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SOME MANAGEMENT PRACTICES AND METHODS TO AVOID WATER POLLUTION

Dr. Nutan Srivastava,
Assistant Professor of Botany,
R.H.G.P.G. College, Kashipur (U. S. Nagar) Uttatakhand 244713

ABSTRACT

In no small amount, human actions, including industrialization and farming practices, have led enormously to the destruction and contamination of the atmosphere that adversely affects the bodies of water (rivers and oceans) that are important for life. This paper aims to discuss simply what water contamination is and to address the cause, impact regulation and water pollution management as a whole in equal measure. Some guidelines have been listed, such as incorporating environmental education.

Keywords*: Education for the environment; Pollution; Management; Biomass and Power.*

INTRODUCTION

Water is one of the important natural resources for the maintenance of all life types, the processing of food, economic growth and general well-being. For much of its applications, it is hard to replace, difficult to de-pollute, pricey to ship, and it is really a special blessing from nature to humankind. As it is capable of diversion, distribution, transportation, and recycle, water is indeed one of the most manageable natural resources. All these characteristics owe water its great usefulness to human beings. In irrigation, hydropower generation, livestock development, agricultural operations, forestry, fisheries, shipping, leisure activities, etc., the country's surface water and groundwater supplies play a major role. The world's freshwater habitats contain just around 0.5 percent of the surface of the planet and have a volume of 2.84x105 Km3 . An small sum (0.1%) of the ground surface is made up of rivers. Just 0.01% of the Earth's rivers are present in river systems. Despite these tiny numbers, running water is of immense value. India gets over 4000 km of annual precipitation, including snowfall. Of this, monsoon precipitation is of the order of 3000 km. India's rainfall is based on the monsoons of the south-west and north-east, on shallow cyclonic depressions and disruptions and on local storms. Much of it takes place between June and September under the control of the south-west monsoon, except in Tamil Nadu, where in October and November it is under the influence of the north-east monsoon (Kumar et. al., 2005). India is blessed with a river system with numerous tributaries containing more than 20 large rivers. Most of these flows are intermittent while others are perennial. Though India encompasses just 3.29 million km of geographical territory, accounting for 2.4 percent of the world's land area, over 15 percent of the world's population is sponsored by India. The population of India stood at 1,027,015,247

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people as of 1 March 2001. India thus supports nearly 1/6th of the global economy, 1/50th of the world's land and 1/25th of the world's water supply (Water Management Forum, 2003). Due to rapid population development and the increased speed of industrialization, there has been a huge rise in freshwater demand in the last few decades. Most agricultural development activities endanger human health, particularly in the sense of excessive fertiliser use and unsanitary conditions. In several areas of the globe, anthropogenic activities linked to widespread urbanisation, agricultural practises, industrialization, and population growth have contributed to degradation of water quality, inadequate water supplies have progressively limited regulation of water pollution and improvement in water quality Water pollution has become a research priority for government and scientists.

It is not necessary to over emphasis the value of water for the preservation of life. Whether it is the usage of running water in our households, the rearing of livestock and increasing crops in our fields, or the expanded use of industry, remains immeasurable. Thus, it is vital not that loss of this product results in significant implications either by pollution or reckless use.

Water is life cycle sustenance. It must be stored and shielded against all sorts of contaminants. It is needed for the human body and other living creatures, yet in its pure nature some sort of pollution. Yet man disturbs water sources, such as rivers, wells, streams, oceans. The natural water supply is polluted by the addition of agricultural waste, municipal waste, chemicals and associated poles on property.

This act aims to reduce and regulate water contamination and to protect and restore water quality. It grants water boards authority to establish guidelines and legislation for pollution prevention and control. In addition to legislative structures, there are also a range of common law laws in India that relate access to water and land rights. These involve different surface and grid laws.

WATER POLLUTION

Water is known to be tainted whether there are such contaminants or circumstances to such an extent that the water may not be used for a particular reason. Olaniran (1995) described the existence of excessive quantities of danger (pollutants) in water as water contamination in such a way that it is not appropriate for drinking, bathing, cooking or other uses for a long time. The release of contamination into the atmosphere is waste (Webster.com, 2010). Industrial and commercial waste, agricultural practises, regular human activities and, most notably, transportation models are developed. There are remnants of the earth's climate and its people in certain respects, no matter when you travel and what you do. Place emissions, air pollution and water pollution are the three primary forms of pollution. All rely on water contamination and regulation for the purposes of this study.

