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Pollution in Ganga

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The Ganges River is one of the most polluted rivers in the world yet is used by 500 million people for domestic, industrial, and agricultural purposes. Without proper waste management procedures, the waste generated from inhabitants and local industries have been thrown directly into the river, resulting in heavily polluted waters. People are using this contaminated water out of necessity and it is causing many to experience gastrointestinal diseases that can lead to death if untreated. The pollution has caused less dissolved oxygen to be available for aquatic life, resulting in a decrease of some plant and animal species. Our research supports our hypothesis that the level of pollution in the Ganges has been relatively constant over time due to the lack of effective sewage treatment plants. The amount of pollution, measured by faecal coliform and biological oxygen demand (BOD) levels, are impacted by a number of factors dependent on the location at which the sample was collected. These factors include the flow of the river, the amount of aquatic life, the local population, and the number of nearby industries. These factors, along with our limited time and knowledge, prevent us from concluding that the river's overall levels of FC and BOD show any directional trend. However, we can conclude that the pollution levels have been constant in the sense that they are consistently measured above the levels permissible for human consumption. While the local government has implemented waste treatment facilities and water monitoring stations, these plans have been largely ineffective in improving the water quality to a level safe for inhabitant usage. Many of the treatment plants were not designed to treat the amount of waste generated in that area, leaving some plants unable to treat all of their waste while others are capable of treating more waste than they actually have. Some of the treatment plants are completely inoperable due to clogged or disconnected pipes unable to be repaired because of the lack of funding and skilled workers. The plants that are functioning experience frequent power outages that temporarily debilitate their ability to treat water. When plants are capable of treating the waste water, the clean water is often used for agricultural purposes instead of being placed into the river. While this benefit malnourished inhabitants by providing them with more crops, it decreases the flow of the river resulting in more concentrated amount of pollutants. Our research points to the need for adequate fundraising in order to make required changes in the current system. Once funding is acquired, resources should be focused on repairing sewage treatment plants that are already built. Emphasis should be put on ensuring the treatment load matches the demands of the area, with leeway for the inevitable growing population. Funding must be invested in purchasing generators that allow treatment plants to run during the frequent power outages. A task force of qualified scientists and engineers must work together to train more individuals on running and maintaining the current systems in order to keep treatment malfunctions to a minimum. This is a multivariable problem with no easy solution, however strategic action must be a priority for the Indian government in order to improve the lives of inhabitants and the river ecosystem.

Keywords: Eco-system, outrage, biological oxygen demand

INTRODUCTION

Pollution of the **Ganga**, the largest river in India, poses significant threats to human health and the larger environment. Severely polluted with human waste and industrial contaminants, the river provides water to about 40% of India's population across 11 states, serving an estimated population of 500 million people or more, more than any other river in the world.

Today, Ganges is considered to be the fifth most polluted river in the world. However, pollution has been an old and continuous process in the river as by the time people were finally speaking of the Ganges as polluted, stretches of over six hundred kilometers were essentially ecologically dead zones.A number of initiatives have been undertaken to clean the river but failed to deliver desired results. After getting elected, India's Prime minister Narendra Modi affirmed to work in cleaning the river and controlling pollution. Subsequently, the Namami Ganga project was announced by the government in the July 2014 budget. An estimated Rs 2,958 Crores have been spent till July 2016 in various efforts in cleaning up of the river.

Rapidly increasing population, rising standards of living and exponential growth of industrialization and urbanization have exposed water resources, in general, and rivers, in particular, to various forms of degradation. The mighty Ganga is no exception. The deterioration in the water quality impacts the people immediately. Ganga, in some stretches, particularly during lean seasons has become unfit even for bathing. The threat of global climate change, the effect of glacial melt on Ganga flow and

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the impacts of infrastructural projects in the upper reaches of the river, raise issues that need a comprehensive response.

In the Ganga basin approximately 12,000 million liters per day (mld) sewage is generated, for which presently there is a treatment capacity of only around 4,000 mld. Approximately 3000 mld of sewage is discharged into the main stem of the river Ganga from the Class I & II towns located along the banks, against which treatment capacity of about 1000 mld has been created till date. The contribution of industrial pollution, volume-wise, is about 20 per cent but due to its toxic and non- biodegradable nature, this has much greater significance. The industrial pockets in the catchments of Ramganga and Kali rivers and in Kanpur city are significant sources of industrial pollution. The major contributors are tanneries in Kanpur, distilleries, paper mills and sugar mills in the Kosi, Ramganga and Kali river catchments.

