

# Consumer Perception And Willingness To Pay For Plastic Bags In Somalia's Traditional Markets: Evaluating The Ban's Effectiveness

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## Abstract:

The policy prohibiting the use of disposable plastic bags in Somalia represents a governmental effort to mitigate plastic waste accumulation. The policy's effectiveness remains uncertain, as it is implemented solely in modern retail stores, whereas the primary source of plastic bag waste originates from traditional markets. This study seeks to assess consumer perceptions of government policies concerning the ban on disposable plastic bags in traditional markets, as well as their willingness to pay for each plastic bag utilised. Data were collected through a survey questionnaire administered to consumers of traditional markets. The study's results indicated that most consumers concurred with the policy's implementation in traditional markets, albeit with a recommendation for gradual application. The implementation of paid plastic bags was also agreed upon. Their argument relies on the belief that the policy may enhance public awareness and concern regarding the reduction of disposable plastic bag usage. The average value of consumers' willingness to pay for a plastic bag is variable, indicating that consumers remain inclined to pay higher amounts. To decrease the utilisation of plastic bags within the community, it is essential to either increase the cost of plastic bags significantly or to explore alternatives, such as shopping baskets, reusable bags, or environmentally friendly plastic options.

**Keywords:** Plastic bag prohibition policy, Traditional market consumer perception, public awareness of plastic waste, Environmental Policy, Waste Management.

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## I. Introduction

Plastic trash constitutes a significant global issue, affecting regions such as Somalia. With the rise in population, the quantity of trash produced from human activities correspondingly escalates. Annually, the volume of waste consistently escalates alongside the rising trend of consumerism [1-3]. In 2024, the Ministry of Environment and Climate Change of Somalia reported that national garbage production reached critical levels, primarily due to the increased usage of bags [4].

The volume of garbage produced necessitates rigorous management intervention. The 2024 Law of the Republic of Somalia regarding Waste Management and the Government of the Republic of Somalia Regulation on the Management of Household Waste necessitate a fundamental paradigm shift in waste management, transitioning from a transport collection model to one focused on waste reduction and handling. Waste management can be executed through a holistic strategy [5-8].

One method to mitigate waste, particularly plastic trash, is to diminish the reliance on disposable plastic bags.

Familiarize the public in reducing the use of disposable plastic bags as stipulated in the Benadir region Mayor Regulation on Reducing the Use of Plastic Bags. This legislation will take effect on October 1, 2024, prohibiting all modern retail stores from offering plastic bags. This policy seeks to diminish the volume, distribution, and utilisation of environmentally detrimental plastic bags, while progressively reducing reliance on them. However, the mayor's regulation exclusively targets middle and upper-tier businesses, including retail outlets, modern stores, and supermarkets/minimarkets, mandating that these establishments cease the provision of plastic bags. Consequently, consumers shopping at retail stores are required to bring their own bags or purchase cloth bags offered by the store.

The ordinance enacted by the Mayor of Banadir State represents an initial measure to mitigate plastic waste in the environment; nonetheless, the fundamental issue lies in the use of plastic bags in traditional markets due to the absence of governing regulations. The conventional market, as a shopping centre, is the primary contributor to plastic bag usage [9]. The Banadir Regional Administration, often referred to as the Banadir City Government, is implementing a program aimed at diminishing the utilisation of plastic bags in traditional markets to optimise the decrease of plastic trash [10].

The program that has been implemented by the Banadir Regional Administration (also known as Banadir City Government) in mid-2024 is the distribution of alot baskets (shopping bags made from purun woven) in the Bakaro market and some other markets, Central Hodan District to buyers and traders. Socialisation was conducted at Bakaro Market in Hodan District and Suuq-bacaad Market in Yaaqshit District. Following the conducted socialisation, consumers frequenting traditional marketplaces are anticipated to bring their own shopping bags; otherwise, they are required to compensate the seller for each plastic bag utilised for packaging their purchases. The objective of adopting the policy is to enhance public awareness on the significance of minimising plastic waste. Consequently, it is essential to conduct a more in-depth examination of individuals' attitudes regarding the prohibition of plastic bag usage, particularly in traditional marketplaces. The public's capacity to afford the cost of a plastic bag during shopping is crucial if they are required to pay for each bag utilised. This study aims to ascertain consumers' impressions of government policy about the ban on disposable plastic bags at traditional markets and their willingness to pay for plastic bags when charged. This research serves as a contribution to the government about the policy aimed at diminishing the utilisation of plastic bags in traditional markets.

