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RESEARCH ARTICLE

Consumers' Perceptions on Plastic Bags Tax Levy in Peri-urban Areas of Eswatini: A Case of Kwaluseni and Logoba Chiefdoms

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Abstract:

Introduction:

This study focused on assessing the perceptions of consumers on plastic bags tax levy in peri-urban areas of Eswatini, using Kwaluseni and Logoba chiefdoms as case studies.

Methods:

The areas of key focus include knowledge of and attitudes of consumers towards plastic bags pollution, strategies employed by consumers to manage plastic bags, consumers' willingness to pay for plastic bags and what Eswatini Environment Authority has done so far in controlling plastic bags pollution.

Results:

A total of 165 households, (99 from Kwaluseni and 66 from Logoba) were conveniently sampled and interviewed with the aid of a questionnaire. Community leaders and an environmental inspector from Eswatini Environment Authority were also interviewed. The findings show that the use of plastic bags is increasing in both chiefdoms (92.93% at Kwaluseni and 92.42% at Logoba). Concerning what respondents do with the plastics bags after ferrying their goods home, 25% at Kwaluseni and 19% at Logoba of the respondents claimed to reuse some bags and throw away the rest.

Conclusion:

With regard to willingness to pay, the findings indicate that 49.70% of the respondents are willing to buy plastic bags.

Keywords: Consumers' perceptions, Eswatini, Kwaluseni, Logoba, Peri-urban areas, Plastic bags, Tax levy.

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1. INTRODUCTION

Plastics were first invented in the 1860s but developed for industries in the 1920s, and then became one of the fastest-growing global industries in the 1970s due to huge popularity among consumers [1]. Plastic bags are available in huge numbers and varieties across the world. No accurate statistics have been made on the total number of plastic bags produced so far, but today about a trillion plastic bags are being nonchalantly used worldwide every year [2]. Plastic shopping bags are widely used for transporting goods all over the world due to their functionality, strength, and low cost [3]. Notably, approximately half of the plastic bags manufactured worldwide are used as single-use disposable consumer items made from

petrochemical sources. Therefore, the problem with single-use disposable plastic bags is the pollution of the environment. Miller [4] states that the low cost of plastic bags has led to their wasteful consumption and disposal particularly in developing countries, hence environmental pollution. For instance, according to Madigele *et al.* [5], the management of plastic waste continues to be a major challenge throughout the world particularly in developing countries.

According to Dikgang and Visser [6], as with many other pollution issues in Africa, the plastic bag problem is rooted in widespread poverty, corruption, environmental injustice, and residues of colonialism. Plastic bags pollution is both unsightly and a hazard to the environment particularly wildlife and livestock. Plastic bags can block storm drains and sewage systems, leading to flooding and increase the spread of diseases. For instance, water trapped in the plastic bags provides an ideal

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breeding ground for mosquitoes, raising the risk of malaria transmission.

Noteworthy is that a majority of plastic bags are not biodegradable, and for that reason, they are disruptive on agricultural development. For instance, they take an incredibly long time to break down and when they do, it is in the form of powdery plastic dust which contaminates all life forms including the soil and the water forever [7]. Despite being very thin, plastic bags inhibit the roots of crops to pierce them in order to move around the soil for natural nutrients. In consequence, plastic bags have caused tremendous harm to the growth of agricultural products [8]. On the other hand, plastic bags also fill ditches on roadsides, rest on public waterways, rivers and oceans. An example can be Cape Town, South Africa, where there were more than 3000 plastic grocery bags at a certain time that covered each kilometer of the road [9]. In addition to these effects of plastic bags pollution, rivers are shrinking and floodplains are choked with hundreds of plastic bags waste. Plastic bags pollution not only affects agriculture but also tourism, which is pivotal in the economic growth of many countries including the Kingdom of Eswatini.

In response to plastic bags pollution, a number of regulatory instruments have been used worldwide to reduce the plastic bag problem, ranging from traditional command and control approaches such as bans, voluntary codes of practice and marketing of alternative bags, to economic tools such as taxes or levies [10]. The issue of plastic pollution which is mostly a result of single-use plastic bags has triggered developed countries to formulate plastic bags tax levies in an effort to regulate the issuing of plastic bags.

The plastic bag tax levy is a popular tax in Europe [11]. According to Dikgang and Visser [8] one of the most successful countries in implementing the plastic bag tax levy policy is Ireland, where it was applied in 2002 and consequently plastic bag pollution has been significantly reduced. The Irish government presented a 15 Euro cent (€1.50) per plastic bag which was previously provided free of charge to customers at points of sale, aimed at changing customer behavior. This tax resulted in a dramatic reduction of plastic bags usage in retail shops by 94% and led to a reduction in the amount of plastic litter [11]. In South Africa, a similar levy was introduced in 2003, although not as successful as it was in Ireland [8].

