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Emerging Pollutants: Protecting Water Quality for the Health of People and the Environment

ECOLOGICAL IMPACTS OF MICROPLASTIC POLLUTION IN FRESH WATER; A COMPARATIVE STUDY ON URBAN AND RURAL WATER SUPPLY

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INTRODUCTION

- Microplastics have recently been detected in drinking water as well as in drinking water sources.
- However, there have been questions regarding the quality of these occurrence studies since there are no standard sampling, extraction and identification methods for microplastics.
- Accordingly, we assessed the quality of more than thirty studies researching microplastics in drinking water and in its major freshwater sources.
- This includes an assessment of microplastic occurrence data from river and lake water, groundwater, tap water and bottled drinking water.

MICROPLASTICS

MICROBEADS

Source:(H Bouwman, 2018 et.al)

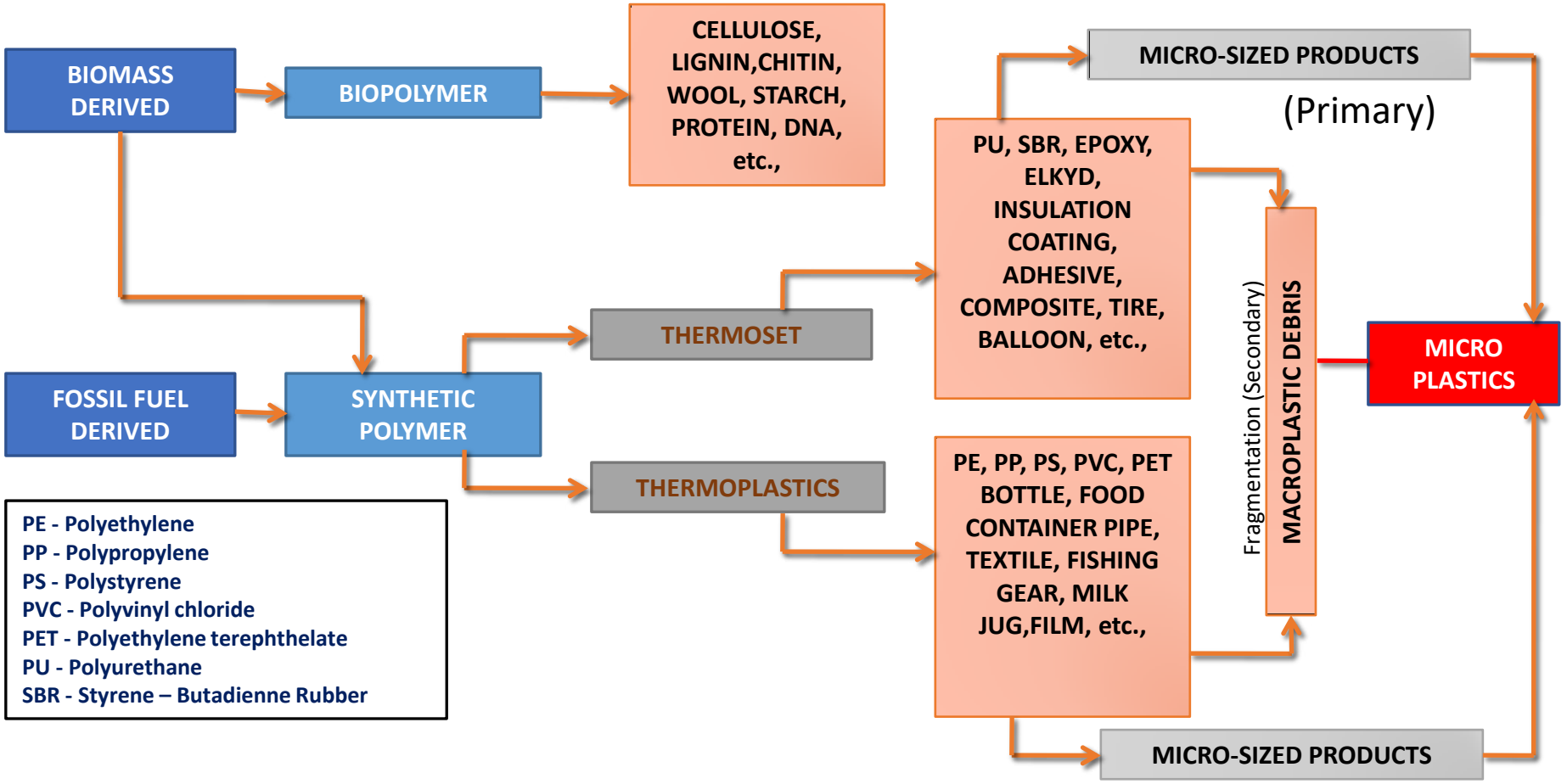
OBJECTIVES OF THE STUDY

The study on **"ECOLOGICAL IMPACTS OF MICROPLASTIC POLLUTION IN FRESHWATER SOURCES"** emerged with the research question,

HOW DO MICROPLASTIC CAUSES EFFECTS ON FRESH WATER?

1. To provide the comprehensive review of sources, types and characteristics of a microplastics and Microbeads found in study area.
2. To develop and test sampling methods for detection and quantification and to review the various microplastics assessment methodologies for different types of sources.
3. To sample and analyse microplastics and micro particles in a variety of fresh waters, including river water, tap water and groundwater.
4. To summarise the ecological impacts of microplastic pollution in fresh water and compare the results of urban and rural water supply.