Generally, water waste is caused by humans. It derives from individual behaviour taken on to a better self. These should be discussed in the different operations in which citizens interact, contributing to

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contamination. The main sources of emissions are human population development, manufacturing and farming activities (Eguabori, 1998). As a product of overcrowding in metropolitan cities, water contamination is getting higher. Agnatic ecosystems are the primary pollutants in agricultural, household and industrial pollution. When discharged into them, waste is the largest pollutant in fresh water. Sewage is society's waterborne pollution and the dumping into a flow of raw sewage is quite huge and unsafe. A significant and immediate reduction in the amount of dissolved oxygen in the water is the striking outcome. This occurs because organic matter stimulates decomposers, especially bacteria, which break down suspended solids in the waste. When they breathe, dissolved oxygen (O2) is utilised by the decomposers and biological oxygen requirement (BOD) is decreased. The rivers' flora and fauna alter and decline in amount due to death by suffocation (Tudge, 1991). Rivers that are heavily infected have an odorous scent and have few to no flora or fauna. The leakage of hot water from cooling engines in the industry is another cause of water waste. This raises the temperature of the water and decreases organisms' metabolic output. Which then increases their need for oxygen. In shallow, confined or sluggish moving lakes, the consequences of emissions are stronger. When flooded by rain into ponds, unnecessary manure, herbicides and pesticides produce a significant danger to health. Extreme entroplation is induced by excess phosphorus in fertiliser. In addition to fertiliser, when washed in water, detergent is still very harmful to sea organisms. Animal carcinogens were identified to be organic contaminants from distaffs. In Nigeria, the dyeing industries (tie and dye) manufacture chemicals such as zinc sulphate and copper salts that, when dumped into rivers, are non-biodegradable; they have disastrous effects on aquatic habitats. Pollution poses a significant risk to life, especially where water is a source of drinking and contaminated waterways are potent agents of diseases such as cholera, typhoid and tuberculosis for domestic purposes. Oil from tankers with damaged oil pipes from the oil industry, which destroys sea weeds, molluscs, aquatic birds, crustaceans, fish and other marine species that serve as food for humans, has become a significant water pollutant. This adds to calcium shortages in our food. When allowed into bodies of water, such insecticides such as DDT are especially harmful because their concentration rises along the food chain. Oysters may accumulate DDT to a concentration, for instance. In sea water, 70,000 times that of DDT. The consequences of water contamination have been irreversibly affected by marine environments in certain regions. This is harmful for human beings, particularly plants and livestock. Because water contamination has a direct influence on human well-being, in the formal education sector, a successful teaching approach is necessary for a deeper understanding in order to build the correct attitude towards water. This is why the approach to direct exploration is a teaching technique that can leave a lifelong impact on the learner and help him overcome the challenges of his immediate world when correctly used and coupled with other types of science teaching (Ogwuasor, 1998).

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WATER CONTAMINATION IMPACT

There is a dual impact of water contamination on nature. It has detrimental impacts on life and on the atmosphere as well. There are numerous and varying impacts of contamination on human beings and marine communities. About 14,000 deaths every day are induced by water pollution, mainly attributed to contamination of drinking water by untreated waste in developed countries. An approximate 700 million Indians do not have access to a decent bathroom, and 1,000 Indian children die every day of diarrhoea, and so many other nations do. Almost 500 million Chinese people do not have access to clean drinking water. For both of these, we should definitely conclude that there would be a decrease in efficiency. When significant quantities of radioactive chemicals are introduced into the waterways, lakes and coastal waters in the ocean, biomes and variety of populations are to be anticipated. Sewage, where organic waste predominates, is a big component of aquatic contamination. Though changing the character of the aquatic environment, this waste will improve secondary efficiency. Among the sensitive species that disappear with the least extreme pollution are most fish, especially the species sought as food by man. Pollution of water results in harm to human health. The soil and ground water was transported by disease-carrying organisms such as microbes and viruses. Drinking water is affected because it results in health risks. Direct disruption to the nutrition of plants and livestock often impacts human health. Nutrients from plants, including nitrogen, phosphorus and other substances that encourage the growth of aquatic plant life, could cause algal gloom and excessive growth of weeds in abundance. This makes it possible for water to sound, taste and occasionally colour. Ultimately, a body of water's ecological equilibrium is changed. Sulphur dioxide and nitrogen oxides produce acid rain that decreases the pH value of the soil and induces ocean acidification through carbon dioxide pollution, the constant reduction in the PH of the Earth's oceans when CO2 is dissolved.

