition that one never did Puja to coloured Ganeshas, nor sank and dissolved them in water. It was not considered auspicious to use idols and statues made of Plaster of Paris in both the Ganesha Chaturthi and Navarathri festivals.

Shashikant Kumar, Green Eminent Research Centre, Vadodara

The issue of immersing idols in the river has been bone of contention during the festivals and events. Let's make some adjustments to our rivers and sacred spaces. I propose two ways to handle the situation:

I. Mitigation measures for river pollution

- Educating people to restrain from immersing idols into rivers containing pollutants, encourage people to utilize natural material in making of idols.

- Waste management along such immersion sites, - create a peoples work force to clean the refuge after every event within 24 hours or at best 48 hrs before it may start damaging the ecosystem. (Mechanization can also be an example for such cleaning)
- Ban plastics to be disposed in rivers and ponds, install sufficient manpower, notices, bins and refuge collectors at such points.

II. Structural changes

No matter what administration tries to dissuade people, the religious sentiments are difficult to quell. Since your concern is about idols polluting the water sources (intake points in river). Thus reengineering approach is required that may include following steps.

- Select zones for immersion of flowers, idols etc. i.e. Ghats. Notify the zones to citizens through public notice, banners etc.
- Design immersion areas - dedicated space with Wire Mesh, Stairs, enclosures, etc. in order to restrict the flow of materials beyond the zones 50 -200 sq.m areas. Installation of these structural elements can take place prior to events and regular cleaning may be feasible by authorities and ghat managers.
- Protect the rest of areas for water intake points, with fencing by mesh, vegetation cover, embankments and similar structures.

Maintaining the zones and structures would be essential during such events. You can hire a good urban planners or structural engineer to take up this task. If you need help in this regard we can offer our consulting.

Suman Swarup, Independent Consultant, New Delhi

A possible solution lies in creating fresh water tanks on the banks of the rivers, with attached small treatment plants. The tanks since they will draw water from the rivers would carry a similar significance for worship, idol immersion and other socio religious activities. The water can be drawn from the rivers thro, channels and sluice gates and discharged after treatment back into the rivers. The area around the tanks can be developed to facilitate immersion and other religious activities by worshippers. A good example is the water tank at Nigambodh ghat in Delhi carrying Ganga water for washing of dead bodies. Earlier the bodies were washed directly in the river. Ashes too can be immersed in such tanks which should be regularly cleaned like swimming pools. If we can construct and maintain swimming pools, why can't we construct and maintain tanks for religious purposes?

In my view such tanks should be created under the various river action plans and managed by the state tourism departments or corporations, since they can become important centres for socio cultural activities. It would be far more difficult to educate people to use non toxic paints or material than to give them an alternative facility.

K.D. Bhatt, GSFC Science Foundation, Vadodara (response 2)

Out of the last 15 odd responses, it can be seen that the suggestions/comments/recommendations made by the members are confining mainly to three major areas: Awareness at community level and beyond, use of eco-friendly paints and material, involvement of relevant administrative authority and framing of corresponding policy. Of course, for all the above suggestions, a beginning has to be made. In some cases, the members have shared their experience, which could be a guiding tool. However, some suggestions advocating framing of stringent laws for banning the idol immersion or going for special artificial lakes for the purpose look far too real to be implemented as living in a democratic set up and a religion tolerant society like ours, banning of any activity which has a religious connotations would lead to

a bigger problem and developing a artificial lined lake/pond as an alternative immersion site would need huge quantity of water to fill the pond which while contesting the concerns for the subject water, looks quite out of place.

However, the approach of conveying the message through education at school level is commendable. Though it is not a direct approach but it sure is the right approach for future remedial actions. The implementation of the different suggestions/recommendations, made by the members, is a challenge in itself and will probably take a longer time of acceptance than expected but if implemented successfully, it will set an example of all other cities and/states, where immersion of religious idols is being practiced leading to water pollution.

Atul Rawat, DMV Business and Market Research Pvt. Ltd., Hyderabad

I belong to Uttaranchal from where most of the rivers originates. The rivers provide water to people of several states. The rich fresh water resources are getting polluted through different sources whether it is industrial waste or that from idols. Every year thousands of idols get immersed into these rivers just as rituals. These idols which represent the faith of people are made up of several chemicals which not only pollute the water but also affect the flora and fauna.

The need of the hour is to take a proactive look and find out the balance between rituals and the environment. The best way would be to allocate a certain area for such rituals which will help the authority to take them out immediately or there can be immersion of one idol which can represents the faith of the whole community. These smaller initiatives can make a big difference for the community.

Vijayeswari, The Gandhigram Institute of Rural Health and Family Welfare Trust, Dindigul, Tamil Nadu

Many educational and IEC programmes are being implemented to educate the public on the importance of individual and community health. But still there is no progressive behaviour change.