LITERATURE REVIEW

Just as it enters the plains at Haridwar. From there it flows as a trickle for a few hundred kilometers until Allahabad, from where it is recharged by its tributaries, it is filled with all pollutants from various sources. The Ganga receives over 60 per cent of its discharge from its tributaries. The contribution of most of the tributaries to the pollution load is small, except from the Gomti, The Ganga rises on the southern slopes of the Himalayan ranges (Figure I.2.1) from the Gangotri glacier at 4,000 m above mean sea level. It flows swiftly for 250 km in the mountains, descending steeply to an elevation of 288 m above mean sea level. In the Himalayan region the Bhagirathi is joined by the tributaries Alaknanda and Mandakini to form the Ganga. After entering the plains at Haridwar, it winds its way to the Bay of Bengal,covering 2,500 km through the provinces of Uttar Pradesh, Bihar and West Bengal (FigureI.2). In the plains it is joined by Ramganga, Yamuna, Sai, Gomti, Ghaghara, Sone, Gandak, Kosi and Damodar along with many other smaller rivers. The purity of the water depends on the velocity and the dilution capacity of the river. A large part of the flow of the Ganga is abstracted for irrigation Damador and Yamuna rivers, for which separate action programmes have already started under Phase II of "The National Rivers Conservation Plan". The Ganga river carries the highest silt load of any river in the world and the deposition of this material in the delta region results in the largest river delta in the world (400 km from north to south and 320 km from east to west). The rich mangrove forests of the Gangetic delta contain very rare and valuable species of plants and animals and are unparalleled among many forest ecosystems.

EXPLOITATION OF GANGA RIVER

In the recent past, due to rapid progress in communications and commerce, there has been a swift increase in the urban areas along the river Ganga, as a result the river is no longer only a source of water but is also a channel, receiving and transporting urban wastes away from the towns. Today, one third of the country's urban population lives in the towns of the Ganga basin. Out of the 2,300 towns in the country, 692 are located in this basin, and of these, 100 are located along the river bank itself. The belief the Ganga river is "holy" has not, however, prevented over-use, abuse and pollution of the river. All the towns along its length contribute to the pollution load. It has been assessed that more than 80 per cent of the total pollution load (in terms of organic pollution expressed as biochemical oxygen demand (BOD)) arises from domestic sources, i.e. from the settlements along the river course. Due to over-abstraction of water for irrigation in the upper regions of the river, the dry weather flow has been reduced to a trickle. Rampant deforestation in the last few decades, resulting in top soil erosion in the catchment area, has increased silt deposits which, in turn, raise the river bed and lead to devastating floods in the rainy season and stagnant flow in the dry season. Along the main river course there are 25 towns with a population of more than100,000 and about another 23 towns with populations above 50,000. In addition, there are 50 smaller towns with populations above 20,000. There are also about 100 identified major industries located directly on the river, of which 68 are considered as grossly polluting.

A pile of discarded clay idols on the river bank. Fifty-five of these industrial units have complied with the regulations and installed effluent treatment plants (ETPs) and legal proceedings are in progress for the remaining units. The natural assimilative capacity of the river is severely stressed. Source: Presentation to NAC members by NRCD in 2006The principal sources of pollution of the Ganga river can be characterized as follows:

- Industrial sewage is going into the river.
- Solid garbage thrown directly into the river.
- Non-point sources of pollution from agricultural run-off containing residues of harmful pesticides and fertilizers.
- Animal carcasses and half-burned and unburned human corpses thrown into the river.
- Defecation on the banks by the low-income people.

- Mass bathing and ritualistic practices. A dhobi ghat in operation.

