STUDY ON LIVELIHOOD

OF

FISHERMEN & PLASTICS IN OCEAN

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. <u>Introduction</u>

Plastics in the ocean is a global concern, not just because of its impact on ecosystems but on economy which dependent upon resources from the ocean. According to the study published by Ellen Mc Arthur foundation in 2016, by 2050 the plastic could even outweigh fish in ocean. It is estimated that about 8.61 million tonnes of plastic end up in water bodies every year. Plastics can remain in the ocean for hundreds of years in their original form, and even longer in small particles, which means that the amount of plastic in the ocean cumulates over time. The best research currently available estimates that there are over 150 million tonnes of plastic waste in the ocean today. Without significant action, it will ultimately kill the Marine wealth and hereby affecting the life of people who depends on fishing for living. Actually, every person on this world will ultimately suffer if things continue like this. So, it is high time to take necessary actions to clean up ocean and reduce plastic use for a better tomorrow.

2. <u>Background</u>

Kerala is rich with beaches and it has a remarkable effect in our life style. Neendakara is located 8 km away from Kollam town. It is a suburb of Kollam town. This shore is famous for its rich sea wealth. The twin harbours Neendakara and Sakthikulangara carries huge ecological, economic and social significance. It is one of biggest fishing harbours in India and habitat for many rare oceanic species. All these declare the relevance of the place and remind the need of protecting it. There is an alarming increase of plastic waste in Neendakara. For years Fishermen in Neendakara have been raising complaints about the plastic wastes they get while fishing. These wastes which get trapped in their nets make fishing tiresome thereby affecting the life of whole community. Besides this, the lack of proper waste management results in the disturbance of oceanic equilibrium and may leads to the extinction of the sea wealth. If we don't take emergency measures to reduce the plastic waste it will end up in unpredictable consequences.

"Suchithwa Sagaram" is an innovative project introduced by the Kerala State Government. The mission is intended for a proper waste management in coastal areas and thereby solving the problems of fishing community. It tries to find a solution to the constant complaints raised by fishermen about the loads of plastic wastes they get from the sea. Each fishing boat is given a collection bag with token which helps to identify the boat which brings back the collected plastic waste from the sea. The fishermen are instructed to collect wastes they get while fishing

in these bags and return it. The empty bags are almost filled 15 to 40kg of waste after each voyage. These bags contain plastic covers, bottles, torn fishing nets and other used plastic materials. The ultimate aim of this project "Suchithwa Sagaram" is to make the sea clean and make awareness among the people that it is not a dumping site.

3. <u>Objectives</u>

1.To find the amount of plastic wastes fishermen collects from the sea and how much time they take for it under the 'Suchithwa Sagaram' project of Government of Kerala.

2.To do a brand audit of the plastic waste collected from the sea.

4. <u>Method of Collecting Plastics from the Sea</u>

The project Suchithwa Sagaram started on Aug 5th 2017. 500 boats have been included in the project for collecting plastics from the sea. Bags were distributed to each boat to collect plastic waste. The collection of plastics is done in three types- collection in one day, collection in 4 days and collection in 7 days according to the time spent in the sea. The fishermen started monitoring the amount of plastics collected from the sea from 30th November 2017.

5. <u>Findings of the Study</u>

1.We have considered the data from November 2017 to December 30th 2019(25 months). The total amount of plastics collected from the sea during these 25 months is estimated to be 53,200 Kgs. So an average of approximately 70 Kgs per day.

2.Fishermen at a harbour in Kollam District have been dedicating an average of 1 hour per day in removing plastic debris entangled in their fishing net. So a total of 750 man hours have been spent by fisher men in Neendakara within the span of 25 months to collect the plastic waste in the sea. If we consider the average income/day of a fisherman in Kerala as 100 Rupees in 25 months they have lost 75,000 Rs.

3.As per our findings the major plastic components found in ocean are multi-layer plastics and SUPs. Multi-layer plastics cannot be recycled. The multilayer plastic that found in Neendakara has been shredded and given to road tarring. Alterative measures like this is necessary to prevent further destruction of ocean ecosystem.

