



## **The Impact of Waste Plastics on Environment in Afgoye District, Lower Shabelle, Somalia**

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### **ABSTRACT**

A cross sectional study in taking one session every month by collecting data on plastic bags focusing landfill, animal death and KAP SURVEY through perception of community in the risk of plastic bags. Hundred households were interviewed in six localities of Afgoi surroundings. The objectives of the study were to identify the effect of plastic bags on the biodiversity, To collect information regarding plastic bags in Afgoye district, To present and discover effects of plastics on the environment of Afgoye district and to recommend the alternative ways to replace plastic bags.

The data were collected from the six fixed stations using different methods of Questionnaire and interview. Our questionnaire contained seventeen questions about knowledge, attitude and practice in English language medium and questionnaire was translated in Somali language for non-English professionals. And Data collection on landfill and animal death in six localities. Data analysis data were analyzed by chart no other statistic package was applied.

Plastic bags are popular with consumers and retailers used to carry goods such food and other products. Last landfill after used and some are burned.

Once littered plastic bags can be found on the way to our streets, river and into our waterways. They create visual pollution problems and can have harmful effects on the aquatic terrestrial animals and noticeable components of the litter ways due to their becoming as available food and can take long time to fully break down.

The distribution of plastic bags among localities illustrated show gradually different among localities such Magle 29%, Alifow 26.6%, Baqdad 21%, Doonka 10.36% Libaaxe 8.88% and Jambaluul 3.5%.

Plastic kill animals live on land and animal live in water. The total animal death recorded during the study were 12 in six localities. More in Magle 5 death and Jambaluul zero.

The study was basically confined to the plastic bags effects in lower shabelle region of Somalia especially afgoi district highlighted the risk of plastics bags both environment and animal life. Sought to enhance the situation by increasing mass awareness and IEC & BCC.

The people after use plastic bags do not thrown away on the land such as supermarkets and villages and streets and parks and beaches etc. Awareness of the population toward the effect of plastic bags to their live hoods has to rise by using media announcement and journals. Support for development of managed disposal system to cater for the plastic bags.

Keywords: impact, waste plastic, afgoye district, lower shabelle, somalia

### **Introduction**

Plastic bags have been introduced in 1970's (Adane and Mulata, 2011) and gained an increasing popularity amongst consumers and retailers. They are available in numbers and varieties across the world. It is estimated that around 500 billion plastic bags are used every year worldwide.

This widespread utilization is attributed to their cheapness and convenience to use. The vast majority of these bags are discarded as wastes usually after single use. It is also believed that after their entry into environment, plastic bags can persist up to 100 years without being decomposed by sun light or microorganisms.

Accumulation of plastic bag waste causes environmental pollution that can be manifested in number of ways. one of the problems is deterioration of natural beauty of an environment, another common

problem associated with these wastes is death of domestic and wild animals. Plastic bags do not biodegrade, they photo degrade breaking down into smaller and smaller toxic bits contaminating soil and waterways and eventually entering the food chain when animal accidentally ingest. Over a billion seabirds and mammals die annually from ingestion of plastic, 100,000 marine mammals are killed each year by ingesting . however, the impact of plastic bags does not end with the death of one animal ; when bird or mammal dies in such a manner and subsequently decomposes, the plastic bag will again be released into the environment to be ingested by another animal.

There are some facts about the environmental impact of plastic bags:

- Plastic bags in environment of AFGOYE cause over 1000, animal deaths every year when animals mistaken them for food
- The manufacture of plastic bags add tons of carbon emissions into the air annually
- Most plastic bags take over 400 years to biodegrade. Some figures indicate that plastic bags could take over 1000 years to break down. (I guess nobody will live long enough to find out!). This means not one plastic bag has ever naturally biodegraded.

