10 Green Synthesis of Carbonaceous Adsorbents and Their Application for Removal of Polyaromatic Hydrocarbons (PAHs) from Water

S. R. Barman and A. Mukhopadhayay
Department of Environmental Science, University of Calcutta, Kolkata, India

P. Das
Department of Chemical Engineering, Jadavpur University, Kolkata, India

10.1 INTRODUCTION

The biosphere of earth is dependent on few finite resources of which water is an important component. Though the earth surface is composed of approximately 71% water, very little of this is accessible for use. This small amount of water supports all the life form in our planet. However, due to rapid industrialization and growth of civilization, the problem of water pollution has come up as a burning issue. In the last decade, a substantial understanding of water quality and its links to human health has been established. With increasing understanding of the vital health effects associated with contaminated water, the maximum permissible limits (MPL) of various contaminants have been decreased with time. There is no access to safe drinking water in many parts of the world (Ali and Gupta, 2006). It has been earlier established that more than 1.1 billion people do not have adequate supply of drinking water (WHO, 2015) and millions die yearly (approximately 3,900 children per day) due to waterborne diseases through consumption of contaminated water (Vasudevan and Oturan, 2014). Because of mismanagement of water resources, potable

CLIMATE CHANGE DRIVEN IMPACT ON MANGROVE ECOLOGY AND ECONOMY

Chapter 29

JAYANTA BASU[12]*, SHRAMANA ROY BARMAN[2], RITWIJA BHATTACHARYA[2] and ANIRUDDHA MUKHOPADHYAY[2]

ABSTRACT

Mangroves contribute in several ways towards protection of the coastal region from the wrath of environmental changes induced by climate change, particularly contributing in order to combat impacts of sea level rise, salt intrusion, cyclonic havoc, storm surges and coastal soil erosion. Overall it can act as a bio-shield for the coastal zone where it exists. Mangroves form an important carbon sink of the world as it can fix larger quantity of CO_2 per unit area. The chapter discusses climate change impacts on ecology and economy of mangrove forests with reference to Sundarbans.

Keywords: Climate change, Sea-level rise, Salinity, Cyclone, Erosion, Bio-Shield.

INTRODUCTION

Mangroves are small halophyte trees tolerant of saline condition and adapted to grow on harsh environment of coastal regions. They survive in salt water with the help of their complex root and salt filtration system that help them to cope up with the anoxic environment of drenched mud. Mangroves are mainly located in the estuaries and marine shorelines of tropical and subtropical tidal regions. They are mostly growing in tropical and subtropical Asia, followed by Northern Africa, Central America, Oceania and South America. Mangroves contribute considerably in stabilizing and protecting coastal areas. They form a buffer zone between the land and sea, and help in the prevention of soil erosion and act as the catalyst for recovery of land from the engulfment by sea water.

Various researches from time to time have emphasized that mangrove ecosystem has given shelter to some unique groups of microbes, fungi, plants and animals such as crustaceans, molluscs, fishes, aquatic birds as well as some endangered species like fruit bats, dolphin and the Royal Bengal tiger. However

[1]Environment Governed Integrated Organisation (EnGIO); Kolkata 700025;
[2]Department of Environmental Science, University of Calcutta; Kolkata 700019.
*Email: jayantabasu.cal@gmail.com

Citation
Basu, J., Roy Barman, S., Bhattacharya, R. and Mukhopadhyay, A. 2019. Climate change driven impact on Mangrove Ecology and Economy. In: *Faunal Diversity of Indian Mangroves* : 1-2. (Published by the Director, Zool. Surv. India, Kolkata)