## **II. Theoretical Framework**

Public policy related to waste management is one of the government's efforts to reduce the negative effects of waste. Policies can be applied to start from the waste generated, the process of collection, transportation, to final disposal [11]. This policy is applicable to multiple categories of waste.

In numerous developed countries, the use of plastic shopping bags in retail environments is increasingly being restricted and substituted with cloth bags [12]. In the United States, stores and supermarkets that continue to provide plastic bags face a \$100 fine for the first offence, a \$200 fine for subsequent violations, and a \$500 fine for further infractions. [13]. In Australia, stores offer fabric shopping bags at low prices, which can be utilised multiple times [14]. While In England, certain supermarkets offer discounts ranging from 1 to 4 pounds to customers who bring their own bags from home [15].

In Somalia, the government has implemented various measures to reduce the use of disposable plastic bags in the community, including restrictions on shopping plastic bags in both modern retailers and traditional markets. (2) Optimisation of current plastic waste recycling efforts by local government, the informal sector, or community initiatives; (3) Collaboration between government and producers of goods and/or products with plastic packaging; and (4) Promotion of plastic waste sorting and recycling initiatives via the Waste Bank Program [16].

In 2024, the Government of Somalia, via the Directorate General of Waste, Hazardous and Toxic Material Management within the Ministry of Environment and Climate Change, issued a Circular outlining anticipatory measures for the implementation of the Paid Plastic Bag Policy in modern retail businesses. This circular outline a government policy aimed at reducing waste, particularly plastic bag waste, through the implementation of paid plastic bag policies across all modern market outlets in Somalia. The paid plastic bag policy serves as a strategy to decrease the generation of plastic bag waste, a significant environmental pollutant [17, 18]. Initially, changing people's habits proved challenging; however, to mitigate plastic waste generation in the environment, it is essential to promote policies aimed at reducing the use of disposable plastic bags [19, 20]. This policy is applicable to both modern retail stores and traditional markets.

## **III. Method**

This investigation employs a quantitative methodology utilising a survey approach. The findings presented in this study are based on the results obtained from the field survey carried out in October 2024. The information is presented as a data questionnaire along with accompanying documentation. The investigation took place in a conventional marketplace, specifically Bakaaro, Suuq bacaad. The selection of the location was carefully considered, as this market falls within the scope of the Banadir City Government's policy trial plan concerning the prohibition of plastic bag usage. The focus of the study was on visitors (buyers) at Bakaaro Traditional Market in the Hodan District. These individuals were chosen as the subjects of the research due to their direct connection to the proposed policy aimed at banning the use of plastic bags in traditional markets. The sampling technique employed was accidental sampling, involving individuals who coincidentally encountered the researcher during the survey and were selected as respondents, provided they were deemed suitable as data sources. A total of 55 individuals participated in the study. The questionnaire results were analysed using frequency distribution, and the stated preference method was employed to measure WTP values. The willingness to pay (WTP) value for each respondent, representing the maximum dollar amount they are prepared to spend on a single plastic bag if required, is analysed to derive an average value (mean) from the PAP value.

## **IV. Result And Discussion**

### **Understanding Public Views on Government Regulations Regarding the Ban on Disposable Plastic Bags Characteristics of Respondents**

The majority of participants fell within the age range of 16-25 years, accounting for 36.66%, while those

aged 41-49 years represented 18.18% of the sample. When analysed by sex, the composition includes 25% of men and 74.54% of women. The respondents exhibited a range of educational backgrounds, with 54.55% having completed high school and 29.09% holding Bachelor's or Postgraduate degrees. The occupations reported by respondents included Students at 32.73%, Housewives at 30.91%, and Civil Servants at 21.48%. This highlights that the participants generally possess a relatively high level of education and fall within the adult age demographic, primarily consisting of students and homemakers. Figure 1 illustrates the distribution of respondent characteristics according to these parameters.