LEGAL FRAME WORK FOR WATER POLLUTION CONTROL

Water purity has always been underlined in India from time immemorial. We have several verses in praise of Lord Varun (God of Water) and Lord Indra in the Rig-Veda and the Yajur Veda. Water was considered as a means of life and grain in Yajur Ved. Water contamination is a tortuous act. It is protected by the damage of nuisance as it induces personal and property injuries, health comfort. In Pakkle v. P. It was proclaimed by the High Court of Madras that altering the natural condition of water by rendering it less suitable for any reason for which it is worthy of being used in its natural state provides grounds for nuisance action. Justice can also be taken against the regulatory body for the contamination of water waste by private persons. Judicial regulation for water contamination was also possible in British India, with the Shore Disturbance (Bombay and Kolaba) Act of 1853 becoming the first act on water pollution in India. It required the collector to send a notice to the party concerned asking it to eliminate any disturbance below the high water mark or to either or remove it by itself. Water rule, in general, is mostly state-based. This is attributable to the constitutional scheme, which in

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theory has granted the states the right to legislate in this field since the Government of India Act, 1935. States thus have exclusive authority to control the provision of water, reservoirs and canals, drains and embankments, water harvesting, hydropower and fisheries.vi In 1974, Parliament enacted an Act on water contamination, The Water Act of 1974 (Amendment, 1988).vii This is the first legislation passed in India to ensure that domestic and agricultural contaminants are not ignored. The rationale is that such a spill makes water undesirable as a means of drinking water, for agricultural purposes and to sustain aquatic life. The Central Pollution Control Board (CPCB) and State Pollution Control Boards were formed under this Act (SPCBs). The CPCB's primary responsibility would be to encourage the cleanliness of streams and wells in various areas of the state. Rain, watercourse, inland water, subterranean waters, and sea or tidal waters are included in the word stream to the degree or point to which a state government can define in that name. The Board can execute certain functions as

a) Set, change or annul the requirements for a stream or well in consultation with the State Government concerned;

b) Preparation and development of a strategic policy for the prevention, regulation and elimination of water pollution;

c) gather, compile and publish scientific and statistical details relating to water quality and policies designed to deter and regulate water pollution efficiently, and plan, and disseminate relevant material, manuals, codes or guides relating to the management and drainage of wastewater and industrial wastewater;

d) Inform the central government on any matter related to water pollution prevention and control;

e) Organize the operations of the SPCBs and provide the SPCBs with professional assistance and guidance; and

f) Carry out and sponsor study and research relevant to water quality issues and to the avoidance, regulation or mitigation of water pollution.

In order to accomplish its goal, National and State level Pollution Control Boards were formed to set and implement guidelines for factories discharging toxins into bodies of water. Whenever a corporation wishes to build a new plant, the State Boards are empowered to give Consent for Establishment (CFE) and even issue Consent for Service (CFO) for established factories. They were often granted the authority to shut factories or, in the event of a disconnection of power and water supplies, to provide orders to the departments involved to implement the requirements of the boards.

