

Educational Strategies For The Ganga Conservation

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Abstract

Ganga, the national river of India, is now sadly depleted in flow and utterly polluted due to construction of dams and barrages, discharge of untreated municipal and industrial wastes, floral offerings, and cremation of dead bodies on its bank. Kanpur to Trighat is identified as the most polluted section of the river. One basic problem which needs to be addressed is basic civic sense amongst the local population and pilgrims to maintain Ganga clean by avoiding use of Soap for bathing and washing Clothes and dumping of Nirmalaya waste flowers after Puja. Local population also needs proper supply of water/electricity so that they do not go to the river/Ghats and pollute those performing daily chores. The pollution in Ganga is caused by numerous sources and impacts various components on the environment and biosphere in multiple manners. This article includes various aspects involved in, and influenced by the pollution in the river. We can contribute in its clean campaign. Conserving environment will be much easier if learners of all age group at all levels are taught about environmental problems and issues especially reference in Ganga pollution. 'EE must help create an awareness of the economic, political and ecological interdependence of the modern world so as to enhance a spirit or responsibility and solidarity among nations. This is a prerequisite for solving serious environmental problems.' (Final report, Tbilisi conference, 1977, page 12). There are several measures for the Ganga & environmental protection in which environment education is a solid measure to change and to modify individual's thoughts, views and attitudes with respect to putting the Ganga & environmental resources to use even while conserving them. The need to spread environmental education is enormous in the context of successfully addressing the Ganga pollution & environmental problems.

Keywords- Environment Education, Ganga, Pollution.

Introduction

The existence of life and creatures on earth depends on a healthy environment. There are various reasons which disturb the equilibrium of the environment. If we all shall not conscious at the time, life on earth will not take much time to finish. Global summits are being held regularly to discuss environmental issues. It all shows the increasing need and importance for resolving to the environmental issues.

Here are some significant environmental issues-**Over Population:** The population on earth is reaching unsustainable levels as it faces shortage of basic resources like water, food and fuel. **Deforestation:** Deforestation simple means clearing of green or forest cover and make that land available for residential, industrial or commercial purpose. **Urban Sprawl:** Urban sprawl results in land degradation, increased traffic, environmental and health issues. Natural environment consisting of flora and fauna is indiscriminately destructed and lost completely instead of being replaced. **Genetic Engineering:** Genetic modification of food using biotechnology is called genetic engineering. Genetically modified crops can cause serious environmental program as an engineered gene may prove toxic to wildlife. **Pollution:** Pollution is one of the biggest killers, affecting more than 100 million worldwide. Pollutants may be gases, liquids, solids or high pitched sounds. **Global Warming:** Global warming is another environmental issue which is increase temperature due to effect of greenhouse gases called carbon dioxide, methane, water vapor and other gases.

Global warming can have long lasting effects which can result in melting of glaciers, climate changes, droughts diseases and increases in hurricanes frequency. **Acid Rain:** Acid rain may cause due to fossil fuels, erupting volcanoes, rotting vegetation and sea sprays which release and produce sulfur dioxide and nitrogen oxides into the atmosphere. Acid rain can have devastating effects on aquatic life, forests, public health and architecture and buildings. **Ozone Layer Depletion:** The ozone layer is an invisible layer of protection around the planet that is capable of absorbing 97-99% of the harmful ultra violet radiations that are emitted by Sun. Depletion of the crucial ozone layer of the atmosphere is attributed to pollution caused by Chlorine and Bromide found in chloro-floro carbons (CFC's). **Climate Change:** It is rapidly occurring due to the ill effects of human actions responsible for disturbing and harmful out comings such as global warming, greenhouse effect, urban head, coal industry etc. climate change has various harmful effects but not limited to melting of polar ice, change in seasons, occurrence of new diseases, frequent occurrence of floods and change in overall weather scenario.

Pollution in the river Ganga or Ganges has been increasing rapidly over the years and has resulted in the river, considered holy, to be one of the most polluted rivers in the world. The pollution in Ganga is caused by numerous sources and impacts various components on the environment and biosphere in multiple manners. This article includes various aspects involved in, and influenced by the pollution in the river.