The Government can change the people by seriously enacting laws. For example, my observations indicate prevention of tobacco consumption in public places is very difficult to implement. People are not bothered about the importance of the ill effects of smoking and everywhere public smoking is practiced; there is no one to complain and no one to restrict. Laws related to behaviour change remain inert. One can not blame law makers or the custodians of law. I feel - 1. Educating future generations will yield some change in the future 2. Ensuring school children can teach their parents on such aspects may yield some positive results. School is the venue to promote and propagate behaviour change.

Here are some resources on idol immersion which may help:

- Effects of Ganesh idol immersion www.ias.ac.in/currsci/dec102001/1412.pdf
- Water quality improvement after shifting of idol immersion site www.springerlink.com/index/u100766521125323.pdf.

S. V. Vijaya Kumar, National Institute of Hydrology, Kakinada

Nripendra has rightly described the level of impact of immersion of images of gods in water bodies. As a hydrologist I address the questions raised by him as below.

What are the options available for mitigating the effects of immersion of idols in rivers?

We need to ensure that all rivers have good flows during the time of immersion by releasing sufficient flows from dam or diversion structures upstream of the rivers. If it is a pond or tank or reservoir we need to ensure that the point of immersion is away from the off take points (or outlets) or ensure that it is near the inlet streams, so that the debris can be easily removed.

What precautionary measure can be taken to ensure that contamination is contained in rivers as a result?

We need to encourage local communities to choose small images made of earth only. The media can play a role in promoting such environment friendly endeavours.

Sejuti Sarkar De, Society for Natural Resource Management and Community Development (SNRMCD), Ghaziabad

Modern day idols made of baked clay or plaster of paris and painted with varnish contaminate the already polluted water bodies with non-biodegradable and harmful metals like zinc, mercury, chromium, arsenic and lead. Along with the idols, tonnes of garlands, coconut husks, etc. often wrapped in plastic are thrown into the water increasing the organic contamination.

The Karnataka State Pollution Control Board has issued 'Guidelines on Immersion of Idols in Water Bodies' (please visit http://kspcb.kar.nic.in/public_notices.htm for more details) on safe disposal of Ganesh idols during Ganesh Chaturthi. The Pollution Control Board guidelines suggest immersions should be conducted beyond 500 metres of the low-tide line with the help of motor boats. Awareness generation needs to be done to encourage the general public to buy idols made of clay and painted with natural colours.

I had written an article on the safe disposal of idols while working with Toxics Link. For more details please read <http://www.solutionexchange-un.net.in/environment/cr/res-06110902.pdf> (PDF; Size: 784KB)

Ramakrishna Nallathiga, Centre for Good Governance, Hyderabad

There has been an interesting discussion on this issue. The problems caused (heavy metal pollution of river water) by the issue (of idol immersion) are somewhat well known but when it comes to solving the same there appears to be several other issues entangled with the same (such as cultural issues, religious beliefs, revering those age old practices, etc).

The approach to the issue has to focus on access control and remedial measures at access points. From the lake conservation implementation plans of Hyderabad and other cities, access restriction may be effective to some extent by limiting the number of download locations. Access restriction has been done in these lakes through (a) bunds enveloping lakes with paved roads on top of them and (b) setting locations where idols can be immersed with facilities like landing space for people, cranes and other accessories.

In case of rivers too, download locations may be well marked with such facilities and the information on the same may be passed on to people through pamphlets, print media and other means. It is at the locations just downstream of these locations that the means of taking off the debris and cleanup activity may be laid down.

Once access control points are established, the pollution from the idols can be minimized by deploying the machines that take effective control of submerged pieces and take them away

from water. Collaboration with waste picking community may render it easy to pick the steel, wood, paper and other debris from the sites and recycled wherever possible. Although, this method results in the transfer of contamination from the rivers to people handling the waste and the sites of recycling, at least it will prevent water source contamination.

[Ajay Agrawal](#), Pioneer A.D. Corporation, Bilaspur, Chhattisgarh

I agree with [T.N. Anuradha](#) that the clay idols made during festivals are directly immersed in the river or sea thereby creating a lot of environmental problems. In our town, the Arpa River is over flooded with such clay idols every year during Durga Puja and Ganesh Puja. Few years ago the Mumbai and Pune municipal authorities issued an order that clay idols were not to be immersed in rivers or the sea instead they were to be preserved outside. Some symbolic *visarjans* were allowed occur. That was a big achievement, however in time the immersions started again. This issue must now be raised in order to safeguard our surface water bodies.

We are equally eager to work on the same issue. Please inform us if we can do anything here.

[Hitesh Chakravorty](#), District Elementary Education Office, Hailakandi, Assam

Immersion of idols in rivers is a traditional practice and is a problem not just for Guwahati but throughout India. My opinion in this regard is to raise awareness among the craftsmen who made idols to use eco- friendly colours. We also face similar issues of water pollution in the Bharalu River, near Guwahati as a result of untreated domestic sewerage.