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## OBJECTIVES

- 1: To identify the effect of plasticbags on the biodiversity
- 2: To collect information regarding plastic bags in AFGOYE district.
- 3: To present and discover effects of plastics on the environment of AFGOYE district.
- 4: to recommend the alternative ways to replace plastic bags

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## 1.3 RESEARCH QUESTION

1. How to identify the effect of plasticbags in the environment?
2. How to collect the information about effect of plastic bags in AFGOYE district?
3. How to present and discover effects of plastics on the environment of AFGOYE?
4. How the people percept the effect of plastic bugs on environment

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## PROBLEM STATEMENT

Many animals ingest plastic bags, mistaking them for food, and therefore die. And worse, the ingested plastic bag remains intact even after the death and decomposition of the animal. Thus, it lies around in the landscape where another victim may ingest it. And one of the worst environmental effects of plastic bags is that they are non-biodegradable. The decomposition of plastic bags takes about 400 years.

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## LIMITATION OF STUDY

Limitations of the study are.

- a. Non-participation of community to lift the burden of plastic bags on environment
- b. No imitative of recycling process
- c. Security reasons
- d. Liability reasons
- e. Additional operational research
- f. IEC/BCC programme initiated
- g. Economic less.

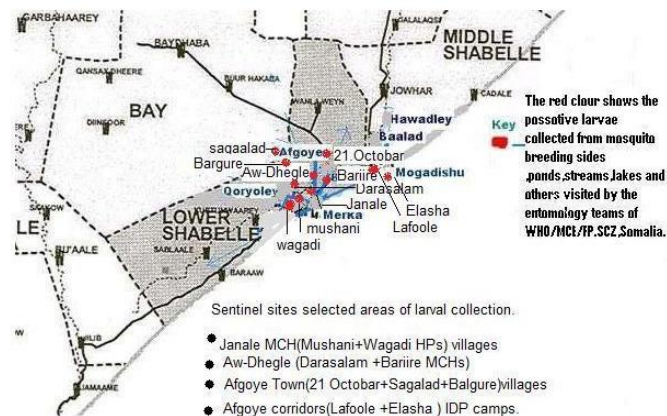
## SIGNIFICANCE OF STUDY

Plastic bags become environmental issues resulting pollution of environment trigger loss of many precious animals especially domestic as well as water animal. In addition to that plastic bags has non-biodegradable. The decomposition of plastic bags takes about 400 years.

## Research Methodology

### Study areas

## Sentinel sites locating MCHs.HPs & Hospitals



Afgoye is one of the major districts of lower Shebelle it rests a total area of 30kmsq with huge density of population which is estimated three thousand approximately. It is a strategic district with 12 localities and 50 villages.

Afgooye pass the river of Shebelle which favorites the development of agriculture and provide improvement of the economy.

During the study prior we observed the livelihood were mainly agriculture and pastoralist due suitability of ecosystem from above mention variables. Others main activities excised by inhabitants were trade of agriculture products.

### Sample Size

Sample size required for the study was determined using the formula given by Sloven's formula (pogosso et al,1992) to calculate sample size, we took population size 134 and margin of error (e) 5% and the formula was given below.

$$n = N / (1 + (N * e^2))$$

$$n = 134 / (1 + 134 * 0.05^2)$$

$$n = 100$$

So, the number of required populations to observe the effects of plastic bags on environment.

All collected raw data of the study by letters were entered to a Microsoft Excel database system and imported to be analyzed using SPSS Version 20.

### Study design

We took a cross sectional study in taking one session every month by collecting data on plastic bags focusing landfill, animal death and KAP SURVEY through perception of community in the risk of plastic bags. Hundred households were interviewed in six localities of AFGOI SURROUNDINGS.

The main key informant livestock keepers, farmers, shop keepers and the villagers, and we randomly took one person from each household especially elder of household in order to collect and collate data from indigenous people more user plastic bags and rural people.

Prior to the study, permission was sought from the village elders, following Which village meetings were conducted to explain the purpose of the study, and participation requested. Verbal consent from house owners and their compound head for permission to collect data from their houses.



**Data collection:** The data were collected from the six fixed stations using different methods of

1. Questionnaire and interview.

Our questionnaire contained seventeen questions about knowledge, attitude and practice in English language medium.

Questionnaire was translated in Somali language for non-English professionals.