Objective of Research

- Control of non-point pollution from agricultural runoff, human defecation, cattle wallowing and throwing of unburnt and half burnt bodies into the river.
- Research and Development to conserve the biotic, diversity of the river to augment its productivity.
- New technology of sewage treatment like Up-flow Anaerobic Sludge Blanket (UASB) and sewage treatment through afforestation has been successfully developed.
- Rehabilitation of soft-shelled turtles for pollution abatement of river have been demonstrated and found useful.
- Resource recovery options like production of methane for energy generation and use of aquaculture for revenue generation have been demonstrated.
- To act as trend setter for taking up similar action plans in other grossly polluted stretches in other rivers.

DATA ANALYSIS AND INTERPRETATION

GAP (Ganga Action Plan)

Inertia in taking action to reduce the level of pollution stemmed largely from a wide spread belief that the Ganga, as a holy river, had the ability to purify all that came into contact with it. Although there is some scientific evidence for the Ganga river's high capacity to assimilate (i.e. biodegrade) a large level of organic waste input, including pathogens, but no river can sustain its self-purifying power with this kind of over-use,misuse and abuse of its waters. The Ganga Action Plan (GAP) originated from the personal intervention and interest of our late Prime Minister Mrs. Indira Gandhi who had directed the Central Board for the Prevention and Control of Water Pollution, now Central Pollution Control Board (CPCB)to do a comprehensive survey of the situation in 1979. CPCB published two comprehensive reports which formed the base for GAP in Oct 1984 but was not presented to the nation formally due to assassination of Smt Indira Gandhi. In Feb 1985, the Central Ganga Authority (CGA) with the PM as Chairman was formed, with an initial budget of Rs 350 crore to administer the cleaning of the Ganga and to restore it to pristine condition by our late PM Sh Rajiv Gandhi. In June 1985, the Ganga Project Directorate (GPD) was established as a wing of the Department of Environment. GAP was launched on June 14, 1986 by Shri Rajiv Gandhi at Varanasi.

Scientific awareness

There are 14 major river basins in India with natural waters that are being used for human and developmental activities. These activities contribute significantly to thepollution loads of these river basins. Of these river basins the Ganga sustains the largestpopulation. The Central Pollution Control Board (CPCB), which is India's national bodyfor monitoring environmental pollution, undertook a comprehensive scientific survey in1981-82 in order to classify river waters according to their designated best uses. Thisreport was the first systematic document that formed the basis of the Ganga Action Plan(GAP). It detailed land-use patterns, domestic and industrial pollution loads, fertilizer andpesticide use, hydrological aspects and river classifications. This inventory of pollutionwas used by the Department of Environment in 1984 when formulating a policydocument. Realizing the need for urgent intervention the Central Ganga Authority (CGA)was set up in 1985 under the chairmanship of the Prime Minister. The Ganga Project Directorate (GPD) was established in June 1985 as a national bodyoperating within the National Ministry of Environment and Forest. The GPD wasintended to serve as the secretariat to the CGA and also as the Apex Nodal Agency for implementation. It was set up to co-ordinate the different ministries involved and toadminister funds for this 100 per cent centrally-sponsored plan. The programme wasperceived as a once-off investment providing demonstrable effects on river water quality.

The execution of the works and the subsequent operation and management (O&M) were the responsibility of the state governments, under the supervision of the GPD. The GPD was to remain in place until the GAP was completed. The plan was formally launched on14 June 1986. The main thrust was to intercept and divert the wastes from urbansettlements away from the river. Treatment and economical use of waste, as a means of assisting resource recovery, were made an integral part of the plan. It was realized that comprehensive coordinated research would have to be conducted on the following aspects of Ganga:

- The sources and nature of the pollution.
- A more rational plan for the use of the resources of the Ganga for agriculture, animalhusbandry, fisheries, forests, etc.
- The demographic, cultural and human settlements on the banks of the river.

- The possible revival of the inland water transport facilities of the Ganga, together with the tributaries and distributaries. The GAP was only the first step in river water quality management. Its mandate waslimited to quick and effective, but sustainable, interventions to contain the damage. The studies carried out by the CPCB in 1981-82 revealed that pollution of the Ganga was increasing but had not assumed serious proportions, except at certain main towns on the river such as industrial Kanpur and Calcutta on the Hoogly, together with a few other towns. This strategy was adopted forurgent implementation during the first phase of the planunder which only 25 town sidentified on the main river were to be included. The studies hadrevealed that:
- 75 per cent of the pollution load was from untreated municipal sewage.
- 88 per cent of the municipal sewage was from the 25 Class I towns on the main river.
- Only a few of these cities had sewage treatment facilities (these were very inadequateand were often not functional).
- All the industries accounted for only 25 per cent of the total pollution (in some areas,such as Calcutta and Kanpur, the industrial waste was very toxic and hard to treat).

