



Research Paper

Sustainable Development Through Reduce, Reuse and Recycle

P. Mangaveni

Department of Chemistry, St. Joseph's College for Women (Autonomous),
Visakhapatnam, Andhra Pradesh, India

Corresponding author E-mail: mangoveni28@gmail.com

Received: 15/08/2018

Revised: 26/08/2018

Accepted: 07/09/2018

Abstract: The co-existence of biotic and abiotic objects in the eco system makes the environment invariably healthy. The biotic component includes human beings, animals, birds, flora pawna. The abiotic group includes land, water, air, sky, water along with their energy components; the survival of biotic group on abiotic components is in tune leading to sustainable environment. However, the unhealthy activities of human beings are increased day by day leading to ecological imbalance. The main threat to the rich resource of medicinal plants (CITES) and endangered animals in the forest range thereby leading to ecological imbalance. The golden nature is diminished by the activities hampered and impede by extrinsic influences remarkably. On the other hand the liberal usage of plastics by the tourist leading to soil and water pollution. Eco Tourism geared up in many parts of North Eastern states of India in competence with European countries. The concept of minimizing the

pollutants, reuse and recycling should be incorporated by many of the tourist area. The best strategies by the Eco tourism for the sustainable development are highlighted in the present paper with 3R approach.

Keywords: Sustainable development-eco system-reduce- reuse- recycling

INTRODUCTION:

The co-existence of biotic and abiotic objects in the eco system makes the environment invariably healthy. The biotic component includes human beings, animals, birds and flora. The abiotic group includes land, water, air, sky, water along with their energy component, the survival of biotic group on abiotic components is in tune leading to sustainable environment. In order to bring ecological balance many developed countries along with multi storied structures beautiful gardens and parks developed as well. A national park is an area of natural or semi-natural land

protected by a government for the preservation of wildlife and nature. National parks are much more than just a scenic forested area. Some like Yellowstone National Park are also valued for their geological importance. Famous for its amazing landscape bubbling sulphosprings and steaming geysers, the Yellowstone National park, USA, located at one of the Earth's largest super volcanoes zone. Some national parks like the ACADIA National Park in the USA, for instance, offers unrivalled scenery for nature admirers as well as activities for both leisurely hikers and adventure seekers.

Trekking through Himalayan National park in India, offer ample thrill and opportunity to observe nature's best undisturbed alpine meadows, lush coniferous forest, misty mountains and sparkling streams. The area filled with brown bear, red fox, blue sheep, the flamboyant Himalayan monal and the extremely rare snow leopard, will delight the tourists' sense of sight and sound with its startling scenery and wildlife. The Earth's geography was perfectly in harmony with ecological balance. In Nagaland, a green project has been set up, including hiking, folk dance etc, while preserving its serenity of the environment. In Kerala Periyar Tiger Reserve forest the eco development project has been established by local adivasis. The other extremities were also aroused due to unhealthy human practices. The environment in particular lost its ecological balance and beauty with plastics. The plastic debris is spread worldwide due to densely populated countries. Plastic pollution is mainly in the form of pellets or beads as prepared by polymer manufacturer. The effect on marine life of such widespread pollution

by polymers is significant. Sea turtles, for example, may mistake plastic pellets for food. Having consumed these pellets, the turtles become too buoyant to dive properly for food and consequently die.¹ Sea birds, too, mistake plastic pellets for food, also with fatal consequences, as the indigestible polymer clogs their intestines (Gregory, 2009). Researchers at the Ocean cleanup, a Dutch foundation which developed new technologies for riding the ocean of plastic, states that rivers carry an estimated 1.15-2.41 million tones of plastic into the sea every year (Jambeck, 2015). Sea coast line are getting polluted and two thirds of the pollution comes from the 20 most polluting rivers the overwhelming majority in Asia with the Yangtze River in China topping the list. Two of them are in Africa - the Nile and the Niger - while the others are in Asia: the Indus, Ganges, Amur, Mekong, Pearl, Hai he, Yellow and Yangtze (Fok and Cheung, 2015)

RECYCLE:

In America and many developed countries there are promising signs for certain polymers. The waste plastic should be sorted out mechanically and recycled. The plastic can be recycled profitably. For example, poly (ethylene terephthalate) drinks bottles can be cleaned and recycled to give an acceptable grade of PET resin in a process that is economically viable (WRAP, 2006). The recycled polymer is used as carpet fiber, furniture stuffing, or insulation. Waste nylon can also be recycled profitably. Food containers, packing and wrapping sheets when disposed by the tourist attracts the birds and animals which would lead to clogging the intestinal track.