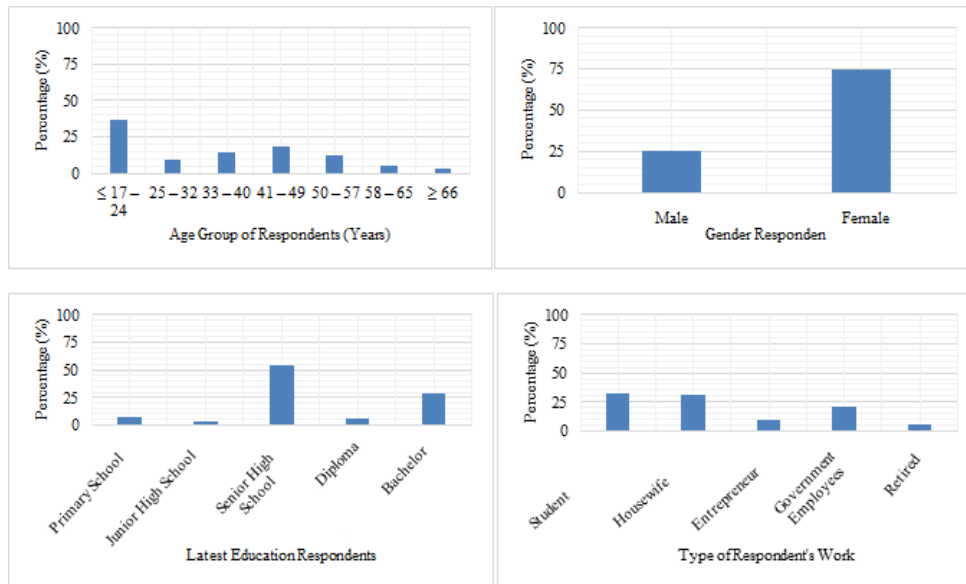


Figure 1 Distribution of Respondents Characteristics of Respondents

**Knowledge About Plastic Bags**

Plastic is a versatile organic material that can be shaped into different forms through the application of heat and pressure. The development of plastic encompasses a wide range of forms and applications, including tableware, food wrappers, optical lenses, building structures, furniture, fibreglass, and more. Plastic bags are typically composed of Polyethylene (PE) [21], A thermoplastic material that has the potential to decompose in nature over a period of 500-1000 years, posing environmental risks when dispersed on the ground. Its presence can obstruct water infiltration, lead to flooding, and adversely affect soil fertility [22, 23]. This necessitates an understanding of plastic bags, including their various types and the effects they have on the environment. The information regarding disposable plastic bags is illustrated in Table 1.

Table 1 Understanding Community Awareness of Disposable Plastic Bags

No	Inquiry Regarding the Item	Alternative Response		
		a	b	c
1	What do you know about plastic bags?	39 (70.91%)	9 (16.36%)	7 (12.73%)
2	What types of plastic bags are you familiar with?	23 (41.82%)	1 (1.82%)	31 (56.36%)
3	In your opinion, what are the advantages of using plastic bags?	45 (81.82%)	8 (14.55%)	2 (3.64%)
4	What makes plastic bags widely used by the public, based on your understanding?	42 (76.36%)	8 (14.55%)	5 (9.09%)
5	Where do you think the harmful effects of plastic bags come from?	31 (56.36%)	18 (32.73%)	6 (10.91%)
6	How do you perceive the use of plastic bags in daily life?	40 (72.73%)	11 (20.00%)	4 (7.27%)
7	Besides environmental impacts, are you aware that using plastic bags can also affect health, especially when used for hot food or drinks?	30 (54.55%)	22 (40.00%)	3 (5.45%)
8	Do you believe that using plastic bags for every shopping trip contributes to environmental pollution?	49 (89.09%)	5 (9.09%)	1 (1.82%)

The majority of participants demonstrated a solid understanding of plastic bags, including their

advantages, applications, and the implications they have on both the environment and public health. Regarding the understanding of different types of plastic bags, out of 55 respondents, 31 identified the type simply as a plastic bag, 23 referred to both recycled and non-recycled plastic, while only 1 respondent noted environmentally friendly plastic bags. Most respondents who refer to disposable plastic bags provide explanations, noting that these bags are readily available and have integrated into daily life, particularly during shopping activities. Currently, numerous individuals have become acquainted with the various public types of plastic bags made from eco-friendly raw materials, designed to serve as alternatives to disposable plastic bags [24]. According to the Technology Assessment and Application Agency (BPPT) page, there are three categories of plastics made from environmentally friendly raw materials. Initially, Deniable Grade Polyethylene (PE) is a material that will break down after being subjected to sunlight or pressure within a timeframe of one to two years. Polyethylene plastic is utilised in the production of shopping bags and various wrapping materials. Secondly, cassava starch (tapioca) is combined with PE to create a plastic that undergoes natural degradation through a biological process based on the principle of grafting. Third, materials composed of starch and derivatives from vegetable oils. The application of these natural components can aid in the breakdown of plastic by micro-organisms, organisms, and water [25, 26].

