Har Har Ganga! Jai Ganga!

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The Ganga is considered the holiest of holy rivers in India, though people who live on the banks of the Narmada would hotly deny this. Both the Narmada and the Ganga are known as the "Jatashankari", or that which descends from the locks of Shiva. Both are also known as Rewa. Legend has it that every year Ganga comes to the Narmada for a dip which purifies it. The Ganga is a relatively young river when compared with the Narmada, which flows through land which is geologically amongst the oldest in the world. Therefore, the Narmada is millions of years older than the Ganga. Despite this the Ganga has the prime position in sanctity of all the rivers in India. The belief is that the Ganga is self cleansing, that no matter how much of pollution there is at Varanasi the water remains pure and that stored Ganga water retains its purity indefinitely. In the psyche of the Indian people and of Hindus in particular the Ganga is synonymous with India, or the land of Bharat.

What the Ganga is to India the River Thames is to England. But look at the difference in scale. Thames rises at Thames Head at an elevation of 110 metres above msl. The Ganga rises at Gangotri at the height of more than forty times that of the Thames. The length of the Thames is 346 kilometres and the Ganga 2510 kilometers. The total basin of the Thames covers 12,935 square kilometres whereas the drainage area of the Ganga is over one million square kilometres. But one thing the two rivers did share in common and that is the extent of the pollution. In England in late nineteen and early twentieth century the Thames was so polluted that in 1858 the stench of the river reached such extremes that the House of Commons no longer sat at Westminster. Raw sewage and garbage were emptied into the Thames and between the years 1832 and 1865 four serious cholera outbreaks killed tens of thousands of people. Ultimately this led to a firm decision of the British Government to clean the Thames and under the supervision of Joseph Bazalgette, a dedicated public health engineer, massive sanitary sewers were built on the north and south of the river embankment to intercept all sewage flowing into the Thames. In the mid twentieth century the Thames Conservancy was set up and this took up the task of cleaning the Thames from its source up to its mouth very seriously. Heavy industry and tanneries along the Thames were shifted, oil pollution reduced, sewage treatment systems modernised and a number of steps taken to ensure that the water quality improved. A dead river was revived and aquatic life has now returned to the Thames. Today, of course, the Thames Conservancy has been merged with the Environmental Agency which, together with the Port of London Authority, is responsible for ensuring that the river Thames remains clean and healthy.

The scale of the Ganga being what it is, obviously there can be no real comparison between it and the Thames, except in terms of the attitude of the people and of government. In the case of the Thames the people and government united to clean up the river, whereas in the case of Ganga the people are indifferent to what happens to the river and the government is clueless about what to do with the river. So much so that even at Rishikesh and Haridwar , where the river debouches into the plains not a single town has a fully integrated sewage system, nor are there interception sewers which could prevent the fall of raw sewage from open drains or sewer lines into the river. That is why at Har-Ki-Pairi the main river has been bypassed through a canal which creates a pool of relatively clean water in which pilgrims bathe. Certainly at the confluence of the Ganga and the Yamuna and, perhaps, at one time of the Saraswati, the entire town drainage of Allahabad enters the river and that is where the world's largest religious congregation, the Kumbh, is organised once every twelve years, when tens of millions of people over a period of one month bathe in the Ganga. What is more, the

Yamuna carries with it the sewage load collected at cities such as Delhi, Mathura and Agra and dumps it into the Ganga at Allahabad. Even today, with the cleaning programme of the Ganga, we have not been able to tackle the pollution at Allahabad. The Ganga has located on its banks a number of large cities and towns. These include Kanpur, Mirzapur, Varanasi, Patna, Bhagalpur, the cities of Bengal, especially Calcutta. Between Haridwar and Allahabad, for example, there are the industrial towns of Moradabad and Rampur, both contributing their mite to pollution of the Ganga.