Objective of GAP

The objectives of the GAP were broad: to abate pollution and improve water quality, to conserve biodiversity and develop an integrated river basin management approach, to conduct comprehensive research to further these objectives, and to gain experience for implementing similar river clean-up programs in other polluted rivers in India. A plan of action was developed in order to achieve these objectives, those actions that addressed the major, direct causes of pollution in the Ganga were identified as "core sector"schemes, and those that address indirect sources or sources deemed to be direct but of a lower impact were called "non-core sector". Core sector schemes included theinterception and diversion of domestic wastewater including the construction andrehabilitation of sewers and pump houses, while non-core sector schemes consisted of the installation of crematoria, river front development and aesthetic improvement, implementation of low cost sanitation systems, and miscellaneous activities such as water quality monitoring, research programmes, and identification and management of waste from grossly polluting industries. At the time of launching, the main objective of GAP was to improve the water quality of Ganga to acceptable standards by preventing the pollution load reaching the river. However, as decided in a meeting of the Monitoring Committee in June 1987 under the Chairmanship of Prof MG K Menon, then Member, Planning Commission, the objective of GAP was recast as restoring the river water quality to the 'Bathing Class' standard which is as follows:

PARAMETERS	PERMISSIBLE LIMIT
BOD	3mg/lmax.
DO	5mg/lmin.
TOTAL COLIFORM	MPN10000/100ML
FAECAL COLIFORM	MPN 2500/100ML

CLASS	DESIGNATED BEST USE (DBU)	CRITERIA
A	Drinking water source without conventional treatment but after disinfection	pH-6.5-8.5 Dissolved oxygen-6mg/l or more Biochemical oxygen demand-2mg/l or less Total coliform-50MPN/100ml
B	Outdoor bathing(organized)	pH-6.5-8.5 dissolved oxygen-5mg/l or less biochemical oxygen demand 3mg/l or less total coliform-500MPN/100ml
C	Drinking water source with conventional treatment followed by disinfection	pH-6.5-8.5 dissolved oxygen-4mg/l or more biochemical oxygen demand-3mg/l or less total coliform-5000MPN/ml
D	Propagation of wildlife and fisheries	pH-6.5-8.5 dissolved oxygen-4mg/l or more free ammonia -12mg/l
E	Irrigation, industrial cooling and controlled waste disposal	pH-6-8.5 mhos/cmμ electrical conductivity-2250 sodium absorption ratio-26 boron-2mg/L MPN most

The multi-pronged objectives were to improve the water quality, as an immediate short-termmeasure, by controlling municipal and industrial wastes. The long-term objectives were to improve the environmental conditions along the river by suitably reducing all the polluting influences at source. These included not only the creation of waste treatment facilities but also invoking remedial legislation to control such non-point sources as agricultural run-off containing residues of fertilizers and pesticides, which are harmful for the aquatic flora and fauna. Prior to the creation of the GAP, the responsibilities for pollution of the river were not clearly demarcated between the various government agencies. The pollutants reaching the Ganga from most point sources did not

mix well inthe river, due to the sluggish water currents, and as a result such pollution often lingeredalong the embankments where people bathed and took water for domestic use.