A GENERALISED REPRESENTATION OF PLASTIC PRODUCTION (GESAMP 2015)



CONCLUSIONS

- We conclude that based on the limited number of high quality studies identified, standardization of microplastic analysis in water is needed.
- As research on microplastics in freshwaters is in its infancy, only arising in the last five years, many questions remain and further research is needed to:
- develop optimal methodology for monitoring microplastics in freshwater systems;
- quantify all aspects driving presence, abundance and distribution of microplastics in the environment
- assess the potential of rivers to be a source of microplastic to the oceans;
- assess and understand microplastic interactions with biota;
- assess microplastic impacts on ecosystem services; and
- evaluate the consequences of microplastic for humans in both urban and rural water.

POLLUTION

Famous Cuddalore beach found to have high levels of microplastics: NCPOR study

The Silver Beach in Cuddalore, Tamil Nadu was found to have a higher amount of coloured plasti fragmented and irregular-shaped plastic particles

By PTI Staff

3/1/2019
Home › States › Tamil Nadu

Tamil Nadu: Mosaic to monitor micro-plastics in Indian seas

With estimates showing eight million metric tons of plastic ending up in oceans annually, India has decided to set-up Marine Observation System Alo Indian Coast (Mosaic), which will monitor qual

Published: 10th June 2018 05:14 AM | Last Updated: 10th June 2018 05:14 AM

By SV Krishna Chaitanya
Express News Service

With estimates showing eight million metric tons of plastic ending up in oceans annually, India has decided to set-up Marine Observation System Along the Indian Coast (Mosaic), which will monitor quality of water in Indian seas and track the menace of micro-plastics that has already entered the food chain.

The project will be executed by Hyderabad-based Indian National Centre for Ocean Information Services (INCOIS), an autonomous body under Union Ministry of Earth Sciences.

INCOIS scientist TM Balakrishnan Nair, who is the heading the project,told Express that as part of the project at least six observatories — three along the east coast and and an equal number along the west coast — will be established.

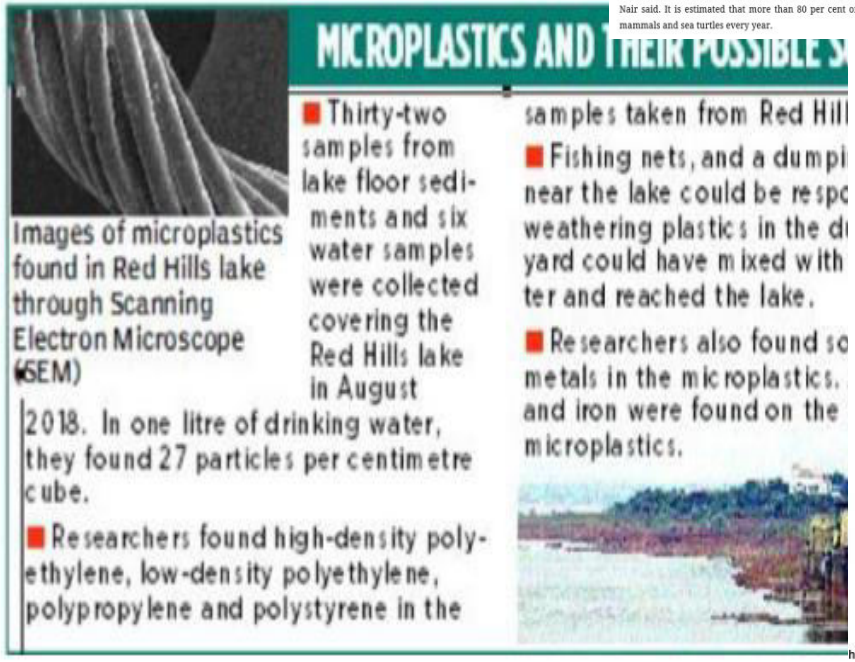
The project that cost D129 cr (approx) has already been cleared by the ministry and pending financial sanction before finance department, sources said. The project will offer insights on how the marine system is changing. Automated moorings, will do away with the present practice of collecting water samples from sea and studying their pollution levels.

The plan is to place sensor-equipped buoys in six coastal areas. The sensors, placed at the bottom of the buoys, will be attached to the sea bed so that they are not washed away. The moored buoys will be placed in coastal areas of Digha (Bengal), Goa, Mumbai, Kochi, Vishakapatanam and Chennai, Nair said. It is estimated that more than 80 per cent of the pollution in the ocean is from lands, especially plastics, killing thousands of seabirds, mammals and sea turtles every year.

NATION (/NATION), CURRENT AFFAIRS (/NATION/CURRENT-AFFAIRS)

Microplastics in drinking water pose huge threat to Chennai

DECCAN CHRONICLE. | A RAGU RAMAN (/byline/a-ragu-raman)
Published Feb 10, 2019, 6:00 am IST **Updated** Feb 10, 2019, 7:33 am IST



TAMIL NADU

NIOT to study microplastics threat

K. Lakshmi

CHENNAI , OCTOBER 25, 2018 00:43 IST
UPDATED: OCTOBER 25, 2018 00:43 IST

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Plastic in the sea

To assess the threat of microplastics to marine life, the National Institute of Ocean Technology has comenced a study. Details:

- Microplastics may be mistaken for food by aquatic life; such particles ingested by fish may affect humans
- The pilot study by NIOT and NCCR lifted samples from four locations near coastal areas and deep sea — off Chennai, off the mouth of the Godavari river, off the Mahanadi river delta in Odisha

https://www.thehindu.com/news/national/tamil-nadu/niot-to-study-microplastics-threat/article25314793.ece 1

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THANK YOU !