6. **Brand Audit**

Brand Audit is the process of accessing the contribution of all manufacturers and brand owners in municipal solid waste produced. The contribution is assessed in terms of both weight and number of pieces. Percentage contribution of each manufacturer and brand owner can be linked to the implementation of Extended Producer Responsibility. The audit process also analyses the presence of various types of packing material and type of products that contribute the most to municipal solid waste. The audit data presents waste generation pattern for a particular section of consumers. Thus the result depends on the sample chosen for audit. It is advisable to conduct brand audits for specific sections of consumers so that accurate results are obtained. Conducting audit for specific consumer sections will also make the process easier. Similar structured audit for various sections of consumers / consumer products can be compiled to prepare integrated action plans to implement extended producer responsibility.

6.1 Methodology

Thanal followed the toolkit published by BFFP for conducting brand audit. Brand audit was done with the help of three volunteers. Every single piece of plastic is considered and analyzed to find out its brand, type of material and nature of material. The brand audit was done on 10th of January 2020. We considered the plastic waste collected from the sea on 9th of January 2020.

6.2 Results

1.Branded v/s un branded
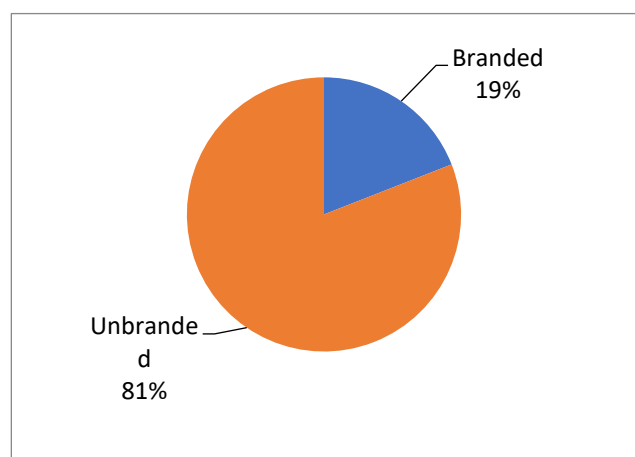
Graph 1: Branded v/s Unbranded

Out of the 614 plastic pieces collected on January 9th 2020 117 were branded representing 42 brands. The remaining 297 pieces were un branded.

2. Top polluting brands

The top polluting brands were ITC, Sreekrishna Pappad, Eastern, Plastic sheets, Kerala Civil Supplies Corporation, Nestle, Olio food products, Nina foods and Pepsico.

