



# Green Schools Network

## ACTIVITY SHEET

May 2013

### Why talk about River Pollution



They are known to have cradled civilisations, all over the world. They bathed, fed and helped carry humans. What are we talking about? Rivers, of course! With a twist to their modern profile, though, today they also serve as water suppliers for grand industries... and as cradles for their severely polluting effluents! What stands jeopardised is not just aquatic life, but also any human settlement on their banks. Choked with untreated sewage, the Yamuna, for instance, is crying hoarse to be cleaned. And for real estate developers to stop the unchecked, and unsafe constructions on its floodplains. Why? You only have to recall the trail of terror left by the Mandakini and Alaknanda rivers in Himachal Pradesh and Uttarakhand to know the answer.

Name .....

School Name .....

Class ..... Date .....



### GOBAR GYAN

Yamuna, a sacred river, is the biggest tributary of the revered Ganga. In fact, just short of Allahabad, Yamuna is bigger than Ganga. Hindu mythology considers Yamuna to be daughter of Surya, the sun god, and sister of Yama, the god of the afterlife. Hence, she is also known as Yami. Today, Yamuna meets 60 per cent of Delhi demand, being the largest city that the river supports. But there is a murky underside to that statistic. More than half of Delhi's annual sewage of 3.6 billion tonnes gets dumped, you guessed it, back into Yamuna. It is a different river that seems to run from Yamunotri, the points of its origin, and then from Wazirabad where its pure and pristine waters suddenly transform into sludge. In fact, the 22 km stretch through the city of Delhi — just 2 per cent of its entire run — practically strangles the river. With no scope for purity, and even less for biological life.



*Hi! I am Pandit Gobar Ganesh. You will find me in Gobartimes—a magazine that tells you how your everyday life is linked to the world around you. Hooked, huh? If you want to know more about me and Gobartimes visit us at:*

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## ACTIVITY 1

Let us compare the cradles of civilisation with their river parameters. Try filling these values. The largest city is the biggest city by population situated on that river.

River Name	Largest City	Population	Water Flow (Cumecs, or m <sup>3</sup> )	Population catered to (thousand/Cumec)
Thames				
Nile				
Tiber				
Amazon				
Rhine				
Yamuna				

## GOBAR GYAN

Thames today is a beautiful, clean river. But it was not always so. In fact, 50 years ago, it was given up for a river which was 'biologically dead'. In 1855, the famous scientist, Faraday, noted that "... the whole of the river was an opaque pale brown fluid". A few years later the curtains in the Houses of Parliament had to be soaked in lime to stop the odours that were preventing the government's proper functioning! The work to clean the river began determinedly in the last 50 years. Treatment plants were built, and laws implanted that forbade all forms of pollution, especially industrial sewage dumping. Today, more than half of London's sewage sludge is sold as fertiliser, in the form of pellets, for agricultural use.



## ACTIVITY 2

Some of us use water purifying filters, ROs, Aquagard and so on at home. But have you ever wondered how the purity of water is measured? Visually, you may catch some impurities but there are many which cannot be seen by the naked eye. For rivers, scientists use many indices to objectively evaluate the quality of their water. Find out about these and fill the details in the table below. Whose standards are the most stringent? Among all the parameters given, which is most crucial for the survival of fish?

Parameter	BIS Norms	EPA (USA) Norms	Euro Norms
Biological Oxygen Demand (BOD)			
Chemical Oxygen Demand (COD)			
Dissolved Oxygen (DO)			
Total Dissolved Solids (TDS)			
Coliform Count			

## GOBAR GYAN

At some 1,320 km in length, the Rhine is Europe's longest river. It originates in the Swiss Alps and after traversing France, Germany, Luxembourg and the Netherlands, flows into the North Sea. Approximately 60 million people live close to its banks, and many of them are dependent on the river for their drinking water. But enormous industries that were based on its banks choked it with waste, and by the 1970s, the Rhine had become so polluted that it was sometimes referred to as 'Europe's sewer'. The situation could be rectified only after a long spate of litigation, that eventually forced industrial units to stop discharging untreated effluents into the now-resurrected river.



The story of river pollution. A Round-Up:

There are three main sources of river pollution. These are

- Household/ municipal waste and open sewage disposal
- Soil erosion and deforestation (usually adding to land under agriculture) – both contribute to toxic run offs from fertilisers and pesticides
- Run-off from commercial activities and industrial sites

You now know many new facts about rivers, not just the Yamuna, but also rivers in other countries. We would enjoy hearing your ideas on cleaning rivers or just sharing this information. Feel free to message us on the Gobar Times Facebook page. We might even feature you in our Reader Spotlight in the Gobar Times magazine!

### ACTIVITY 3

There are many ways of cleaning a river. Try to find out more about these methods and then indicate which method would best suit the cleaning of Yamuna. List them in your order of priority.

<b>Water Treatment Plants</b>			
<b>Sewage Treatment plants</b>			
<b>Effluent Treatment Plants</b>			
<b>Counselling of Users</b>			



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