The general awareness regarding the environmental consequences of plastic bag usage is notable, as most respondents recognise the issue, particularly in light of the growing accumulation of plastic waste that poses a pollution threat due to the challenging decomposition properties of plastic. Similarly, there are concerns regarding health implications, particularly related to the use of plastic bags for food and beverage packaging. When a plastic bag is subjected to heat from food or beverages, the chemicals present in the plastic can migrate or dissolve into the food or drink [21, 27]. Consequently, when compelled to utilise plastic bags or tableware/drinks crafted from plastic, opt for materials that are deemed safe for food and beverages (food grade).

**Knowledge of Respondents Regarding the Ministry of Environment and Climate Change of Somalia Regulation About Ban on Plastic Bags.**

The Ministry of Environment and Climate Change of Somalia Regulation About Ban on Plastic Bags in 2024 on Reducing or ban the Use of Plastic Bags, stated that reducing the use of plastic bags is a way to minimize volume, distribution, and use wisely and gradually reduce dependence on plastic bags, which are not environmentally friendly. The Ministry of Environment and Climate Change of Somalia Regulation came into force on October 1, 2024, and it is still in modern retail/markets such as minimarkets, supermarkets, and hypermarkets. Therefore, it needs to be applied in traditional markets, because traditional markets are the biggest contributor to plastic waste in the city of Mogadishu. Table 2 presents community knowledge related to the Ministry of Environment and Climate Change of Somalia Regulation About Ban on Plastic Bags.

**Table 2** Public Knowledge of government Regulation Year 2024 concerning Barring of Use of Plastic Bags

No	Inquiry Regarding the Item	Alternative Response		
		<i>a</i>	<i>b</i>	<i>c</i>
10	What is your view or stance if the government implements a policy aimed at reducing the use of plastic bags, potentially even prohibiting their usage entirely?	48 (87.27%)	5 (9.09%)	2 (3.64%)
11	Did you know about the Government Regulations regarding the ban on disposable plastic bags in 2024?	20 (36.36%)	23 (41.82%)	12 (21.82%)
12	The government regulation has been implemented in modern markets and retail stores (such as minimarkets, supermarkets, and hypermarkets). Do you agree that this regulation should also be applied in traditional markets?	38 (69.09%)	12 (21.82%)	5 (9.09%)

A total of 48 respondents, representing 87.27%, expressed agreement with the implementation of government policies aimed at reducing the use of plastic bags, including a potential ban. Conversely, 5 individuals, or 9.09%, showed less agreement, while 2 individuals, accounting for 3.64%, disagreed with the policy. Supporters believe that implementing this policy can effectively alter individuals' behaviours, leading to a decrease in the reliance on disposable plastic bags in daily activities, particularly during shopping. Critics of the policy argue that plastic bags supplied by traders have become an integral aspect of their services, indicating that these bags are indeed provided by the traders themselves. Figure 2 illustrates the behaviours associated with individuals utilising plastic bags during their shopping activities.



**Figure 2** Dhaqamada Bulshada Ee Ku Saabsan Isticmaalka Bacaha Balaastigga Xiliga Wax-soo-iibsiga

Community's knowledge related to the Ministry of Environment and Climate Change of Somalia Regulation About Ban on Plastic Bags, The majority of participants are aware of the regulations. A total of 23 respondents, representing 41.82%, reported awareness through mass media coverage. Meanwhile, 20 respondents, or 36.36%, gained a clear understanding through government and mass media socialisation efforts. Conversely, only 12 respondents, accounting for 21.82%, were unaware of the regulation, attributing this to insufficient information.

Participants concurred that the regulation regarding the ban on plastic bags by the Ministry of Environment and Climate Change of Somalia was also enforced in traditional markets. A total of 38 respondents, representing 69.09%, expressed their agreement, emphasising the importance of gradual socialisation within the community. Conversely, 12 respondents, or 21.82%, disagreed, while 5 respondents opposed the application in traditional markets, citing potential obstacles and the lengthy implementation process that could burden the community.

The community generally supports the government's policies aimed at addressing the issue of plastic bag waste. However, there is a desire for increased communication from the government concerning the policy's implementation, ensuring that the community is well-informed and prepared to engage in the process. The government, in collaboration with environmental practitioners, can offer insights into alternative solutions that can substitute plastic bags with more eco-friendly materials.

### **Respondents' Attitudes Regarding banning the Use of Plastic Bags**

A range of strategies is implemented to minimise the reliance on plastic bags within the community. Table 3 illustrates the perspectives and involvement of respondents concerning their initiatives to minimise the use of plastic bags, particularly during shopping in traditional markets.