Major Findings

The GAP had a multi-pronged strategy to improve the river water quality. It was fully financed by the central Government, with the assets created by the central Government to be used and maintained by the state governments. The main thrust of the plan wastar geted to control all municipal and industrial wastes. All possible point and non-pointsources of pollution were identified. The control of point sources of urban municipal wastes for the 25 Class I towns on the main river was initiated from the 100 percentcentrally-invested project funds. The control of urban non-point sources was also tackled by direct interventions from project funds. The control of non-point source agricultural run-off was undertaken in a phased manner by the Ministry of Agriculture, principally by reducing use of fertilizer and pesticides. The control of point sources of industrial wastes was done by applying the polluter-pays-principle.Source: Presentation to NAC members by NRCD in 2006 A total of 261 sub-projects were sought for implementation in 25 Class I (population above 100,000) river front towns. This would eventually involve a financial outlay of Rs4,680 million (Indian Rupees), equivalent to about US$ 156 million. More than 95 per cent of the program has been completed and the remaining sub-projects are invarious stages of completion. The resultant improvement in the river water quality, although noticeable, is hotly debated in the media by certain non-governmentalorganizations (NGOs). The success of the program can be gauged by the fact that Phase II of the plan, covering some of the tributaries, has already been launched by the Government. Kanpur -a case study Ganga and GAP in Kanpur: Because of Kanpur's high level of pollution, Kanpur was identified as a key player in theGAP activities. Approximately Rs.730 million were invested under GAP Phase I in Kanpur. The total sewage generated in Kanpur at the time of launching of the GAP was around 285 MLD (Million Litres per Day) out of which 162 MLD of sewage was tapped under GAP Phase-I and diverted to sewage treatment plants. The objective of these plants was to treat this 162 MLD of domestic sewage and 9 MLD of tannery effluent generated from 175 tanneries and supply the treated wastewater to nearby villages to irrigate their farmlands. Four Intermediate pumping stations were built along the Ganga, and all wastewater drains, or nallas, were intercepted and diverted to the pumpingstations. The pumping stations were to release the wastewater into a common wastepipe leading to the main pumping station, which filters out solid waste and then pumps the remaining wastewater into three sewage treatment plants. Two of these plants (5MLD STP & 130 MLD STP) treat domestic wastewater, using sedimentation after aerobic treatment and anaerobic stabilization, and together have a capacity for 135MLD. Another treatment plant, with a capacity of 36 MLD incorporated Dutch technology known as Upflow Anaerobic Sludge Blanket (UASB). It makes use of anaerobic bacteria decompose the waste material, and requires some amount of post-treatment. This plant is meant for treating the tannery effluent, with the idea that the chromium and other heavy metals from this effluent should be recovered and recycled at the factory. Various other projects were undertaken as well, including cleaning the sewers, expansion of the sewer system, installation of electric crematoria, and the installation of low costsanitation systems.

Technology

One of the achievements of GAP is in terms of the development of appropriate technologies of sewage treatment as Upflow Anaerobic Sludge Blanket (UASB), improved oxidation ponds, sewage treatment through plantation, aquaculture using duckweeds and pisciculture etc. These technologies are cost effective in terms of operation &maintenance (O&M) and as such will reduce the burden on the State Governments onthis account. These developments will facilitate to make GAP and future programs sustainable. The per mild costs for capital and O&M and land requirement for different technologies used under GAP are given below: Statement showing per mild land requirement, capital costs and o & m expenditureunder different treatment technologies friendly and relevant for health.

Domestic waste

The major problem of pollution from domestic municipal sewage (1.34 × 10m3d-arising from the 25 selected towns was handled directly by financing the creation of facilities for interception, diversion and treatment of the wastewater, and also bypreventing the other city wastes from entering the river. Out of the 1.34 × 106m3d-1of sewage assessed to be generated, 0.873 × 106m3d-1was intercepted by laying 370 km of trunk sewers with 129 pumping stations as part of 88 sub-projects. The

laying of sewers and the renovation of old sewerage was restricted only to that required to trap the existing surface drains flowing into the river. Facilities for solid waste collection using mechanized equipment and sanitary landfill, low-cost toilet complexes (2,760complexes), partly-subsidized individual pour flush toilets (48,000), 28 electric crematoriums for human corpses, and 35 schemes of river front development for safer ritualistic bathing, were also included. A total of 261 such projects were carried out in the25 towns. The programmed also included 35 modern sewage treatment plants. The activities of the various sub-projects can be summarized as follows:

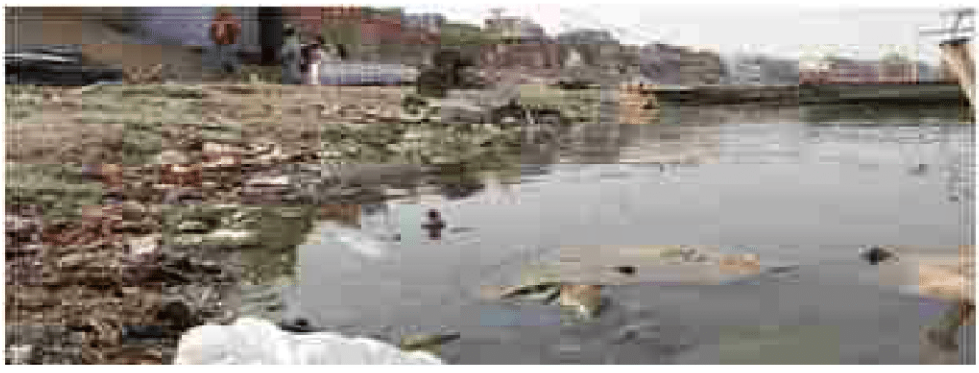
Industrial waste

For monitoring and control of pollution from industry, 68 grossly polluting industries located on the banks of Ganga and responsible for about 80% of the total industrial pollution were identified in 1985. These industries have been monitored rigorously. Atthe time of launching GAP, only 14 units were equipped with proper effluent treatment plants (ETPs). In June 1995, 55 units of these had set up the ETPs and 12 units had been closed down permanently with the remaining one unit having changed the technology and thereby not needing an ETP. Currently, ETPs in 45 units are operating satisfactorily and 23 units have been closed down. According to fresh surveys for grossly polluting industries, in addition to the 68 units already identified, another 119 units have been listed for monitoring purposes. Of these, 37 units are complying with the discharge standards, 9 units have been closed down and action has been initiated against the remaining 73 units under the Environmental Laws. The enforcement of the water (Prevention and Control of Pollution) Act and the Environment Protection Act against the defaulting industrial units is being done by the CPCB and the SPCBs. The NRCD plays a supervisory role over the SPCB with regard to the control of industrial pollution in theriver included under the NRCP.

LIMITATION

However, certain major limitations have surfaced which are as given below:

1. States particularly Bihar and UP are unable to provide timely and adequate funds for O&M of assets created under GAP.
2. In Bihar, O&M has been grossly inadequate. The State Government has neither been able to provide funds nor the required power on a continuous basis for O&M of assets like STPs, pumping stations, crematoria etc. Thus, the operation of nearly all the assets has practically come to a halt.
3. O&M of conveying sewers and intermediate pumping stations has been grossly neglected in UP. As a result, despite the facilities being available, raw sewage is still finding its way into the river at several places.
4. Erratic and poor availability of power for operating the pumping stations, STPs and crematoria is a major bottleneck in UP. Although, for such installations dedicated power supply had been provided for, this has not been adhered to by UPSEB. As a result, in the event of power failures, raw sewage finds its way into the river and the treatment plants are adversely affected.
5. O&M of facilities like toilets and bathing ghats has been neglected in general by the local bodies. Local bodies have also failed in discharging other civic functions in GAP towns.
6. The stretch of the river from Farrukhabad to Varanasi in general and Kanpur in particular is very critical in terms of the availability of the minimum flow in the river. At Kanpur, the pollution load from both the municipal as well as industrial sources is significantly large and the dilution capacity of the river is severely limited. As a result, the desired improvement in the river water quality has not been achieved at Kanpur.



7. It has been possible to minimize the organic pollution (which is indicated by BOD) reaching the river through the GAP. However, there has been only

RECOMMENDATION

Apart from the visible improvement in the water quality, the awareness generated by the project is an indicator of its success. It has resulted in the expansion of the programme over the entire Ganga basin to cover the other polluted tributaries. The GAP has further evolved to cover all the polluted stretches of the major national rivers, and including a few lakes. Considering the huge costs involved the central and state governments have agreed in principle to each share half of the costs of the projects under the "National Rivers Action Plan". The state governments are also required to organize funds for sustainable O&M in perpetuity. Initially, the plan was fully sponsored by the central Government.