The Ganga

Basic Information about the Ganges River of India

Total Length of River Ganges	2,510 Kms (1,560 miles)
Average depth of Ganga River	52 Feet (maximum depth, 100 feet)
Place of Origin of Ganga River	Foot of Gangotri Glacier, at Gaumukh, at an elevation of 3,892 m
Area drained by Ganges River (Ganges Plains)	1,000,000 Square Kilometers
Major Tributaries of Ganges	Yamuna, Son, Kosi, Gandak, Gomati, Ghaghara, Bhagirathi etc...
Cities on the bank of Ganges	Kanpur, Soron, Allahabad, Varanasi, Patna, Ghazipur, Bhagalpur, Mirzapur, Buxar, Saidpur etc...

"Mother Ganga" or the Ganges basin is viewed as a deity so pure that it cannot be tainted. It has important cultural significance since it is considered sacred in the Hindu tradition. It runs through India and Bangladesh with tributaries that spread outward into other parts of Asia. It provides water to about 40% of India's population across 11 states, serving an estimated population of 500 million people or more, which is larger than any other river in the world. Since ancient times, many people (now living in densely populated areas)

have relied on this river for their daily needs. As a result, the Ganges basin is being polluted through human sewage, agriculture and industrial misuse.

The Ganga Pollution: Causes

The main causes of water pollution in Ganga river are the increase in the population density, various human activities, {like bathing, washing clothes, bathing of animals} various industrial waste

- **Human waste**

A large proportion of the sewage water with higher organic load in the Ganges is from this population through domestic water usage. Approximately 3 billion (3 Arab) liters of raw, untreated sewage are dumped in the river on a daily basis.

- **Industrial waste**

Because of the establishment of a large number of industrial cities on the bank of river Ganga like Kanpur, Allahabad, Varanasi and Patna, countless tanneries, chemical plants, textile mills, distilleries, slaughterhouses, and hospitals prosper and grow along this and contribute to the pollution of the Ganga by dumping untreated waste into it. Industrial effluents are about 12% of the total volume of effluent reaching the Ganga. Although a relatively low proportion, they are a cause for major concern because they are often toxic and non-biodegradable. The leather industries in Kanpur use vast amounts of chromium and other toxins and chemicals. Chromium pollutes the Ganges turning it toxic and poisonous.

- **Religious events**

During festival seasons, over 70 million people bathe in the Ganga over a few weeks to clean themselves from their past sins. Some materials like food, waste or leaves are left in the Ganga for ritualistic reasons. Thousands of bodies are cremated on the banks of the river yearly with many being released into the river with hopes that their souls may have a direct path to heaven. Hundreds Unwanted or 'illegitimate' babies, cattle and other animal carcasses are also dumped in the Ganges again with religious significance.



The Ganga Pollution: Hazards

- ❖ Some of the dams being constructed along the Ganga basin will submerge substantial areas of nearby forest. Wildlife biologists in India have been warning that the wild animals will find it difficult to cope with the changed situation.
- ❖ An analysis of the Ganga water in 2006 showed significant associations between water-borne/enteric disease pop and the use of the river for bathing, laundry, washing, eating, cleaning utensils, and brushing teeth. Water in the Ganga has been correlated to contracting dysentery, cholera, hepatitis, as well as severe diarrhea which continue to be one of the leading causes of death of children in India.
- ❖ Oxygen is a basic requirement of almost all aquatic life. Aquatic life is adversely affected if sufficient oxygen is not available in the water. Typical sources of organic pollution are sewage from domestic and animal sources, industrial wastes from food processing, paper mills, tanneries, distilleries, sugar and other agro based industries.
- ❖ An estimated 80% of all health problems and one-third of deaths in India are attributable to water-borne diseases. The pollutants include oils, greases, plastics, plasticizers, metallic wastes, suspended solids, phenols, toxins, acids, salts, dyes, cyanides, pesticides etc. Many of these pollutants are not easily susceptible to degradation and thus cause serious pollution problems.
- ❖ Discharge of untreated sewage and industrial effluents leads to number of conspicuous effects on the river environment. The impact involves gross changes in water quality viz reduction in dissolved oxygen and reduction in light penetration that tends to loss in self-purification capability of river water.
- ❖ A study conducted by the National Cancer Registry Program (NCRP) under the Indian Council of Medical Research in 2012, suggested that "those living along its banks in Uttar Pradesh, Bihar and Bengal are more prone to cancer than anywhere else in the country."

