



## IMPACT OF PESTICIDES ON FOOD SECURITY AND SAFETY SCENARIO AT THE RURAL AREAS

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### **ABSTRACT**

Environment of atmosphere is important for the life of the human beings on the water and earth (soil). The atmosphere forms an insulating blanket around the earth. It is impossible to define the limits of the atmosphere because the atmosphere becomes progressively larger with increasing the distance from earth. However, the effect of the pesticides on the human body is very harmful at the present due to pollution of water and soil. Pesticides are designed to kill pests, but some pesticides can also cause health hazards to the people. Its effects on health depend on the types of pesticides and some other chemical compounds which are being used as well as the amount to ours living are exposed and how long or often we all are exposed. The poisoning

of pesticides is given bellow: Hazardous wastes are their special characteristics such as toxicity, corrosive exposition, flammability and also reactivity. The wastes of the factories, and agriculture field containing few chemicals, metals and pathogenic organisms are called Bio-medical wastes altogether. Environment can be damaged with the help of these Bio-medical wastes. Therefore, it is necessary to take precautionary measures so that the hazardous components in the wastes are rendered harmless through proper treatment technology and safe disposal methods. Agricultural fields consume 67% to 70% used pesticides by crops, remaining 33% to 30% of the said used pesticides contaminate with water and the said water storage happens to pond of the village and/or river. The contamination water is used in the Agricultural field to cultivate vegetable and fishes. Naturally the poisoning pesticides go through eating vegetable and fish we consume daily.

**KEYWORDS:** Environment atmosphere, vegetable of agricultural field, fish of pond, pesticides, skin diseases, life style of the human being and different types diseases.

## INTRODUCTION

It was first time, Pettenkofer in Germany revived the concept of disease related to environment e.g. climate, water, soil, air, life style, socio-economic conditions and other factors. Environment mainly divided into two types – such as Internal and External.

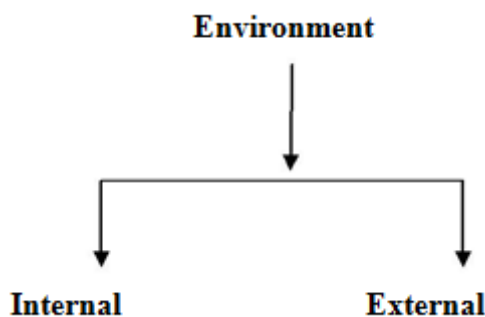


Fig. -1.

**Life Style:** Now a day health problems are occurred due to change of life style. The problems developed in the developing Countries – Coronary heart disease, obesity, lung Cancer and drug addition. In India where life style still persist, risks of illness and death are connected with lack of sanitation poor nutrition, personal hygiene, elementary human habits, and agricultural products etc.

But therein studies that the skin disease occurs at the rural area due to pollution of water and soil. These pollutions have occurred due to use of pesticides in the agriculture for more production of crops. The rural health depends on the following facts.

**Education:** It is revealed from studies that illiteracy is one of the main factors for the rural health hazards.

**Occupation:** The very state of being employed in productive work promotes health, but the unemployed usually shows a higher degree of ill health and death-instances.

**Economic status:** It is defined – capacity of purchasing, standard of living, family size and pattern of disease; in context the rural Picture is most disappointing.

**Political System:** It depends the implementation of health system on the decisions of the political party – ruling of Country or State, it contains – Resource allocation, choice of

technology etc. The political ruling party can be changed the Community's health services- if such goodwill's prevail.

**Affecting Group in the rural area:** We have studied two Groups of people who are living in Uluberia and its remote village under Howrah district such as Kalinagar and Dhulasimla, an Industrial area of Suburban of Howrah.

**1<sup>st</sup> Group:** Lower income class people who are living in the village uluberia(Remote area) and Industrial area of Suburban of Howrah district – whose people are mainly engaged to Industrial Labour and with cultivation work e.g. an agricultural labour.