Governments around the world are increasingly awake to the scale of plastic pollution in general as well as plastic bags pollution in particular. Consequently, more than 60 countries have introduced bans and levies to curb single-use plastic waste [3]. Noteworthy is that plastic bag bans and levies, if properly planned and enforced, can effectively counter one of the causes of plastic overuse. For instance, several campaigns have been launched in the Kingdom of Eswatini to reduce the excessive plastic bags consumption, protect the ecosystem, and stimulate consumer behavioral changes. Some of these campaigns failed and regulations were dropped due to the opposition from commerce and industry, as well as defiance and protest from retailers, groceries and plastic industry. One of the campaigns which failed was the plastic bag tax policy that

was introduced in 2015 by the Eswatini Environment Authority (EEA) namely the Environment Management Act, Control of Plastics Bags Regulation Notice of 2015. The act proposed a 35 cent charge for every plastic bag handed out to the consumers.

The production and consumption of plastics bags in the country have continued to rise. In a study conducted by Dlamini *et al.* [12], on the production and consumption of plastics bags in Eswatini, it transpired that the average number of single-use plastics bags issued out for free by large franchises in the country namely Boxer, Shoprite, Spar and Super Spar Stores is about 1 790 000 plastic bags per month.

In Eswatini, there has been no other regulation or intervention that has been brought forward to control the use of plastic bags which are a problem to the environment. A way of controlling pollution emanating from issuing plastic bags free of charge needs to be put forth. Thus, there is a need to assess consumers' perceptions of the plastic bags tax levy in the Kingdom of Eswatini using Kwaluseni and Logoba Chiefdoms (Fig. 1) as case studies. These chiefdoms are found under the jurisdiction of Kwaluseni Constituency (Fig. 1). According to Dlamini *et al.* [13], Kwaluseni Constituency is the leading waste producer in the country with an average of about 19, 685.6 tonnes per year. Kwaluseni Constituency produces domestic and industrial waste which mainly comprises plastics bags.

Plastic bags are non-biodegradable and most of them end up in the dust bins immediately after use. Stevens [7], stresses the point that a majority of plastic bags are resistant to degradation under the influence of the sun and/or microorganisms and can persist in the environment for thousands of years, facilitating continuous exposure to ingredients in plastics and increasing the risk of their accumulation, which increases the risk of their harmful effects to appear. Noteworthy is that the Matsapha Industrial site has greatly influenced the settlement pattern of Kwaluseni and Logoba chiefdoms. The housing demand that came with the establishment of the industrial site induced Kwaluseni Constituency, and the surrounding areas, to provide accommodation albeit in an unplanned fashion (Fig. 2). These unplanned settlements are one of the leading producers of plastic bag waste and pollution (Fig. 3), hence the need for the study at Kwaluseni and Logoba chiefdoms.

The aim of the study was to assess the perceptions of consumers on the plastic bags tax levy in peri-urban areas of Eswatini, using Kwaluseni and Logoba chiefdoms as case studies.

The objectives of the study are:

- To assess the knowledge and attitude of consumers towards plastic bag pollution.
- To investigate strategies used by consumers to manage plastic bags.
- To assess consumers' willingness to pay for plastic bags.
- To investigate what is being done by EEA towards controlling plastic bags pollution.