The basin of the Ganga is over ten lakhs square kilometres in area and contains just about the finest alluvial soil in the world. This is the granary of India growing wheat, rice, lentils, sugarcane, potatoes, oil seeds, legumes, chillies, jute, and just about every other type of crop that one can think of. Alluvial soil is friable and, therefore, during the monsoon the top soil has a tendency to run into the river, which then carries an enormous silt load. Honest soil is not polluted, but agriculture in India today is so heavily dependent on synthetic fertilisers, insecticides, weedicides and other chemicals that the silt which flows into the Ganga is almost equal to several chemical factories emptying into the river. To this should be added the fecal matter which flows into Ganga throughout its length, as also the solid waste generated by the huge population inhabiting the most densely populated area in India, the Gangetic Plain. In the upper reaches of the Ganga the population pressures are less and the steep gradients ensure a self cleansing velocity which neutralises through aerobic and anaerobic action the pollutants which enter the river. Because the river is snow fed there is dilution of the pollutants so that the human waste is rendered harmless. But once it enters the plains the Ganga has a gradient of 1:8000, which means that it flows through extremely flat land and, therefore, the velocity of flow is minimal and the movement of the river is sluggish. Also, whereas the river tends to be very wide in the plains it is also relatively shallow, especially as silt accumulates in the river bed. During the dry season the river becomes confined to a very small part of the total bed and is only a trickle. In the wet season the river flows into the flood plain and is like an enormous shallow pool which has a length of about 1,500 miles. There is stagnation and when stagnant water is polluted it forms a toxic combination. Not to mince words, far from being pure at Varanasi the Ganga is actually a huge cauldron of toxicity because the pollutants together form a deadly combination. There is a buildup of poisonous chemicals, there are pathogens which promote infections, there is rotting organic matter which releases gasses, noxious smells and provides a fertile bed for the breeding of harmful germs. This is the river which the government of India has promised to clean up.

Uma Bharti is the Minister for Water Resources, to whom has been given the task of cleaning the Ganga. Of course the effort to clean the Ganga goes back into the hoary past, but it was Rajiv Gandhi who first tried to systematise the efforts. One welcomes the start but ultimately, like many other such schemes, the project lost momentum and ultimately very little has been done to clean the Ganga. Now Uma Bharti has announced that as a part of cleaning the Ganga her Ministry will search for and unearth the mythical Saraswati. Incidentally, a study made by the National Geographic some years ago used satellite imagery to trace the course of the ancient river, the delineation of which ran through present day Haryana to include the Ghaggar, One of the most serious archeologists in India, Professor Wakhenkar, who lived in Ujjain and discovered the ancient cave painting at Bhimbethka at Bhopal, did a sustained study of the Saraswati in which he averred that the river was not mythical but real. His finding was that tectonic movement in the past had caused major shifts in the Himalayan region which changed the course of the Yamuna, separated the Saraswati from the Gangetic system and caused the Saraswati to dry up. In fact it is believed that the entire Harappan Civilisation died because the river on which it was dependent, the Saraswati, had lost its Himalayan source of water, thus depriving a large part of Northern India of water. The National Geographic study confirmed Wakhankar's views and, therefore,

one can safely state that the Saraswati was not a mythical river. But one has to equally accept that just as geological changes affect the earth geological changes can make a river dry.

`Uma Bharti has said that she will unearth the disappeared Saraswati and make it come to life and that, too, as a part of the clean Ganga Project. One fails to see the connection between the two. Rediscovering the Saraswati is an independent project on its own and even if it is found that the Saraswati still exists how will it purify the Ganga? Therefore, is the Saraswati a red herring drawn across the scene to divert attention from a possible failure of the Clean Ganga Project? Or is it just a case of the Minister barking up the wrong tree as she constantly did when she was Chief Minister of Madhya Pradesh? Making the Ganga pollution free is an issue so eminent and so praiseworthy that it stands on its own. Why only Ganga? Why not every river in India which is polluted, which means virtually every river in India? However, because attention is being focused on the Ganga let us not go into byways or loiter into lanes with a dead end. Let us stick to the Ganga. Is there a holistic study of the river in which vulnerable points from Gaumukh to Sagar Island have been identified? Has the nature and quantum of pollution at all these points been studied and quantified? Has the river been divided into logical segments whereby the pollution of each segment upstream is tackled so that it is not transferred to the downstream segment? Have the major tributaries such as the Yamuna and the Betwa been similarly studied? Has anyone looked at the pollution coming in from Bangladesh? The Ganga Authority must look at the entire Ganga basin as a whole, cut it into convenient segments and then suggest specific programmes for its improvement. These would include the total elimination of all industrial pollution wherever it takes place. This is the relatively easy part because industries are sizable and their effluents are amenable to being diverted into outfall drains from where they can be moved for treatment. This is true even of relatively small scale operations like leather tanneries. Is there a single blueprint for dealing with all industrial pollution along the length of the Ganga with a view to its interception and treatment?