[Diponkar Bordoloi](#), Public Health Engineering Department, Guwahati

Yes it is indeed a problem for us. This is the right time to address the problem. The options provided by Arunabha Majumder and some other members may be very useful. However, personally I feel that the problem is not so serious for Assam and the mighty Brahmaputra at this moment. During September-October discharge in the river Brahmaputra is not at all lean like the winter months. The river is also wide enough in Guwahati. In fact due to the large discharge, we sometimes experience floods in September in some parts of Assam. I am not very sure about the intake point-whether it is close to the idol immersion place.

I feel that pollution due to industrial, Agricultural (pesticide/fertiliser) and biological contamination is more serious than idol immersion at this point of time. Of course, one should never ignore this problem. But one should be very careful while addressing this problem as religious sentiments and social values are involved with it.

[Sadgir Parag Ahilaji](#), Government College of Engineering, Aurangabad

Now days in Maharashtra, people are motivated to use idols of *Shadu* clay in houses, whose immersion are done in bucket of water. Within one to two hours, it dissolves into clay and the water can be utilized in gardens. I think this is one of the sustainable ways of maintaining the environment. This can be used widely and effectively.

[Arjun Kant Jha](#), Narisanstha, Jaipur

I feel that pollution in rivers by idols is not a year long process. Though, it pollutes the river but it is very less and needs immediate attention by way of awareness generation. But the serious concern is the year long unchecked polluting by industry. Our ancient holly rivers have now

become "*nalas*" because we no longer respect the environment. It is important to provide the opportunity for using alternative natural colours and make people aware about the effects of polluted waters.

[M. Jahangir](#), Drinking Water Pakistan Discussion Group, Islamabad, Pakistan

Do you think these heat treated materials from clay idols can be recycled? At the same time, think the religious sanctity does not allow it to be recycled. On sea sides in Bombay I have seen immersions happening in the sea as well.

[Pathak R. Kripal](#), National Horticulture Mission, Ministry of Agriculture, New Delhi

I appreciate the suggestion for banning immersion of idols in rivers. It is one step for minimizing pollution. I am of the view that around the catchment area of the rivers, people need to be involved in massive tree plantation and promotion of organic cultivation. In case organic farming is promoted and the *Agnihotra* ash is immersed in the river and other water bodies, it can create miraculous effects in minimizing pollution of rivers in the country. It requires mass awakening, sound planning and a study of its implications by involving every citizen of the country.

[Subodh Kumar](#), Udyog Bharati, Ghaziabad (*response 1*)

We do not need any expert committee or laboratory investigations to tell us as to what is the main cause of water pollution? It is the enormous quantity of human waste and excreta being drained into all our rivers by our civic bodies. With continuously rising population and apathy/inaction by the responsible civic authorities the coliform load is the biggest menace to public health and environment. With thousands of crores literally down the rivers in the last many decades, there is no visible result in reducing the pollution. The pity is that even our best academic researchers who could be contributing to modern innovative technical and engineering interventions are also not interested in such research topics. We still keep talking about a decade old out dated technologies such as STPs.

[Sibasis Panda](#), PHED, Sunabeda, Orissa

Immersion of idols of deities in water bodies is the part of Hindu religious belief. A study conducted on the River Kathajodi revealed that soon after immersion of Durga Puja idols there were significant changes in the water quality.

The idols are made out of bamboo, clay, jute, wood, polythene, paddy straw, metals, and paints, and along with these lots of other organic materials like *sindoor*, flowers, coconuts, clothes, polythene bags, etc are thrown into the river or water bodies. This ultimately results in the increase in the concentration of lead, arsenic and mercury in the water bodies. Apart from this the physical appearance of the rivers is also affected, along with the turbidity of water. The major problem is the synthetic dye which releases toxic materials that can be mitigated with:

- Use of natural colours in painting of the idols
- Availability of natural colours in bulk in the market at a subsidized rate
- More research on natural colouring compound so that the deeper shades like synthetic colours can be developed and documented
- Create public awareness regarding the issue
- Application of science, as this year Ramesh Kher and Vivek Kambl of Pune did. They both made Ganesh idol out of ALUM which is environmental friendly and when immersed in river

will clarify it. This type of innovations in materials will certainly stop river pollution due to immersion of idols.

[Subodh Kumar](#), Udyog Bharati, Ghaziabad (response 2)

Every body confirms that 80 to 90 per cent of the pollution in our rivers is from human excreta and maximum 10 to 20 per cent is from industries. Idol immersion happens during festivals, on a few occasions in a year and will not amount to more than 1 per cent of the total pollution. Why are we not addressing the issue of 80 per cent of the pollution? This is also an issue that needs to be tackled.