The following pie diagram shows the contribution of the top polluting brands.
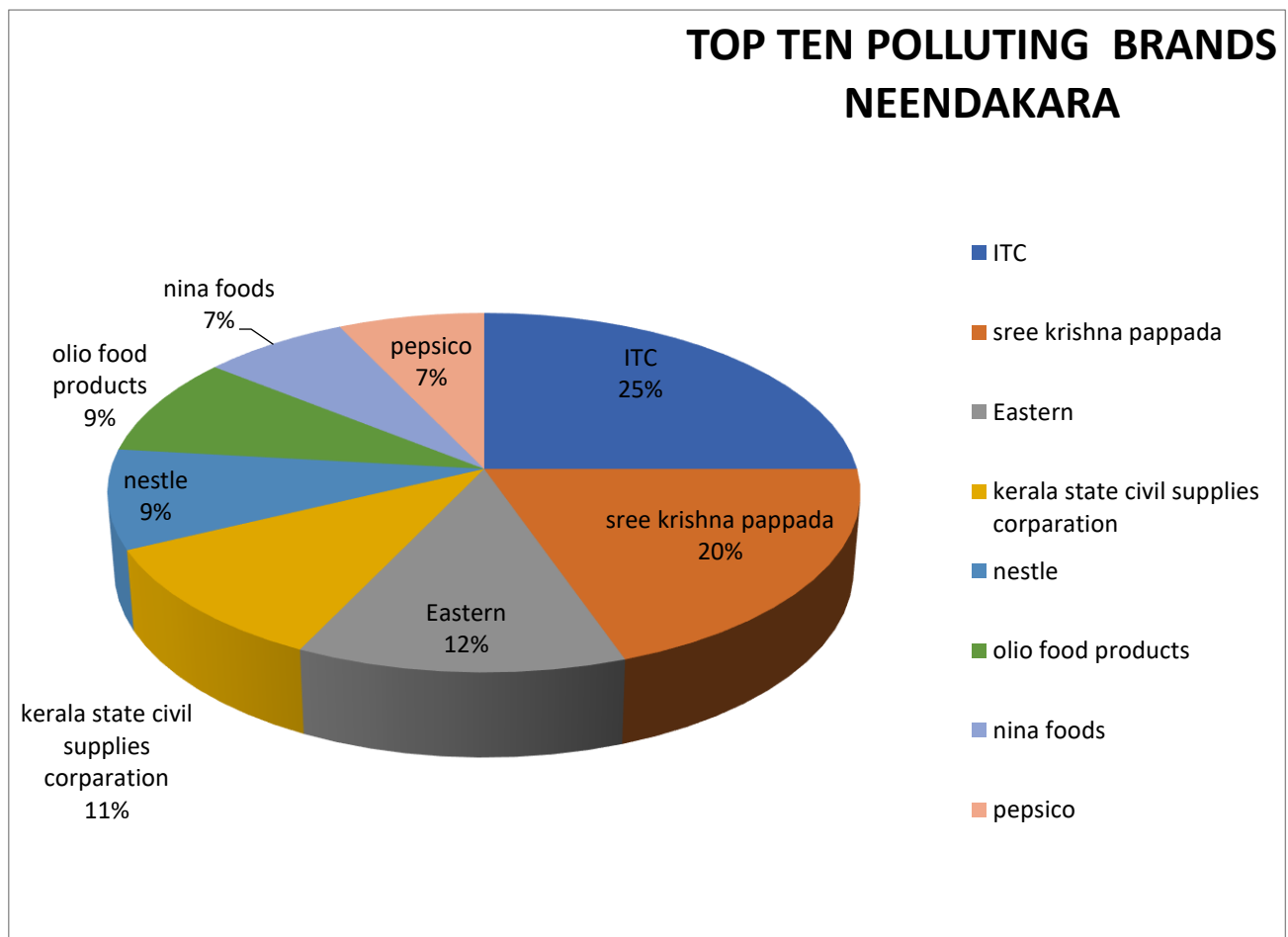
Graph 2: Top 10 Polluting Brands in Neendakara

3. Single layer v/s Multi-layer

The plastics we collected classified into single layer and multi-layer plastics. Multi-layer plastics are made up of composition of two or more materials. 56% of the plastics were multilayer plastic which are difficult to recycle. The following pie diagram shows the contribution of single and multi-layer plastics.
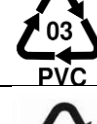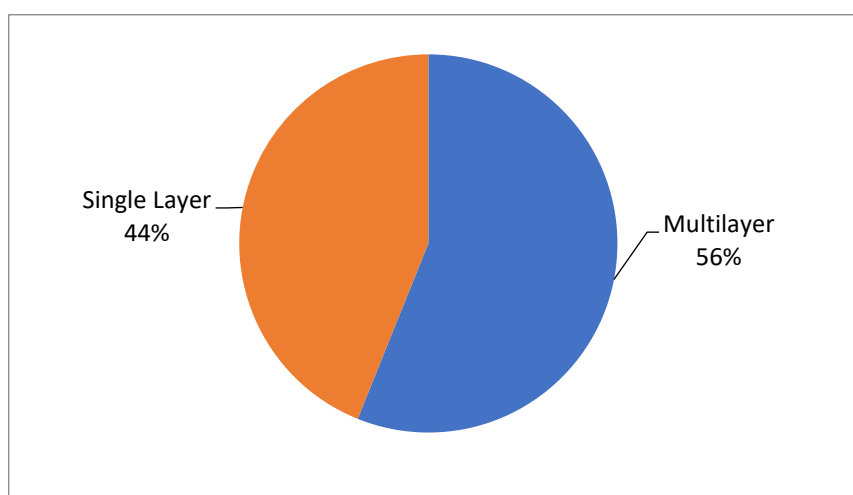

Graph 3: Single Layer v/s Multi-layer

4. Types of material

The following table shows the different types of materials

Table 1: Types of Plastics

| Symbol	Abbreviation	Polymer Name
PETE	PET	Polyethylene Terephthalate
HDPE	HDPE	High-Density Polyethylene
PVC	PVC	Polyvinyl Chloride
LDPE	LDPE	Low-Density Polyethylene

	PP	Polypropylene
	PS	Polystyrene or Styrofoam
	OTHERS	Multi-layer plastic, bioplastic