As almost 70 per cent of its surface water supplies and a rising percentage of its freshwater reservoirs are polluted by biological, radioactive, organic, and inorganic contaminants, water contamination is a major problem in India. These supplies have, in many instances, been made unhealthy for human use and other operations, such as agriculture and industrial uses. This indicates that degraded water quality will lead to water shortages as it reduces the supply of water both for human consumption and for the environment. In order to identify commercially viable options for the disposal of water and waste water, comprehensive experiments have been conducted. For the elimination of harmful contaminants from water and waste water, a range of strategies have been used, such as coagulation, membrane phase, adsorption, dialysis, foam flotation, osmosis, photo catalytic degradation and biological processes. However, several considerations, such as production efficiency, electricity demand, technical skills, economic advantage and infrastructure, have limited their uses, all of which prohibit their usage in most of the world. Waste water can be treated on its own at the source, but even though it is discharged into the river during treatment, there would be little impact on the contaminants already existing in the flow. In order to remove the toxins in the flow, the river water must also be managed and AFI (Artificial Floating Islands) will support us here. With the aid of Artificial Floating Islands, one can concurrently start managing the water at different locations so that the ecosystem of the Mula Mutha River can be preserved. India's environment is ideal for the usage of AFI, and temperature and weather will speed up the method of transforming complicated matter more easily. According to different reports, AFI will reduce BOD and COD by 80 and 60 percent respectively with proper selection of plants and venue. The root system transforms complicated molecules into a simplified nutrient source; other aquatic species absorb this basic type of nutrient, thereby enhancing the quality of water in an eco-friendly way. AFI will prove to be a fantastic support mechanism that relies on them to save our rivers and our lives.

In 1972, by enacting the Clean Water Act, Congress reacted to widespread outcry about the deplorable state of the nation's waterways. Untreated drainage discharges from towns, factories and industrial facilities have induced extensive degradation of waterways, wetlands and coastal waters. These conditions were refused by Congress and a new pledge was introduced in the Clean Water Act to restore and preserve the environmental, physical and biological health of the waters of the country. The EPA and the state execution of the Act's water management services were a remarkable achievement - probably one of the strongest indicators of the government's power to do good in the post-war period, bringing substantial gains in protecting public health and the climate in this instance.

Over the past 25 years, the fundamental strategy of the Clean Water Act (CWA) has been to improve regulation of "point sources" of water contamination - mostly industries and municipal sewers, along with restrictions on wetland degradation practises. Federal laws and initiatives have been reinforced many times in the past decade. This include improvements to federal agriculture policy to greatly increase farmers' technological and financial support to preserve the atmosphere, recent changes to federal land management policies to improve the conservation of natural ecosystems and watersheds,

and new coastal waters protection authorities. The water that is suitable for fishing and diving has doubled as a consequence of the Clean Water Act. Global regulations for safe water stop the influx of billions of pounds of chemicals from factories into water per year. The number of Americans covered by facilities with water treatment has more than doubled. Oregon's Willamette River was off limits for tourism until 1972. The Potomac River was seriously poisoned and unsafe for swimming and fishing in the capital of the country. Today, these and many others previously heavily contaminated bodies of water are well on the road to rehabilitation and these lakes are gradually being used by citizens for fishing, swimming and other leisure. Under the National Pollutant Discharge Elimination Scheme (NPDES) Policy, the CWA mandates that all wastewater treatment facilities receive discharge permits.

Restoring and Preserving the Rivers of America: The Task Strategy for Safe Water

The Vice President called for a concerted attempt to preserve and maintain the safety of water on October 18, 1997, the 25th anniversary of the passage of the Clean Water Act. The Vice President recommended that, in conjunction with other concerned departments, the Secretary of Agriculture and the Administrator of the EPA create a Clean Water Action Plan that draws on the progress of clean water and identifies three key objectives.

- Enhanced defense against risks to public health caused by water pollution;
- More successful polluted runoff control; and
- Promotion on a watershed basis of water quality safety.

Specifically, the Vice President asked the government departments to achieve a national agreement on the concerns identified in the Action Plan. Many of the elements of this Action Plan allow for additional production of knowledge, evaluation, and discussion. This mechanisms can assure multiple occasions for feedback from the public until major decisions are taken. The Action Plan calls for the release of updates on the general success of the current programme in preserving and maintaining the watersheds of the country, in addition to offering mechanisms for consultation on individual action items. On February 14, 1998, the EPA responded to the Vice President's request for intervention. The Office of Wastewater Management (OWM) has reiterated its dedication to enhancing water safety in the United States for the good of all people, in accordance with the priorities of the current Sustainable Water Action Plan.

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MORE SUCCESSFUL MANAGEMENT OF POLLUTED RUNOFF - A MODERN FOCUS

The enforceable mechanism for implementing water pollution control requirements is the discharge permit required under the Clean Water Act. Most discharge licences have been provided by state departments with EPA control during the past decade. Discharge licences are an established method for water contamination control and have been primarily responsible over the last 30 years for the significant changes in water quality.