Cleaning efforts

- ❖ *Ganga Mahasabha* is an Indian organization dedicated to the Ganga River, founded by Madan Mohan Malviya in 1905. After a long struggle, British India agreed on 5 November 1914 that the uninterrupted flow of holy river Ganga is the rudimentary right of Hindu believers. The agreement came into existence on 19 December 1916 which is known as Agreement of 1916.
- ❖ The Ganga action plan was, launched by Shri Rajeev Gandhi, the then Prime Minister of India on 14 Jan. 1986 with the main objective of pollution abatement, to improve the water quality by Interception, Diversion and treatment of domestic sewage and present toxic and industrial chemical wastes from identified grossly polluting units entering in to the river.
- ❖ National River Ganga Basin Authority (NRGBA) was established by the Central Government of India, on 20 February 2009 under Section 3 of the Environment Protection Act, 1986. It declared the Ganga as the "National River" of India.
- ❖ The Supreme Court has been working on the closure and relocation of many of the industrial plants like *Tulsi* along the Ganga.
- ❖ The Indian government has launched an integrated Ganga conservation mission called "*Namami Gange*" ("We bow to you, Ganga" in Sanskrit) consolidating existing ongoing efforts and planning on Ganga rejuvenation. The government has set-up a special "Clean Ganga Fund" to finance various activities.

- ❖ *Ganga Manthan* was a national conference aimed to take feedback from stakeholders and prepare a road map for rejuvenating the Ganga, organized by the National Mission for Clean Ganga on 7 July 2014 at *Vigyan Bhawan* in New Delhi.
- ❖ One of the efforts in the Ganga Action Plan of 1985 was to build gas or electric crematoriums, especially in religious centers like Varanasi and Allahabad.
- ❖ These industries have been repeatedly told to set up common effluent treatment plants (CETPs), install new technologies, and ensure zero liquid discharge into the river.
- ❖ Creating sewage treatment plants (STPs) was at the core of the Ganga Action Plan that began in 1985.
- ❖ Machines called trash skimmers have been ordered from abroad to clean the river surface near all major towns. One of these skimmers is already operating in Varanasi.

SOURCES: 'Ganga River Basin Management Plan, 2015', prepared by the consortium of 7 IITs; National Mission for Clean Ganga; 'Ganga Rejuvenation, Challenges and Required Interventions', GoI. Graphic: Mithun Chakraborty

Several other components of the Clean Ganga programme are planned to be initiated simultaneously. These include the launch of a public awareness exercise, regeneration of aquatic biology, plantations, and riverfront development. A comprehensive law on the Ganga is also in the offing.

National Mission for Clean Ganga, endeavors to deploy best available knowledge and resources across the world for Ganga rejuvenation. Clean Ganga has been a perennial attraction for many international countries that have expertise in river rejuvenation. Countries such as Australia, United Kingdom, Germany, Finland, Israel etc. have shown interest in collaborating with India for Ganga rejuvenation. Memorandums of Understanding (MoUs) were signed with various Central Ministries viz.- Ministry of Human Resource Development, Ministry of Rural Development, Ministry of Railways, Ministry of Shipping, Ministry of Tourism, Ministry of Ayush, Ministry of Petroleum, Ministry of Youth Affairs and Sports, Ministry of Drinking Water & Sanitation and Ministry of Agriculture for synergizing the Government schemes.

Ideas and strategies for Environmental Education to counter the hazards of Ganga pollution

Conserving environment will be much easier if learners of all age group at all levels are taught about environmental problems and issues especially reference in Ganga pollution. 'EE must help create an awareness of the economic, political and ecological interdependence of the modern world so as to enhance a spirit of responsibility and solidarity among nations. This is a prerequisite for solving serious environmental problems.' (Final report, Tbilisi conference, 1977, page 12).

Some broad strategies are enlisted below for the development of an effective and vibrant environmental education plan to counter the hazards of Ganga pollution –

- Educating and creating awareness will go a long way in making the dream of clean Ganga come true. Education system & administrators should be helpful to organize Ganga festivals, dramas, and school and community activities to bring environmental awareness and reverence of Ganga to people, inspiring thousands to help protect and restore Ganga.
- Organizing and hosting conferences and workshops throughout the year that gathers together leading scientists, environmentalists, activists, government officials and spiritual leaders to find sustainable solutions for the various problems facing Ganga and Her tributaries.