Following chart shows the contribution of different type plastic in the sample.
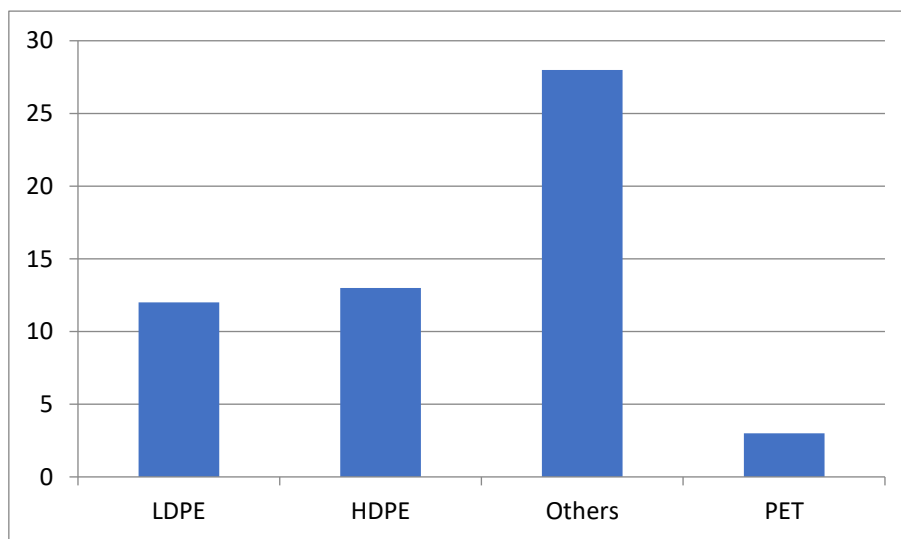
Graph 4: Types of Plastic in the Sample

5. Types of products
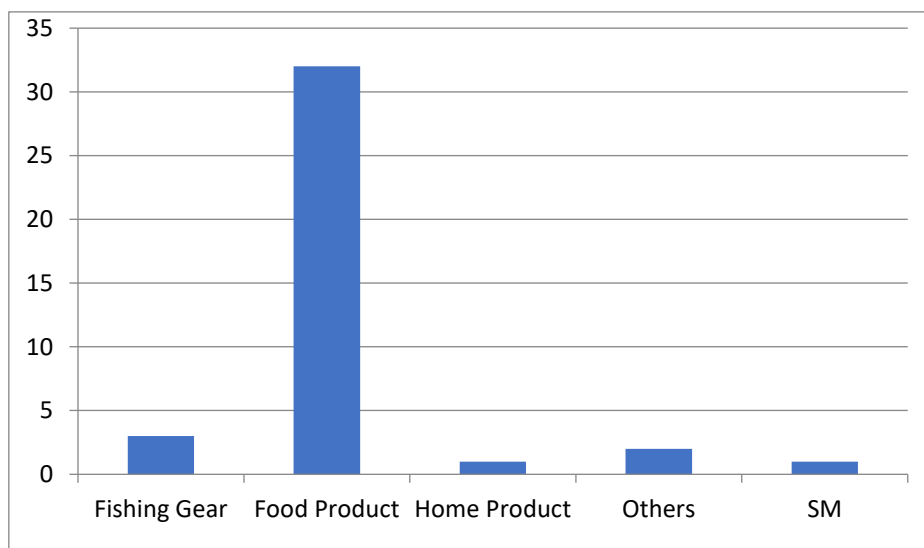
Graph 5: Types of Products

Sample analyses have been done on the basis of its usage. Fishing gears, food packet, home product, others, personal care and smoking materials were the different categories. The following graph shows the contribution of different types of products. It is clear that the category Food products has a major share and is a major concern.

Annexure - Photos

Figure 1: Kudumbasree women removing the plastic waste collected in bags by fishermen at Neendakara harbour

Figure 2: Kudumbasree women segregating the plastic waste collected from the sea by fishermen into different catagories at Neendakara harbour

Figure 3: Collection centre of Plastic waste at Neendakara harbour

Figure 4: Kudumbasree women drying the plastic waste collected from the sea by fishermen at Neendakara harbour

Figure 5: Thanal team doing Brand audit of the plastic waste collected from the sea by fishermen at Neendakara harbour