[Ranjan Kumar](#), Magadh Mahavidyalaya, Nalanada, Bihar

I think that industrial effluent is a more serious concern. Yet, closing down industries is not an option either. One can't cross the Yamuna without smelling the stench that escapes it. There is a need to go back to our ancient, ecologically sound ways and practices.

[R K Srinivasan](#), Centre for Science and Environment, New Delhi

Immersion of idols is a minor issue, which does not need a discussion in the context of river pollution. The major problem according to CPCB is that we generate around 33000 MLD of sewage and we treat only 15 per cent of it. We don't have sewage treatment plants. Out of India's treatment capacity of 7000 MLD, 40 per cent of the treatment capacity is in Delhi itself constructed under YAP. But the Yamuna is polluted, the reason being that we do have the resources for operation and maintenance of the treatment plants. Because the sewerage charges are 30 per cent of the water bills and the water bill is already subsidized, this results in less revenue for sewage management. But collecting and treating sewage is five to 10 times more costly compared to treating raw water for drinking purpose. In cities like Kanpur the municipalities could not pay the electricity bill for electrical crematorium built under the GAP programme. Many community toilets are closed due to lack of maintenance. Apart from this we don't know how much sewage we generate, since our generation is calculated based on official water supply. The water sourced from private borewell, tankers or bottled water is not accounted in it. Hence removal of plastics from rivers for publicity and removing of slums from the river beds are not issues as far as river pollution is concern.

[Mahendra](#), Solution Exchange Karnataka Community, Bangalore

In relation to your query, I wish to share the experience of Bruhat Bangalore Mahanagar Palike (BBMP). For the immersion of Ganesha and Durga idols, the BBMP has created makeshift/artificial pond like structure near Halsuru Lake and forces the idol immersions to be done in the makeshift/artificial pond. It has posted the police and to monitor the immersion. Sometimes people have to be forced to follow the rules, till it becomes a practice. It is also advised to immerse the idols in water buckets/tubs.

[Vijay L. Ghugey](#), Nisarg Vidnyan Mandal, Nagpur

For the past 12 years we have been organizing a movement of using natural paint on idols in Nagpur. We also encourage collection of *Nirmalya* (i.e. flower petals, garlands and other material used Puja). Since the last two years we have started a campaign for adoption of idols before immersion in the lakes of Nagpur city and in the river near to the city. This activity has been initiated by Nisarg Vidnyan Mandal and is partially supported by the Municipal Corporation.

[Gautam Choudhury](#), National Informatics Centre, Department of IT, Ministry of Communications & IT, Govt. of India, Guwahati (response 2)

A very good example of green initiatives while celebrating festivals without hurting the religious sentiment has been provided by [Ajit Seshadri](#). We certainly can learn from this experience. Though the situation in Assam is not similar to that in New Delhi where one can campaign online, we can certainly do that through some other awareness campaigns at the puja mandals. We have to do that a little early to have some impact. If we are able to convince a few puja committees to adopt green practices instead of traditional idol immersion at the first instance, I think that will be a huge success. This will certainly encourage others to follow the same in the coming years.

[Seema Raghunathan](#), WaterHealth India, Secunderabad *

This discussion at Hyderabad there has been many organizations creating awareness on need to develop environment friendly idols and even the government has come forward in convincing the Idol committee to use environment friendly idols, reducing the size etc. At time of immersion too they have demarked areas for immediate removal of idols for reuse. This initiative has help in protecting the lakes at Hyderabad.

**Offline Contribution*

[Ashwani Wanganeo](#), Environmental Science Barkatullah University, Bhopal *

There is no doubt that immersion of any non-biodegradable or degradable items into the water bodies of various types does interfere with the normal functioning thus jeopardizing their preferred use. I feel it is high time for all of us to create awareness about the present use of specific aquatic resource for deciding the strategy for its conservation. Specific stringent measures will have to be taken by involving local populations around the aquatic resource for there better utility. Individual efforts backed up by public participation will help in archiving the required goals.

**Offline Contribution*

[Venkatesh. P](#), Medical College, Bangalore *

After going through the discussion upon the prevention of river pollution from idol immersion, I follow some simple practice at our house. During the Ganesh Festival, at the end of Puja, the idol is immersed in a small fairly large capacity vessel to hold the idol. After some considerable days of immersion, the clay and other matter is removed and deposited into the earthen pots wherein the plants are grown. I hope that this method has been put into practice by everyone who peruses this mail. But those who do and do not voice their opinion, this should be a collective response to the forum.

**Offline Contribution*

Many thanks to all who contributed to this query!

If you have further information to share on this topic, please send it to Solution Exchange for the Water Community in India at se-wes@solutionexchange-un.net.in with the subject heading "Re: [se-watr] Query: Prevention of River Pollution from Idol Immersion - Advice. Additional Reply."

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