Chapter 20
Impact of Solid Waste Disposal on Inland Water Wetlands: Solid Waste Management

Rosy Bansal
GSSDGS Khalsa College, Patiala, India

Monika Hans
Govt P.G. College for Women, India

Esha Bansal
Red Roses Public School, Gurugram, India

ABSTRACT

The solid waste disposal affects the quality of water as it leaches down in deeper layers of water bodies having dissolved organic and inorganic constituents from solid waste. The resulting polluted liquid, popularly known as leachate, increases in its concentration levels when it seeps deep inside and appears brownish to black in colour with a rotten smell. It has more organic pollutants with ammoniacal nitrogen. The toxicity levels depend upon the kind of waste, like plastic or metals, being present in solid waste which has severe impacts on human health and aquatic animals. The unselective and mismanaged disposal of waste introduces various toxins comprising of heavy metals and degrades the environment and water resources. Solid waste not only affects the inland waters but also contributes to climatic changes like emission of greenhouse gases.

1. INTRODUCTION

The solid waste disposal affects the quality of water as it leaches down in deeper layers of water bodies having dissolved organic and inorganic constituents from solid waste. The resulted polluted liquid popularly known as leachate increases in its concentration levels when it seeps deep inside and appears

DOI: 10.4018/978-1-6684-8117-2.ch020

as brownish to black in colour having rotten smell. It has more of organic pollutants with ammoniacal nitrogen.

Since communities all over the world have started to realise the dangers that its management entails, solid waste issues and their management have received a great deal of environmental attention in the final quarter of the 20th century. For many years, landfilling has been the preferred form of garbage disposal due to a variety of factors, including the fact that it is likely the least expensive option and that there are plenty of open holes in the ground. Municipal solid waste landfilling is a widespread practise throughout the world.

Within subsurface strata or aquifers, groundwater is a component of the natural water cycle. Unfortunately, groundwater is all too frequently seen as invisible and unimportant. Over 98 percent of the freshwater that is readily available on the planet is groundwater that is kept in the pores and cracks of rock strata. Additionally, groundwater is a crucial resource for business, agriculture, and maintaining rivers with low flows. Groundwater is often crucial in supporting wetlands and their ecosystems, and it is not simply abstracted for supply or river regulation purposes. It also naturally feeds surface-waters through springs and tunnels into rivers. Within subsurface strata or aquifers, groundwater is a component of the natural water cycle. Unfortunately, groundwater is all too frequently seen as invisible and unimportant. Over 98 percent of the freshwater that is readily available on the planet is groundwater that is kept in the pores and cracks of rock strata. Additionally, groundwater is a crucial resource for business, agriculture, and maintaining rivers with low flows. Groundwater is often crucial in supporting wetlands and their ecosystems, and it is not simply abstracted for supply or river regulation purposes. It also naturally feeds surface-waters through springs and tunnels into rivers. Groundwater removal or diversion may alter total flow. Surface water quality and the achievement of water quality criteria can be greatly impacted by a decrease in the quantity or quality of groundwater that is discharged. As a result, the relationship between surface water and groundwater in the water cycle is quite close, with many shared problems. It is crucial to preserve the quality of groundwater. It is challenging, if not impossible, to clean up polluted groundwater. Any self-purification is restricted by the slow groundwater flow and minimal microbial activity.

The toxicity levels depend upon the kind of waste like plastic or metals being present in solid waste which has severe impacts on human health and aquatic animals. The unselective and mismanaged disposal of waste introduces various toxics comprising of heavy metals and degrades the environment and water resources (Meenakshi,2005). The solid waste generation continuously increases with increasing population and very less of it is being recycled. The waste generation also depends upon the economic conditions of particular country and normally it is considered to be kilogram of waste per day per person and this rate has increased to certain level in urban areas. Solid waste not only affects the inland waters but also contributes to climatic changes like emission of greenhouse gases. The climate is affected by emission of methane gas from landfill waste as it the waste decomposes in anaerobic conditions thus producing methane gas. The greenhouse gas emission will raise the average temperature which will further lead to melting of glaciers thus raising the sea level and coastal areas will be submerged in water. Solid waste is any kind of unutilized product generated from residential and commercial areas. Mainly solid waste includes rejected resources and also comprises of structure and building demolitions. The solid waste disposal in the form of landfills or incineration can lead to perilous effects on ecology and environment. Plastics generate various kinds of toxic substances like dioxins which are hazardous to human health. The release of gases from incineration of solid waste causes the release of poisonous gases polluting the environment and in turn results in acid rain thus polluting the rivers and streams. These toxins in inland