For human waste, which contributes the largest share of pollution, we obviously need to bring towns and cities under a designed sewage system, with a total elimination of wayside defecation. This means that every citizen must have access to a sanitary toilet, all excreta must be conveyed by sewer lines to outfall sewers and these must discharge into treatment plants which give at least primary and secondary treatment to all such waste. This is an expensive proposition, but it is capable of implementation and must be accorded a very high priority if we are to clean up the Ganga. This also applies to solid waste, a great deal of which finds its way by way of garbage into the river. Surely we can prevent people from throwing garbage into the river and for this purpose we must have proper policing and deterrent penalties for those who act irresponsibly. If every act of improper disposal of garbage is detected and penalised, soon it will become a habit for citizens to deposit their garbage in designated places, after segregation of biodegradable and non-degradable material. Strict enforcement here would suddenly clean up the whole city and this would be a most welcome development. This is where strictness pays.

The Ganga cannot be purified till we take care of the vast quantities of chemical fertilisers and insecticides flowing into the Ganga as a byproduct of agriculture. Obviously one cannot build interception drains along the entire length of the Ganga and in any case they would have to be large almost to the extent of creating a parallel river. Obviously the answer here is to have a very massive programme of encouraging organic agriculture in which the use of pesticides and chemical fertilisers is virtually eliminated. This requires the intervention of the Agriculture Department on an unprecedented scale, taking into account the vastness of the Ganga basin. Have Uma Bharti and her team given any thought to this issue and to what extent has she co-

opted agriculture scientists, researchers and practitioners in the project of cleaning the Ganga? The project to clean the Ganga also requires the active participation of the people. The habit of cleanliness, of proper garbage disposal, of cooperating in creation of an effective sewage system all call for a complete change in the attitude of the people who can become partners in cleaning the Ganga and, therefore, offer their active participation. What has government done to engender this, apart from pious statements, the occasional advertisements in newspapers appealing to the people to keep the river clean and the observation of the odd cleanliness day? Uma Bharti has proved her ability as an election campaigner in which she has been able to mobilise public opinion in favour of her party. Why can she not bring the same zeal to bear on mobilising people to become partners in the Clean Ganga campaign?

It is obvious that the Ganga will not be cleaned merely because the Prime Minister participates in Ganga Arti in Varanasi. The Ganga can be cleaned only if there is a proper study of the river, identification of points and causes of pollution, specific programmes, including engineering works for interception of pollutants, adequate budgetary support to ensure that schemes are completed, mobilising of the people, the evolving of technologies to deal with the problem and constant monitoring and supervision of the works and the maintenance of the works. We need to create a new management and administration paradigm to be able to effectively implement the programme for cleaning the Ganga. One cannot see Uma Bharti fulfilling any of these roles. For this we need a Minister who is imaginative, innovative, open to ideas, able to organise a team and, above all, firm in decision making and steadfast in implementation. He needs to systematically prepare schemes which address the priority areas seriatim and which, collectively, will bring qualitative change to the river. Does Uma Bharati have these qualities? She may bring passion and emotional belief to bear on the Ganga, but she lacks practical commonsense. This the record of her stint as Chief Minister of Madhya Pradesh clearly suggests. Therefore, under the present dispensation one can only say, “Har Har Ganga”, or “God save the Ganga”!

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