Conclusions and lessons learnt

The GAP is a successful example of timely action due to environmental awareness at the governmental level. Even more than this, it exhibits the achievement potential which is attainable by "political will". It is a model which is constantly being upgraded and improved in other river pollution prevention projects. Nevertheless, some very important lessons have been learned which are being incorporated into further projects. These include lessons learned about poor resource recovery due to poor resource generation ,because of the lower organic content of Indian sewage. This may be due to less nutritious dietary habits, higher water consumption, fewer sewer connections, higher grit loads, insufficient flows and stagnation leading to bio-degradation of the volatile fractions in the pipes themselves. The assumed BOD design load of the plants were, in some cases, considered much higher than the actual BOD loading. This was due to a lack of practical experience within India and the fact that western experiences were not entirely appropriate .There were also many lessons learned associated with the project objectives, which overlapped in many areas with urban infrastructure development, especially when the GAP was mistakenly assumed to be a city improvement plan and are as summarized below:

- Systems designs have been optimized on the basis of actual surveys and investigations of wastewater generated from towns.
- Decentralized approach has been adopted for interception, diversion and treatment schemes to optimize the costs.
- Steps have been taken to ensure that land acquisition activities are completed in time.
- Adoptions of cost effective and appropriate technologies like UASB, Stabilisation ponds and Karnal technology wherever feasible to improve the sustainability of the program.

A VISION FOR GANGA

When we attempt to reconcile the significance of the sacred river in the past to its present reality, a most tragic paradox is encountered. Ganga today is being worshipped and defiled simultaneously. In fact, at most times, the process of worship itself has a polluting influence since bulk of the worship materials are disposed off in the river in ugly non-biodegradable polythene bags and in other unthinking ways. Even the mass bathing pollutes the river in a big way. The coexistence of worship and defilement of the Ganga defies logic and reason and leaves most observers confused. Polluting socio-religious practices apart, Ganga since perhaps about a century, has been subjected to a multiplicity of serious threats, multiplying in their impact and intensity every second. Unplanned urbanization and industrialization together with the population boom have extracted a very heavy price from the river. The painful reality still remains that environmental concerns in India continue to be the burden of a few green crusaders with the vast majority just plainly looking on. A serious erosion of faith has entered the psyche of the masses, gripping all with the thought that"nothing can be done". The rapid rise in the pollution of the river has been accompanied by (and also because of) mass apathy. Pollution and public concern of Ganga seem to exist in inverse ratios. If ever any crisis meant an opportunity to make a difference, it could not be truer than is the case for Ganga. The distressed river beckons all to come to its rescue. Admittedly, the task is Himalayan in nature and requires sustained convergence of comprehensive attempts by government, industries and civil society alike. It took hundreds of years of penance by Sage Bhagirath to bring the celestial river to earth and it would not be an exaggeration to say that today Ganga requires many Bhagirath's to survive and reclaim its sacred nature. Before any action can be initiated, all concerned should start thinking in terms of a new vision for Ganga. How do we want Ganga to be and what can be done to achieve that vision is the question posed to all of us? A new vision for a pristine and pure Ganga has to pour forth and translated on the ground. A new vision,

which needs churning of the spirit and mind. A new vision that can inspire the masses to action. A new vision that needs to reconcile the competing demands on the precious waters of the river with sustainability. It needs to think of the river as one organic entity where tinkering in one part affects the entire body of the river. A new vision which believes that if we as humans wish to survive, Ganga needs to survive. The eternal Ganga today, needs new heroes and new voices. A whole new approach is required to restore the river. The Ganga devotees who consider the river as a cleanser par excellence and treat Ganga as a deity who gives salvation need to be taught that Ganga has lost its divine role, Ganga has lost its cleansing properties and Ganga herself needs salvation. It's written in the scriptures that mere a glance or just chanting of Ganga gives salvation. So why can't we be satisfied with just chanting or glance? Do we need some super salvation that we need to wash our sins along with our bodily filth in the river? The Hindu religious leaders must play their role in educating the masses. Ironically governments have spent more money on Magh Melas, Ardha Kumbhs and Kumbhs than in cleaning the river. Millions of people congregate on the river banks, staythere for weeks and shit in the river bed. The entire shit ultimately goes to the river. Is it justified? These government sponsored and organized pollution events need rethinking. Why can't we be honest and warn people that Ganga waters are not worth bathing and drinking? Instead of admitting the facts and telling the truth, our top-level politicians go to such events, express their solidarity and deepen the superstition of the people by taking a dip in the river.

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