Many pilgrim centers are densely polluted with plastic materials. A large number of varied commodities are used by tourist and disposed leading to solid plastic waste which will persist in environment for along period. The people should realize the alarming signs of plastic waste everywhere, natural terrestrial, fresh water and marine habitants, even some of the highest mountains. The plastic debris not only prevents rain water to sink into the soil but also the plasticizers and other additives associated in polymers have been shown to leach from landfills. The extent of leach varies with soil pH and organic content. PET (Poly ethylene terephthalates) bottles along with polychlorinated biphenyls (PCB), polycyclic aromatic hydrocarbons (PAH), organo pesticides DDT and its metabolites along with hexachloro hexane (HCH), alkyl phenols and BPA concentrations ranging from ng - μg . Many evidence to demonstrate that landfills can present a significant source contaminants *viz* BPA to aquatic environment (Teuten, et al. 2009).

Conclusion: As suggested by Green chemistry principles molecular redesign of polymer / plastics should be done before the production starts. Green chemists aspire to produce bio degradable polymers which are eco friendly. The synthetic strategies are to be altered, redesigned with safe reactants with natural feed stocks. Governmental organization should focus on sustainable tourism rather than revenue generated through it. It should implement the law and order that use of natural resources or biodegradable plastics to serve food commodities at tourist centers. Tourist guides are to be trained and create

awareness to tourist on ecological imbalance caused due to unhealthy practices. Low density polymers and high density can be segregated at the public places by providing different colored bins. Majority of the recycled paper, bottles and tin are to be used to sustain the beauty of the scenic environment. There is great emphasis to be made as per the global needs to concentrate on steady and substantial growth in tourism while stressing on safety, comfort and satisfaction of the tourist as the top most priority.

REFERENCE:

Gregory M. R. (2009) Environmental implications of plastic debris in marine settings entanglement, ingestion, smothering, hangers-on, hitch-hiking and alien invasions. Phil. Trans. R. Soc. B 364, 2013-2025. (doi:10.1098/rstb.2008.0265)

Jenna R. Jambeck, Roland Geyer, Chris Wilcox, Theodore R. Siegler, Miriam Perryman, Anthony Andrady, Ramani Narayan and Kara Lavender Law (2015) Plastic waste inputs from land into the ocean. Science 347, 768–771,

Fok L. and Cheung P. (2015) Hong Kong at the Pearl River estuary: a hotspot of micro plastic Pollution. Mar. Pollut. Bull. 99, 112–118

WRAP (2006) Environmental benefits of recycling: an international review of life cycle comparisons for key materials in the UK recycling sector. Banbury, UK: WRAP.

Emma L. Teuten, Jovita M. Saquing, Detlef R. U. Knappe, Morton A. Barlaz, Susanne Jonsson, Annika

Björn, Steven J. Rowland, Richard C. Thompson, Tamara S. Galloway, Rei Yamashita, Daisuke Ochi, Yutaka Watanuki, Charles Moore, Pham Hung Viet, Touch Seang Tana, Maricar Prudente, Ruchaya Boonyatumanond, Mohamad P. Zakaria, Kongsap Akkhavong, Yuko Ogata, Hisashi Hirai, Satoru Iwasa, Kaoruko Mizukawa, Yuki Hagino, Ayako Imamura, Mahua Saha, and Hideshige Takada (2009) Transport and release of chemicals from plastics to the environment and to wild life. *Phil. Trans. R. Soc. B* 364, 2027-2045. (doi:1098/rtsb.2008.0284)