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AGRICULTURAL DISCHARGES AND WATER POLLUTION: ITS IMPACTS ON HUMAN HEALTH

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KEYWORDS :

INTRODUCTION

Water is the source of life. Without it there is no life. Man's live is based on water. Man in his day to-day life context, uses water for fulfilling his basic needs: cooking, washing, bathing, etc. Addition to these, the huge amount of water is used for irrigation and agricultural purposes.If water has a good quality to be useful for all purposes, then it is called a 'pure water'. A pure water infact is colourless, soft, palatable and free from all pollutants and sediments. Practically speaking, every day, the huge amount of water gets polluted. The effect of water pollution is much negative and create many epidemic health problems to people. The aim of this article, hence is to illustrate how agricultural discharges create water pollution and how this affects people's health. This artical also tries to give some practical suggestion to overcome the unpleasant effects of water pollution on people's health.

Water Pollution

Good water becomes contaminated due to the result of human activities like domestic sewage, agricultural discharges and wastes, poisonous chemicals, industrial effluents, etc. P.K.Goel explaines it further: "Water can be regarded polluted when it gets changed in its quality or composition either naturally or as a result of human activities so as to become less suitable for drinking, domestic, agricultural, industrial, recreational, wildlife and other uses for which it would have been otherwise suitable in its natural or unmodified state". Such a water pollution is defined as, "the addition of any substance to water or changing of water's physical and chemical characteristics in any way which interferes with its use for legitimate purposes".

Sources of Water pollution

There are many pollutants which make water impure and unfit for use. Infact, pollutant means any substance which become causes for pollution. Water can be polluted by two important factors: man-made pollutant and natural pollutant. The pollution caused by natural causes, mostly depends on the nature of the area, its ecological conditions and the vegetation. On the contrary, a man-made pollution may be intensive and diverse due to different human activities. The intensity of man-made pollution is related to "… size and density of population of community; the level of its economic development; per capita consumption as well as activities relation to production of goods and services; the level of technology used and the production of waste materials and the attitude and motivation for abatement of pollution" It is also true that the natural pollution is somewhat difficult to control, than the man-made pollution. As a matter of fact, the man-made pollution is identifiable and controllable. Hence to protect water qualities and to control water pollution , the man-made pollution is to be concentrated well. The man-made water pollutants are generally as follows: a).domestic sewage; b).Industrial effluents; c).agriculutral discharges such as pesticides;.herbicides; .fertilizers; e). Heavy metals like mercury; f).Temperature; g).Silt; h).Radioactivity; i).Oils. In this article the authour would like to explain the impact of agricultural discharges in water pollution and its effects on people's health.

Agricultural Discharges

In the modern world the cultivation does not take place without the use of pesticides, fertilizers,etc. The wastes come out from the agriculutral works such as applying pesticides, cultivations, etc., are called agricultural discharges.

Pesticides

Pesticides are active chemicals used for killing unwanted plants and disturbing insects. It is a common term which includes herbicides, fungides, insecticides, etc. A collective term BIOCIDE is used to indicate all these categories. The dangerous insects which become causes for diseases like malaria (mosquitoes), typhus (body lice) and plague (fleas) are prevail in the cultivation fields. The well known Pesticide that is DDT (Dichlorodiphenyl trichloroethane) which has been widely used by agriculutral workers to put down them and there by control them. Obiviously pesticides usually stays in the environment for a long time and they are mostly non-degradable. They finally enter into the water bodies.

Effects

The dark side of pesticides are highly terrific. They are inherently toxic in nature. Improper use of them has lead to drastic effects of sickness, and neurologcal diseases. On the one side they control the speicies of unwanted insects and on the other, they also adversly affect the life and the environment. It is true that the agricultural wastes usually evolve in the form of run-off from the agricultural fields. All the remaining parts of the chemicals used, taken away by run-off water, causing pollution problems in the water sources where it reaches. Several pesticides get bioaccumulated through food and cause the hazardous health problem to man The waste water from agriculutral use has more salinities than the normal irrigation water. The run- off waste water contain high organic, nutrient and solid concentrations that are pathogenic to human beings.

