



Ground Water Contamination and Impacts

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Abstract

The risk of contamination of groundwater indicates that groundwater may be subject to unacceptable pollution due to human activities. This concept has been developed from the vulnerability of groundwater, which is therefore the most important part of the assessment of the risks of groundwater contamination. Generally, groundwater pollution studies include the scientific understanding of biological, chemical and physical processes which control contaminants fate and movement in the underground environment. High chemical concentration in drinking water can pose a health hazard. Protection measures are actually simpler and less costly than corrective measures for groundwater contamination. The choice of appropriate therapeutic technique depends on site-specific factors and often takes into account clean-up goals based on human health and environmental protection.

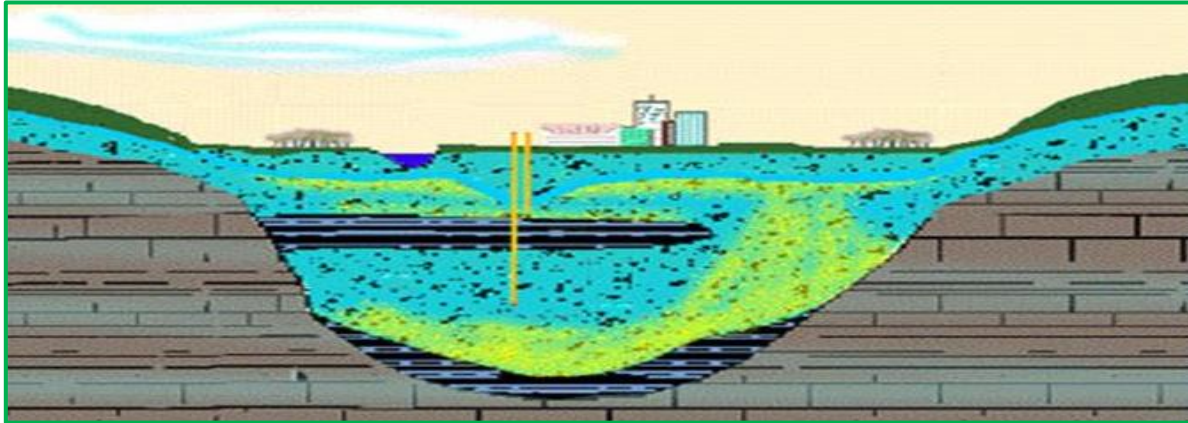
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Introduction

Water is essential for life and for all economic activities. It is used for domestic, industrial and agricultural purposes. Having sufficient water in sufficient quantity and quality contributes to maintaining health. The availability of water of good quality is essential to prevent diseases and to improve the quality of life. The use of water increased due to increasing in human population and activities. Groundwater is one of the important components in development of any area. It is the major potable, agricultural and industrial source of water. In 2003, it was estimated that groundwater holds nearly 50% of the drinking water supply, 40% of the demand for industrial water, and 20% of the water used for irrigation. Globally, more than a third of water used by humans comes from groundwater. In rural areas, the ratio is higher: more than half of all drinking water worldwide is supplied from groundwater. In the past, it was thought that groundwater is protected from pollution by layers of rocks and soil that act as filters. But we now know that groundwater is vulnerable to pollution. Groundwater pollutants can enter landfills and lakes used to store waste, chemical spills, underground storage tanks, and improper management of hazardous waste sites. Groundwater pollution can also result from innumerable common practices, such as the use of fertilizers and pesticides as well as disposal of human, animal and agricultural waste. Globally, many researchers have conducted a study on the quality of groundwater and pollution sources affected by the industrial and natural process. The risk of contamination of groundwater indicates that groundwater may be subject to unacceptable pollution due to human activities. This concept has been developed from the vulnerability of groundwater, which is therefore the most important part of the assessment of the risks of groundwater contamination. Groundwater pollution may remain undetected for a long time, where groundwater contamination from pumped wells may be

detected as a first signs. Quality changes of surface water, such as rivers or lakes, may be due to contamination of groundwater. In the past two decades, awareness of groundwater pollution and contamination has been grown up .

Major causes of groundwater contamination



- Naturally Occurring Chemicals.
- Poor Sanitation Systems.
- Improper Sewage Disposal.
- Excessive Use of Fertilizers and Pesticides.
- Leakage from Industrial Pipes and other industrial releases.
- Over pumping of groundwater

Effects of groundwater contamination



- Destruction of biodiversity. Water pollution depletes aquatic ecosystems and triggers unbridled proliferation of phytoplankton in lakes — eutrophication
- Contamination of the food chain
- Lack of potable water
- Disease.

Prevention of groundwater pollution

- Properly dispose of all waste; don't dump chemicals down drains or on the ground.
- Test underground fuel oil tanks for leaks; if possible, replace them above ground.
- Safely store all chemicals and fuels.
- Minimize the use of chemicals; always use according to directions.

India Environment Portal Knowledge for change: The Water (Prevention and Control of Pollution) Act, 1974 established Pollution Control Boards at the Central and State levels and bestowed them with powers to prevent and control water pollution.

Conclusion

The quality of groundwater is increasing threatened due to agricultural, urban and industrial wastes that leak or are injected underlying aquifers. Groundwater is vulnerable to pollution as pollutants can enter from landfills and lakes used to store waste, chemical spills and underground storage tanks leakage, and hazardous waste sites improperly managed. Groundwater pollution can also result from innumerable common practices, such as the use of fertilizers and pesticides; the disposal of human, animal and agricultural waste; and the use of chemicals. Pollution in groundwater may remain undetected for a long period of time. Groundwater pollution effects are extensive. Most serious effects of water pollution is human infectious disease in rural countries where sanitation facilities are seldom found. Protection measures are in fact simpler and less costly than corrective measures for groundwater pollution. The choice of appropriate therapeutic technology depends on site-specific factors and often takes into account cleaning targets based on potential risks that protect human health and environment. Many theories have suggested that water has been responsible for the transmission of many water-borne diseases through bacterial contamination of drinking water, which is the most serious risk factor for the spread of diseases. Diseases derived from chemical contamination of potable water are negligible compared to the number caused by microbial contamination. High chemical concentration in drinking water can lead to health risks.

References

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