**Table 3** Attitudes of the Public Towards Decreasing Plastic Bag Usage

No	Inquiry Regarding the Item	Alternative Response		
		a	b	c
9	In your opinion, what actions should be taken to minimize plastic waste generated by the use of plastic bags in daily life, particularly when shopping at markets?	40 (72.73%)	8 (14.54%)	7 (12.73%)
13	Do you agree that charging for plastic bags provided by vendors at the market could help reduce their usage?	40 (72.73%)	9 (16.36%)	6 (10.91%)
15	Would you support the idea of bringing your own plastic bag, basket, or reusable shopping bag from home when shopping at the market?	50 (90.91%)	3 (5.45%)	2 (3.64%)

According to Table 3, a majority of respondents demonstrated a favourable attitude towards initiatives aimed at decreasing the use of plastic bags. To mitigate plastic waste associated with the use of plastic bags in everyday activities, particularly during market shopping, several strategies have been identified. These include utilising personal shopping baskets or bags (40 respondents / 72.73%), reusing plastic bags that remain functional (8 respondents / 14.54%), and opting for more environmentally friendly alternatives to plastic bags (7 respondents / 12.73%).

To decrease the utilisation of plastic bags, a significant portion of participants (40 respondents / 72.73%) concurred that shopping bags provided by vendors during market visits should not be complimentary (sold separately). This, as they suggest, will gradually cultivate public awareness and contribute indirectly to environmental protection. There remains a limited group of respondents (9 individuals, or 16.36%, and 6 individuals, or 10.91%) who expressed disagreement regarding the separate sale of plastic bags for groceries by vendors. Their perspective is that this practice would create inconvenience and impose additional burdens on

consumers, as the provision of plastic bags has become an integral aspect of the services offered by traders. Furthermore, consumers often hesitate to pay for plastic bags due to the belief that addressing plastic waste is a collective responsibility, rather than solely the burden of individual consumers.

In an effort to minimise shipping expenses associated with paid plastic bags, a significant majority of respondents indicated their willingness to bring their own plastic bags, baskets, or shopping bags from home, totalling 50 respondents or 90.91%. In contrast, 3 respondents (5.45%) expressed disagreement, while 2 respondents (3.64%) also indicated their lack of agreement. This situation arises due to the inconvenience, and it is essential for traders to supply plastic bags.

### **Consumer Attitudes Toward Paid Plastic Bags in Somalia's Traditional Markets: Evaluating the Role of Public Awareness in Reducing Plastic Waste**

The study on "Consumer Attitudes Toward Paid Plastic Bags in Somalia's Traditional Markets: Evaluating the Role of Public Awareness in Reducing Plastic Waste" explores the reactions of consumers to government policies on plastic bag usage, particularly in traditional markets. Findings indicate that many consumers are open to paying for plastic bags, especially when public awareness campaigns on environmental sustainability are in place. Most consumers agree that charging for plastic bags could gradually reduce their use, especially in regions like Somalia, where waste management remains a challenge. The study also highlights that greater awareness of the environmental impact of plastic waste leads to a more favorable view of these policies, with consumers showing increased willingness to use reusable or eco-friendly alternatives.

However, the research also points out the challenges of implementing these policies in traditional markets, where regulations are often lax, and economic factors weigh heavily on consumer decisions. A small portion of consumers is resistant to the idea of paid plastic bags due to the additional cost burden, particularly in lower-income communities. This resistance underscores the importance of a phased approach to policy enforcement, coupled with extensive public education on the environmental harm caused by plastic bags. By increasing awareness and providing alternative solutions like reusable shopping bags, the Somali government can enhance the effectiveness of its plastic waste reduction strategies.

## **V. Conclusion**

Consumers are aware of government policies on banning the use of plastic bags as stipulated in government regulations. They advocate for the implementation of the regulation in traditional markets, as the improper disposal of plastic bags can result in environmental and health hazards. The policy can enhance public knowledge and concern over the reduction of plastic bag usage in daily life. Nevertheless, a minority expressed reservations and dissent to the policy approach. Multiple justifications were presented, including economic factors due to the potential increase in cost burden. To mitigate plastic waste from the utilisation of plastic bags in daily activities, particularly during market buying, several strategies can be employed, including utilising personal baskets or shopping bags, reusing functional plastic bags, or opting for more environmentally sustainable plastic bags. The typical consumer willingness to pay for a plastic bag differs between small/medium and large sizes, although the cost remains accessible to consumers, prompting them to remain willing to pay a premium. To diminish the utilisation of disposable plastic bags within the community, it is imperative to either increase the cost of plastic bags significantly or to seek alternatives, such as baskets, reusable shopping bags, or environmentally sustainable plastic bags.

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