The very dangerous hazardous pesticides for man are the chlorinated hydrocarbons like DDT, Dieldrin, Gamexane, etc. Eventhough they are baned in the developed countries, they are enourmously manufactured in underdeveloped countries like India. When a man or an animal like cow eats vegetables which grown out of these hazardous pesticides, the poisons from them may enter into the man and the cow and other living beings. More obiviously, streams and rivers which are nearly situated in the agricultural fields carry pesticides and fertilizers from the crop and cultivations. The fishes which are living in these types of streams and rivers drink water which contain pesticides and fertilizers. Finally, they pass the hazardous chemicals when the man eats them.

Moreover, the large quantities of DDT and aldrin are capable of bringing tumors in a man. In additionto this, "occupational exposure of these pesticides are also reported to cause impotency in man." Krishnan adds: "Several types of pesticides like atrazine, … alchlor, D.D.T. and carbofuran have been reported in drinking water causing nausea, vomiting, dizziness and diarrhoea. Water disinfectant like chornie in excess amount also form a number of by-products like chloramines, chlorite, trihalomethanes, chloral hydrate, bromate and chloroacetic acids with harmful long term effects on human health." Further, the impact of DDT is very dangerous. It may result in haemorrhage, hypertension, cancer, liver damage, etc. It also causes of brain damage like unconsciousness.

Pesticides release H_2S gas which is harmful to human body. Normally the human body contains 40 percent of water. When H_2S (Hydrogen-sulphide) enters into the human body it forms a dangerous chemical of sulphureous acid. They are harmful to human lungs.

The impacts of pesticides on human health can be classfied into two: short-term and long-term. The short-term impacts include illness caused by high doses and accidental exposures. The possibility of acute illness from ingesting residues on a day. On the other, the long-term effects caused by low doses, include growth of cancer, birth

defects, immunological problems and other chronic degenerative diseases. The long-term may happen after ingesting small quantities of resiudes daily for many years. Those people who are affected by it, very often become sick.

The pesticides such as malathion, aldrine become a reason for creating a serious problem of land pollution. The pesticides enter into the ground when the rain comes and thereby contaminate the ground water. When the polluted ground water is used for drinking purpose they have deleterious effect on human health.

Fertilizers

The modern agricultural system is mixed with the maximum use of fertilizers. It is true that agricultural practices require fertilizers. Yet inorder to get more MAHASUL , the cultivators use large amount of fertilizers and other related materials. Some of these agricultural wastes are washed off the lands during the rain fall and drainage into the rivers and streams and disturb the aquatic ecosystem. Sometimes they are washed off from the cultivation to the water course and finally they enter into the ground.

Methaemoglobinema (Blue Babies)

The use of fertilizers result in accumulation of nitrates in the water. The nitrate in ferlizers enters the intestine of man, when he drinks polluted drinking water. Nitrate is reduced into nitrite and its unpleasant result is a partial conversion of haemoglobin to methaemoglobin. The above disease is named as Methaemoglobinema. This is also known as 'blue body'. This disease can be seen through blood changes.

Harmful Effects

Since methaemoglobin is unable to transport oxygen, they causes problems such as suffocation and breathing troubles. It affects the whole body functions and thereby affects the human life. Finally this may cause for human death. When fertilizers enter into the drinking water specially in rural and hills areas, become cause for forming cancer, neurological diseases and infertility.

Remedies

People's health depens on sufficient quality of nutritious food, good water and healthy ambient. Therefore, one can try to avoid to use pesticides containing harmful chemicals; one must use minimum use of fertilizers; the use of nitrogen fixing plants instead of using fertilizers, is good enough to safeguard the soil; One should prevent run-off manure; one can divert such run-off to keep for settlement; judicious use of agrochemicals like pesticides and fertilizers will help to reduce their surface run-off and leaching. One shoud conciously remember that environment protection begins with one selves; one should not use what one does not need; one should try to create either low-waste or no-waste society.

CONCLUSION

Agriculutral discharges become man-made pollutant that contaminate water. The run-off waste water contain high organic, nutrient and solid concentrations that are pathogenic to human life and health. The effect of DDT is unimmaginable. It creates haemorrhage, cancer, liver problem and brain damage. The disease called Methaemoglobinema is resulted from the use of fertilizers and the accumualtion of nitrates in the water. To save human healht, one should use minimum use of pesticides containing less harmful chemicals which will be good to reduce their effects.

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