- Mass awareness & education campaigns and media-based water eco-consciousness campaigns that get people to not only stop pollution, but to also become an active part of the solution. Spreading the information pupils learn can help others become more aware and active in preserving and protecting the Ganga River.
- The objective of the education at all levels must have to create mass awareness for an eco-friendly non-violent culture of development for the protection of our life-sustaining natural systems in general and of the sacred Ganga and researches should be done to put moral pressure on the government, to take time-bound decisive steps to completely and permanently save the Ganga symbolizing all rivers and water bodies.
- Environmental ethics should be taught as a part of the syllabus on ethics, both at the school as well as at the college level. Teaching environmental ethics without discussing the value and means of an ethical life would be of little significance. We must study critically the views of great religions and of great teachers and thinkers of mankind about various fundamental issues of ethics.
- The application of environmental education to counter the hazards of Ganga pollution programs and proper use of teaching materials depends on suitable trained teachers. All teachers training programs should be designed with maximizing multiplier effects, each training recipient should be considered a future trainer of other teachers in the methodology and practice of environmental education.
- The methodology to be used re-oriented from chalk to talk, from lecture method to project method, from theory to practice and practical approach (**Sungoh, 2007**). It should be action-oriented, project-centered and participatory process.
- Learning about the environment and the Ganga pollution means learning about what we have done to the environment and Ganga. The danger is that this catalog of harm will contribute to psychology despair -a loss of hope for the future and sense that we as individuals cannot make a difference. To become involved in respecting nature and protecting the Ganga over long term, people need to have a sense of hope and gratification from EE. While the study of nature would be incomplete without discussing the threats to the natural world, an appreciation of nature should not be lacking in environment education programs.
- EE must develop moral reasoning and environmental ethics to everyone. Thinking ethically about the Ganga & environment has the potential to help anyone contribute to creating environmental solutions.
- The aim here should be promotions of researches, experimentations trainings and projects on EE to counter the hazards of the Ganga pollution with a view to developing new context, methods, aids and communications system. These all findings related to EE & Ganga pollution should be informed and exchanged with among nations.
- Environmental Education can become one of the factors in improving mutual understanding and strengthening beliefs among all countries and can contribute to the maintenance of peace and international security. Environmental issues are global issue so it should be tackled by international efforts, commitments and cooperation. In the Indian scenario as and when any issue is tagged or associated with religious it becomes an instant hit. Religious organization would be helpful in propagating the importance of environmental & Ganga conservation.
- In order to ensure cost-effective dissemination of environmental knowledge & Ganga pollution to everyone, educational radio, TV., press other audiovisual programs, articles ,journals, magazines,

computer other study materials or literature, computer, internet and use of exhibitions, museums, parks, plays etc. should be used.

Conclusion- Ganga, the national river of India, is now sadly depleted in flow and utterly polluted due to construction of dams and barrages, discharge of untreated municipal and industrial wastes, floral offerings, and cremation of dead bodies on its bank. Kanpur to Trighat is identified as the most polluted section of the river. One basic problem which needs to be addressed is basic civic sense amongst the local population and pilgrims to maintain Ganga clean by avoiding use of Soap for bathing and washing Clothes and dumping of Nirmalaya waste flowers after Puja. Local population also needs proper supply of water/electricity so that they do not go to the river/Ghats and pollute those performing daily chores. We can contribute in its clean campaign: ALL SADHUS/ BRAHMINS/ PUJARIES should be educated by public address systems during Ganga AARTI. All temples in the vicinity must co-operate and educate visiting YATRIES/ DEVOTEES. Entire area should be liter free. All industrial waste be treated by the Industrial Units, they may be given TAX Relief for the purpose and face severe penalty for non- compliance. To stop the river pollution not only makes any of the means (individual, industrial or institutional) a legally punishable offence and such punishment and the punished offenders should be publicized. Similarly, not the use but the production of Polytheane of the designated microns, responsible for river polluting must be completely banned, same way. There are several measures for the Ganga & environmental protection in which environment education is a solid measure to change and to modify individual's thoughts, views and attitudes with respect to putting the Ganga & environmental resources to use even while conserving them. The need to spread environmental education is enormous in the context of successfully addressing the Ganga pollution & environmental problems. To foster the public's knowledge and to generate new leaders for the Ganga & environment, Environment Education should recognize and begin responding effectively to several major environmental issues.

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