- Established licenses must, however, be checked and amended in a timely fashion and main forms of illegal discharges (e.g. such livestock feeding activities, discharges of flood water from small towns and cities) must be included in the permit scheme.

- The National Pollutant Discharge Elimination Scheme (NPDES) Permit Program is now focused on the treatment of flood water, including mixed sewer and sanitary sewer overflow regulation. The Storm Water Initiative encourages the use of best management strategies through the Safe Water Action Plan, such as the removal of illegal contacts in communities to minimize the leakage of untreated waste and other pollutants to the rivers of nations. In order to mitigate stream bank flooding, stream channeling and major changes of stream ecosystems, this policy also monitors drainage from built areas and from new development to ensure loss of sediment flow and movement. The removal of sediment often substantially decreases the expense of dredging rivers and navigation channels and provides leisure advantages, such as expanded opportunities for fishing and swimming and spawning safety. The Storm Water Initiative, in accordance with the Initiative, also advocates for a better educated public about flood reduction steps that can be implemented to mitigate the effects of rain water.

- The Office of Wastewater Management (OWM) and the Department of Agriculture are designing and administering a cohesive policy under the Clean Water Action Plan to ensure that pollution from animal feeding operations (AFO) is handled to reduce environmental and public health consequences. Improved data collection, extended analysis on impacts and management initiatives, and enhanced regulatory assistance and implementation with regard to existing environmental laws and regulations would be compensated for through the subsequent control systems. There would be a substantial rise in the amount of CWA permits given, meaning that practises such as land management of animal waste are better handled. Obsolete laws will be revised and incentives for the voluntary adoption of environmental and public health conservation policies will be established.

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POLLUTION MANAGEMENT AND CONTROL

There are several methods to water quality prevention and regulation that should be implemented. Control and supervision or involvement in control mechanisms through eliminating or decreasing waste may be by avoidance, practise activities by entering a project/program. According to Wikipedia, water contamination control requires the following methods:

(i) Wash the vehicle well away from any drains with storm water.

(ii) Should not throw garbage, contaminants or solvents into the drains of sewers.

(iii) The septic device is tested every 3-5 years

(iv) avoid the usage of chemicals and fertilizers capable of flowing off water supplies

(v) Clean the driveway instead of downloading it.

(vi) still pump on your boat your waste-holding tanks

(vii) usage of non-toxic chemicals for cleaning

(viii) of kitty litter, wipe up oil and other liquid leaks and vacuum them up

(ix) Should not wash brushes in the sink with paint.

Another approach to engage in emission reduction is to carry out initiatives of your own or participate in ventures or services. Any of these can be found on the website of the Environmental Conservation Agency (EPA). An efficient way to control emissions is by enforcement and surveillance. In order to monitor multiple forms of emissions as well as to reduce the harmful consequences of pollution, several nations across the world have adopted laws. Regulation of contamination means the control of climate, water and land or surface pollutants and effluents. Waste products from use, cooking, cultivation, processing, development, transportation and other human activities, whether they concentrate or spread, can destroy the atmosphere without emission protection. Prevention of emissions and minimization of waste are more desirable than management of pollution. However, through following these activities (i) by recycling (ii) through reusing (iii) waste minimization (iv) through minimizing (v) by avoiding (vi) manure, emissions could be reduced. In addition to all of the above, emission management systems such as bag rooms, cyclones, electrostatic precipitators, scrubbers such as baffle spray scrubbers, ejector venture scrubbers, mechanically aided scrubbers, spray towers, wet scrubbers, waste treatment such as sedimentation (primary treatment), activated sludge bio filters (secondary treatment) may also be utilized.

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OBJECTIVES OF THE STUDY

- To study on control the water pollution.
- To study on impacts of water pollution.

CONCLUSION

Water contamination is an environmental problem that is of great concern to us at large in India. By way of defecation, human exposure to water contamination is enormous; disposal of garbage, agricultural waste and laundry washing, etc. Obviously, environmental education is of tremendous value to be included in schools in particular and should have a place in the school curriculum. They would be less likely to pollute our oceans in this manner.

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