



Waste management- issues and solutions for a coastal village along Kerala, southwest coast of India

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In the present world, plastics play an integral role in human life. Its production crosses 150 million tonnes per year globally and India contributes to more than 8 million tonnes, in terms of consumption. Plastic is cost effective, durable and holds a broad range of application, which turned it to a basic need for the human society. On the other side, 70 % of the consumption is converted as waste and when the infrastructure of the waste management system do not match with the generation rate, it becomes a menace to the society. One of the major concerns of fishermen has been the depleting fishery resources and degrading environment. With an aim to understand the magnitude of marine litter in coastal waters and the way it affects traditional small scale fishers the present study was undertaken. The study area is Mulavukad village Panchayat (latitude 10°02'98.21" and longitude 76°25'53.26") which is a long narrow stretch of land located in the Ernakulum district of Kerala state, India with an area of 19.27 sq km. The island is surrounded by Periyar river on the North east and Vembanad Lake on the South west. The major lively hood of the people is fishing and fishery related activities.

The main objectives of the study were to evaluate the practice of waste management in the identified coastal village, to quantify the average degradable and non-degradable waste generated in a coastal village, to estimate the abundance of litter flowing through the coastal waters adjacent to the Arabian Sea. and also to suggest mitigation measures for development as a Green coastal village. House-hold waste survey was conducted with a detailed questionnaire for elucidating information on waste management of bio as well as non-degradable waste generated in the study area by selecting representative households from each Ward. The quantity of residential waste generated from each ward was estimated by distributing two buckets, one each for bio-waste and non- degradable waste to randomly selected individual houses with a request to deposit their day to day waste materials in these. The quantity of bio-waste generated from each house was weighed on day to day basis with the help of ADS members of each ward. The data thus generated was compiled and assessed. The non-degradable waste was neatly packed and transported to the CMFRI laboratory where it was sorted, classified, weighed and

quantified. Twenty numbers of stake net holders were contacted individually on ward wise and garbage bags were distributed to them. The collected litter was sorted as per UNEP guidelines, weighed and counted to estimate the abundance of the same.

The population of this village is 22,232 with population density of 1158 per sq. km. There is no systematic waste collection method for both types of waste. In less than 5% of the households, bio-waste is processed in bio-pots. The Bio waste generated from individual house hold with 3-4 members per family was 0.35 kg and the total for Mulavukad Panchayat was estimated as 7500 kg per day or 2738 tonnes per annum. Similarly the Plastic and other non-degradable waste generation data showed that around 100 gm of litter is produced from each house which leads to a production of 200 kg of waste from the Panchayat per day (73 tonnes per annum). The percentage composition of litter shows that 68-70% of the litter generated is plastic waste namely carry bags, food cover etc. which can be segregated and recycled easily. Stake net litter sampling done on seasonal basis shows that on an average 600-650 gm per day of litter is accumulated on each stake net during their 4-hour operation in post monsoon season and 300-350 gm per net during pre- monsoon.70-90% of the waste thus collected was recyclable. The canals and creeks were surveyed and many places are having a visual spread of plastics. Details of the types of litter and the way forward to make the Panchayat a totally "Green Coastal village" is presented in the paper.