**2<sup>nd</sup> Group:** People whose who are engaged in the following profession – such as Business, service, cultivation etc. It has been found that this Group of people has been affected occasionally by water and soil borne diseases – such as skin disease and others by eating fishes of the local ponds and vegetable produced in the agricultural land. Fish and vegetables were poisoned by using different types of pesticides.

Mild Poisoning	Moderate Poisoning	Severe Poisoning
Irritation of the throat, eyes or skin.	<b>Symptoms</b> <ul style="list-style-type: none"> <li>• Vomiting;</li> <li>• Excessive salivation;</li> <li>• Coughing;</li> <li>• Feeling of constriction in throat and chest;</li> <li>• Blurring of vision.</li> </ul>	<b>Symptoms:</b> <ul style="list-style-type: none"> <li>• Small or pinpoint pupils;</li> <li>• Chemical burns on the skin etc.</li> </ul>

### Water Related Diseases

1. Viral; 2. Bacterial; 3. Protozoal; 4. Helminthic and Leptospiral.

**Process of Contamination Soil:** Contaminated of agriculture soil by using pesticides and discharged Industrial wastes. These pollutants consist of Cyanides, metals, minerals and organic detergent solvents, bleaching agents, Nitrogenous substances, dyes, pigments, ammonia, toxic acid and biocide organic. Directly or indirectly may affect human health by eating fishes and vegetables. These pollutants affect people's health in the long run. Therefore, it may be called long run effects and it may become very difficult to find out. Water borne communicable diseases may check, if more attention may be given for chemical pollution at the first stage. A thriving business has been carried out year after years all over the world. But there is the basic difference in the methods adopted in the various Countries. Lead battery plates being broken down by the hand of the small scale business firm which is

very much unsafe. These small scale business concerns do not obey rules and regulations of the environmental safety. In some developed Countries with increasing environmental consciousness and stringent regulations, recycling and disposal of wastes require sizable expenditure. In such situations the lead battery disposal was shifted to rural area or other state where sufficient agriculture land exists and where also non- cultivated land are sufficient in the rural area. This has led to increase trade in transboundary transfer of poisonous metal wastes, particularly to the developing Countries practices. In the rainy Season, these wastes metal lead is mixing to the pond of the rural areas and also to the river, causing the poisonous lead metal fixed with water and soil. The pesticides used to agriculture to kill different types of insets. Only 77% of that used pesticides consumed by soil. In this process the water and soil are polluting, causing different types of disease including skin disease occurs. So, we can say that the skin disease occurs due to pollution of water and soil.



**Fig. 2: Shows the Lead battery plates broken down by the hand.**

It is revealed from the experience the futility of discharging human excreta into water and disadvantages of composting it directly Basically, sewage is easily treated by aerobic bacteria, which thrive in air but not in water because the medium offers negligible amounts of oxygen, the fact was the simple logic that prompted the switch to the compost toilet where feces never contacts water and deprive bacteria of oxygen. Now the Central Government of health has advised to the people of India that toilet should construct in rural areas and in Urban.

**Who Recommendation:** WHO recommended the following Constituents for Drinking water.

A.

Physical parameter	Permissible level	Physical parameter	Permissible level
Colour	15 TCU	Taste and Odour	NIL
Temperature	NIL	Terbidity	5 NTU

B.

Inorganic Constituents	Permissible level in mg/L	Inorganic Constituents	Permissible level In mg/L
Aluminum	0.2	Ammonia	1.5
Chlorine	250.00	Copper	1.0
Hydrogen Sulphide	0.05	Iron	0.3
Maganise	0.1	Sodium	200.0
Sulphide	250.0	Zinc	3.0