2. Data collection on landfill and animal death in six localities

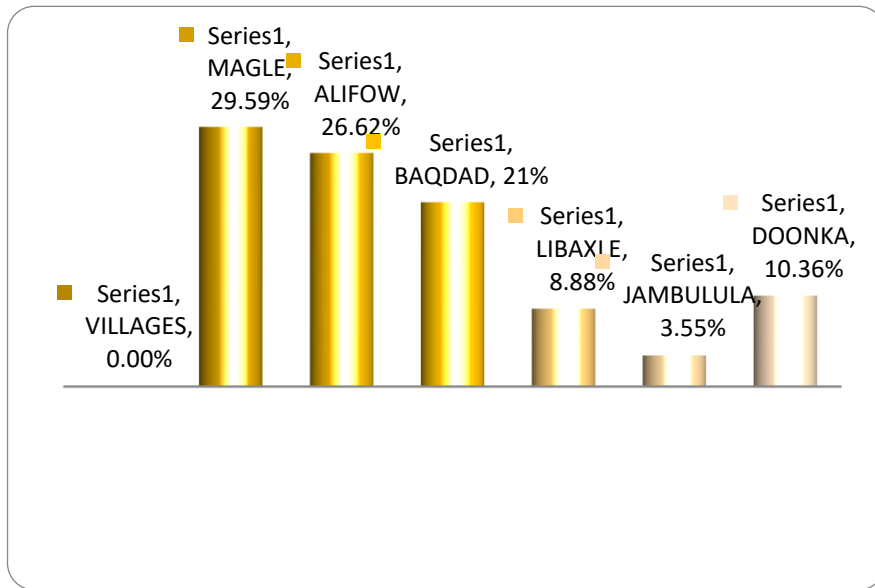
**Data analysis ; data were analyzed by chart no other statistic package was applied**

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## **RESULTS AND DISCUSSION**

This study concerns about the various effects of plastic bags on the environment in AFGOI areas. Thus, the data obtained from the questionnaire and interview analyzed and discussed in this chapter in accordance with the study objectives.

Fig 1 .Distribution of plastic bags in AFGOI localities



Plastic bags are popular with consumers and retailers used to carry goods such food and other products. Last landfill after used and some are burned.

Once littered plastic bags can be found on the way to our streets, river and into our waterways. They create visual pollution problems and can have harmful effects on the aquatic terrestrial animals and noticeable components of the litter ways due to their becoming as available food and can take long time to fully break down.

The distribution of plastic bags among localities illustrated in figure one show gradually different among localities such Magle 29%, and Jambaluul 3.5%.

**The Plastic bags damage visual aesthetic on the environment in Afgoye district.**

The effects of plastic bags on the environment are really quite devastating. While there are many objections to the banning of plastic bags based solely on their convenience, the damage to the environment needs to be controlled. There is no way to strictly limit the effects of plastic bags on the environment because there is no disposal method that will really help eliminate the problem. While reusing them is the first step, most people either don't or can't based on store policies. They are not durable enough to stand up to numerous trips to the store so often the best that citizens can do is reuse them when following pooper scooper laws.

In Afgoye district after use plastic bags they are carelessly thrown away on the streets of the city, villages and markets. They also damage the visual aesthetic on the environment by landfill.

**Plastic garbage kills livestock in Afgoye district**

NUMBER OF ANIMAL DEATH REPORTS DUE TO PLASTIC BAGS	
VILLAGES	DEATH REPORT
1. MAGLE	5
2. ALIFOW	1
3. BAQDAD	3
4. LIBAXLE	2
5. JAMBALULA	1
6. DONKA	0
TOTAL	12

Plastic kill animals live on land and animal live in water.(table)

The total animal death recorded during the study were 12 in six localities. More in Magle 5 death and donka zero.

The land litter that is made up of plastic bags has the potential to kill over and over again. It has been estimated that one bag has the potential to unintentionally kill one animal per every three months due to unintentional digestion or inhalation. If you consider the number of littered plastic bags ranges from 1.5 million to 3 million depending on location, this equals a lot of ecosystem sustaining lives lost.