C. The following inorganic Chemicals of health significance in Drinking water and Soil:-

Constituents	Max <sup>m</sup> level in mg/L	Constituents	Max <sup>m</sup> level In mg/L
Arsenic	0.005(P)	Fluoride	1.5
Mercury	0.001	Nitrate(as NO <sub>3</sub> )	50.0
Lead	0.01	Nitrate(as NO <sub>2</sub> )	3.0
Selenium	0.01	Nickel	0.02
Chromium	0.05	Cadmium	0.003
Boron	0.3	Antimony	0.005

Affecting people are women than men at the rural area due to pollution of water and Soil. It is revealed from the statistical report published by UNESCO that about half of the world's population is women they have important role for future Generation. Women had been engaging for sewing, Cooking, Washing of cloths etc. Excepts this they have to travel a long distance in Summer to get/to collect drinking water and fuel wood for their daily needs as a result women have been facing, acute problem in question of water and it was accepted by the UNO in 1955 and 1996. So far this problem of women prevailing through out the World, but has not yet solved completely. In the village area women has been using contaminated pond's water for washing of cloths, utensil and also collect the said contaminated water for Cooking, Drinking and also bathing purposes. For this reason, women are affected more with water-borne diseases than men. Some diseases are characterized by skin lesions and pustules. Organic structure contained in this lesion may deposit in ruptures of the skin of other persons or on attack mucous membranes by direct contact. The modes of transmission of communicable diseases are shown below.

Source	Mode of transmissions.	Entry on the body	Medium
Man or animal Arthropods	Direct contact Aerosols water skin puncture.	Skin lesions Nose, food or water.	Man

Polluted Soil offer the infection while lying on polluted ground may provide barefoot to entry of hookworm through skin. Wounds shall be polluted in this way. Pesticides are used to control unwanted plants, insets etc. Residual from agricultural used pesticides can causes to contaminate water and Soil. It is revealed from news of Ananda Bazar Patrika dated 06.08.2014 and 17.09.2014 that off Season vegetables like – Cabbage, Cauliflower etc are contaminated with the used agricultural Pesticides poison.

### Analysis the pond water, Soil, River Water and Drinking Water

All the water Parameters that are available in Calcutta institute of Technology are analyzed in our Laboratory.

#### Parameter for Pond and River Water

Inorganic Constituents	Value in ppm	Inorganic Constituents	Value in ppm
Aluminum	0.5.00	Ammonia	Not tested
Chlorine	90.00	Copper	0.09
Hydrogen Sulphide	0.07	Iron	10.00
Maganise	55.00	Sodium	Not tested
Total Alkalinity	150 ppm	Total Hardness	250 ppm
pH	8.2 ppm	TDS	1545 ppm
Residual Chloride	0.5 ppm	Dissolved O <sub>2</sub> (DO)	8 ppm
Dissolved CO <sub>2</sub>	8 ppm	BOD	15ppm
COD	275 ppm	Ca	145 ppm

#### Parameter of Drinking Water

Constituents	Max <sup>m</sup> level in mg/L	Constituents	Max <sup>m</sup> level In mg/L
Arsenic	0.005(P)	Fluoride	1.5
Mercury	0.06	Nitrate(as NO <sub>3</sub> )	50.0
Lead	12	Nitrate(as NO <sub>2</sub> )	3.0
Selenium	Not tested	Nickel	0.10

### CONCLUSION

Pesticides have improved the standard of human health by controlling vector-borne diseases, however, their long term and indiscriminate use has resulted in serious health effects. Human beings especially infants and children are highly vulnerable to deleterious effects of pesticides due to the non-specific nature and inadequate application of pesticides. As the pesticide use has increased over the past few decades, the likelihood of exposure to these

chemicals has also increased considerably Pesticides enter the human body through ingestion, inhalation or penetration via skin but the majority of people get affected via the intake of pesticide contaminated food after crossing several barriers, they ultimately reach human tissues or storage compartments. Although human bodies have mechanisms for the excretion of toxins however, in some cases, it retains them through absorption in the circulatory system. Toxic effects are produced when the concentration of pesticide in the body increases far more than its initial concentration in the environment

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