Without the balance of the ecosystem food sources dry up and starvation occurs. With an increase in plastic bag use throughout the world, the eventual effects could be literally devastating even to the human population.

About 100,000 animals such as dolphins, turtles whales, penguins are killed every year due to these bags. Many animals ingest plastic bags, mistaking them for food, and therefore die. And worse, the ingested plastic bag remains intact even after the death and decomposition of the animal. Thus, it lies around in the landscape where another victim may ingest it.

#### Effect of health on plastic bags

Plastic bags cause human and animal disease ,when burning plastics release some toxins on the environment.

Plastic bags cause in human respiratory problems

Plastic bags release chemicals that cause harming development of children brains and reproductive organs and cause abortion in animals.

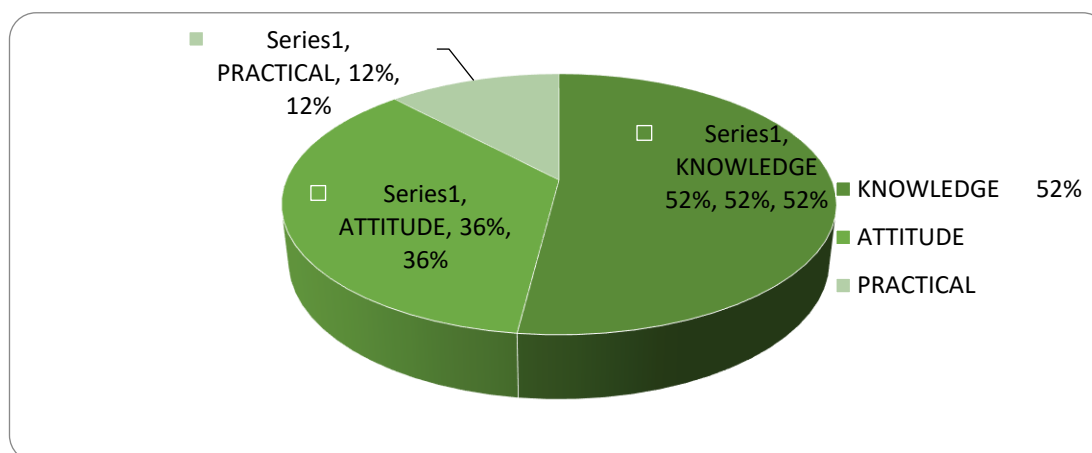
#### The impact of Plastic bags on economic

As far as the lives stock in considered one of the major economic dependence of the nation the loss of lives stock definitely can be considered as an economic damages or disaster.

The plastic bags caused not only the death of the lives stock but also causes reduction of milk production, Uncountable amount of cows and goats are suffering disease caused by eating plastic bags and the owners of the victimized lives stock lost the

#### Perception of communities in AFGOI localities (KAP SURVEY).

KAP SURVEY was conducted in six villages of AFGOI TO record the perception of community through the risk of plastic bags on environments as well as animal protection. The result from interview of key informant display 52% knowledge, 36% attitude, 12 % practice. The result account for more effort need to develop initiatives to enhance current situation of man-made disasters.



#### Conclusion:

The study was basically confined to the plastic bags effects in lower shablle region of Somalia especially afgoi district highlighted the risk of plastics bags both environment and animal life. Sought to enhance the situation by increasing mass awareness and IEC &BCC

#### Recommendations

The recommends the following points

- ❖ The population should to understand the serious effect of plastic bags on the environment and our lives stock.
- ❖ The people do not use non-biodegradable such as plastic bags.
- ❖ The people use biodegradable bags made from fabrics.

- ❖ Support for development of environmentally-friendly alternative bags.
- ❖ The people use replaces plastic bags such as Baskets and salads.
- ❖ Support for development of an effective plastic bags recycling systems.
- ❖ The people after use plastic bags do not thrown away on the land such as supermarkets and villages and streets and parks and beaches etc.
- ❖ Awareness of the population toward the effect of plastic bags to their live hoods has to rise by using media announcement and journals.
- ❖ Support for development of managed disposal system to cater for the plastic bags.

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