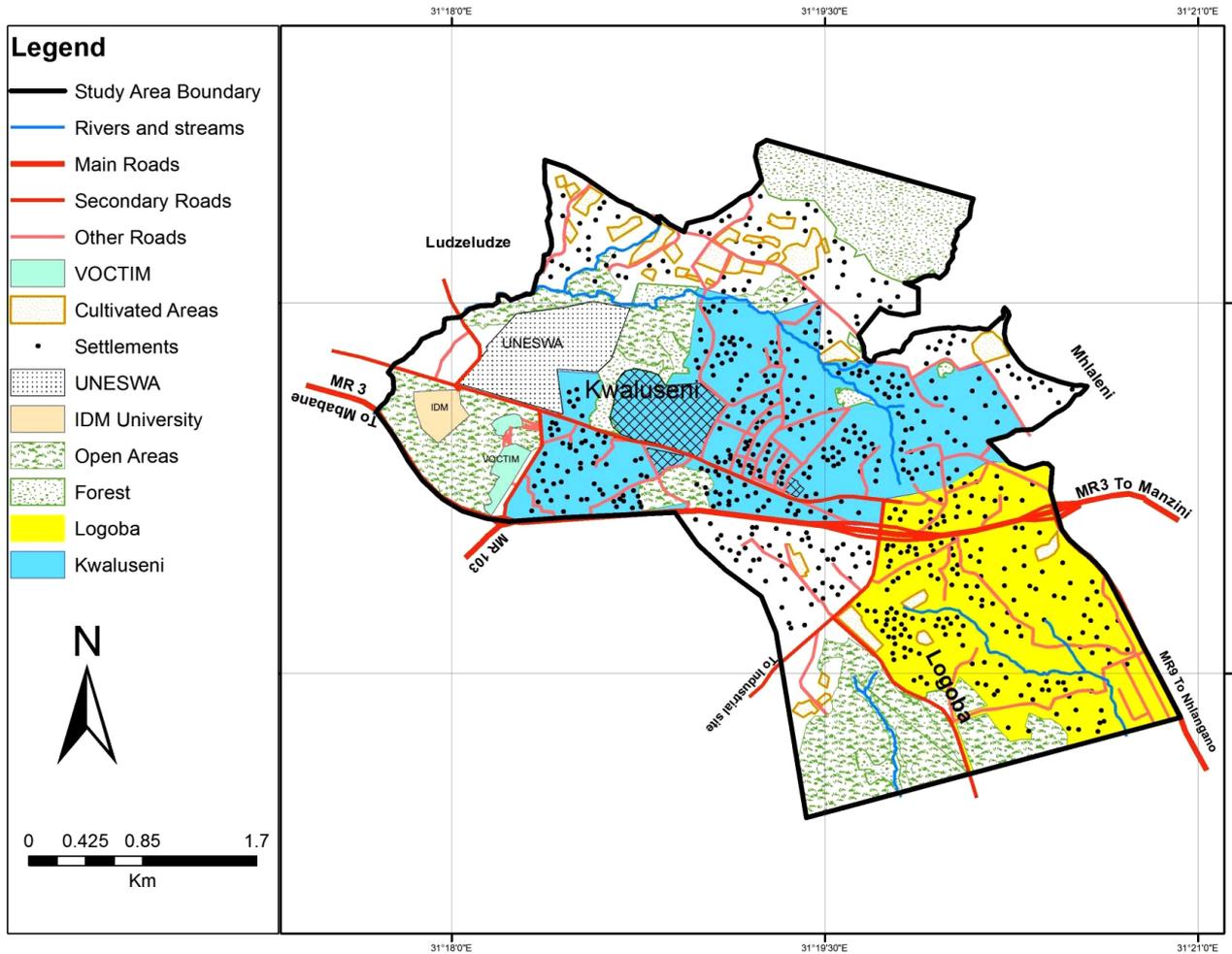


Fig. (1). Kwaluseni Inkhundla showing Kwaluseni area and Logoba chiefdoms.



Fig. (2). A section of unplanned settlements at Kwaluseni Inkhundla.



Fig. (3). Plastic bags in a stream at Kwaluseni area.

2. MATERIALS AND METHODS

2.1. Sources of Information

The target population in the study included heads of households, local community authorities at Kwaluseni and Logoba chiefdoms and an officer from the Eswatini Environment Authority. Since most of the settlements were unplanned and could not be covered all at the given time frame, convenient sampling was adopted by the study. Convenient sampling according to Creswell *et al.* [14], refers to the situation where population elements are selected based on the fact that they are easily and conveniently available. The study had a sampling frame of 1 650 homesteads, where 987 were from Kwaluseni and 663 from Logoba. Due to homogeneity of the population (they are all plastic bag consumers); a sample size of 10% was extracted from each of the two communities. To arrive at 10%, a sample size calculator was used where a confidence level of 95% and confidence intervals of 9.35 at Kwaluseni chiefdom and 11.46 at Logoba chiefdom were chosen. Therefore, Kwaluseni chiefdom was represented by 99 homesteads and Logoba chiefdom by 66 homesteads thus having a sample of 165 homesteads. Then within a homestead, one head of the household was interviewed regardless of the number of households in each homestead. Sampled homesteads

were also mapped using a Global Positioning System (GPS) (Fig. 4). Notably, in the event that the head of the household was not around, the respondent was an individual above the age of 18.

2.2. Data collection

In-depth face to face interviews guided by questionnaires were administered to heads of households (**Supp. Appendix A**), community authorities (**Supp. Appendix B**) and the EEA officer (**Supp. Appendix C**). The data collected were coded and inputted in the Statistical Package for Social Sciences (SPSS) version 20 for analysis. The data was summarized and presented in the form of narratives, tables and charts. The data were analyzed using cross-tabulation of variables after calculating frequencies for the relevant variables of the study.

3. RESULTS

The findings indicate that out of the 165 respondents, 50.9% were males and 49.1% were females. Notably, a majority of the respondents from Kwaluseni chiefdom were males (53.54%) with females constituting 46.46%, whereas at Logoba there were more females (53.03%) than males (46.97%). With regard to the age of the respondents, the most dominant age group in both chiefdoms was 30-39 (Kwaluseni 42.42% and Logoba 39.39%) (Fig. 5).

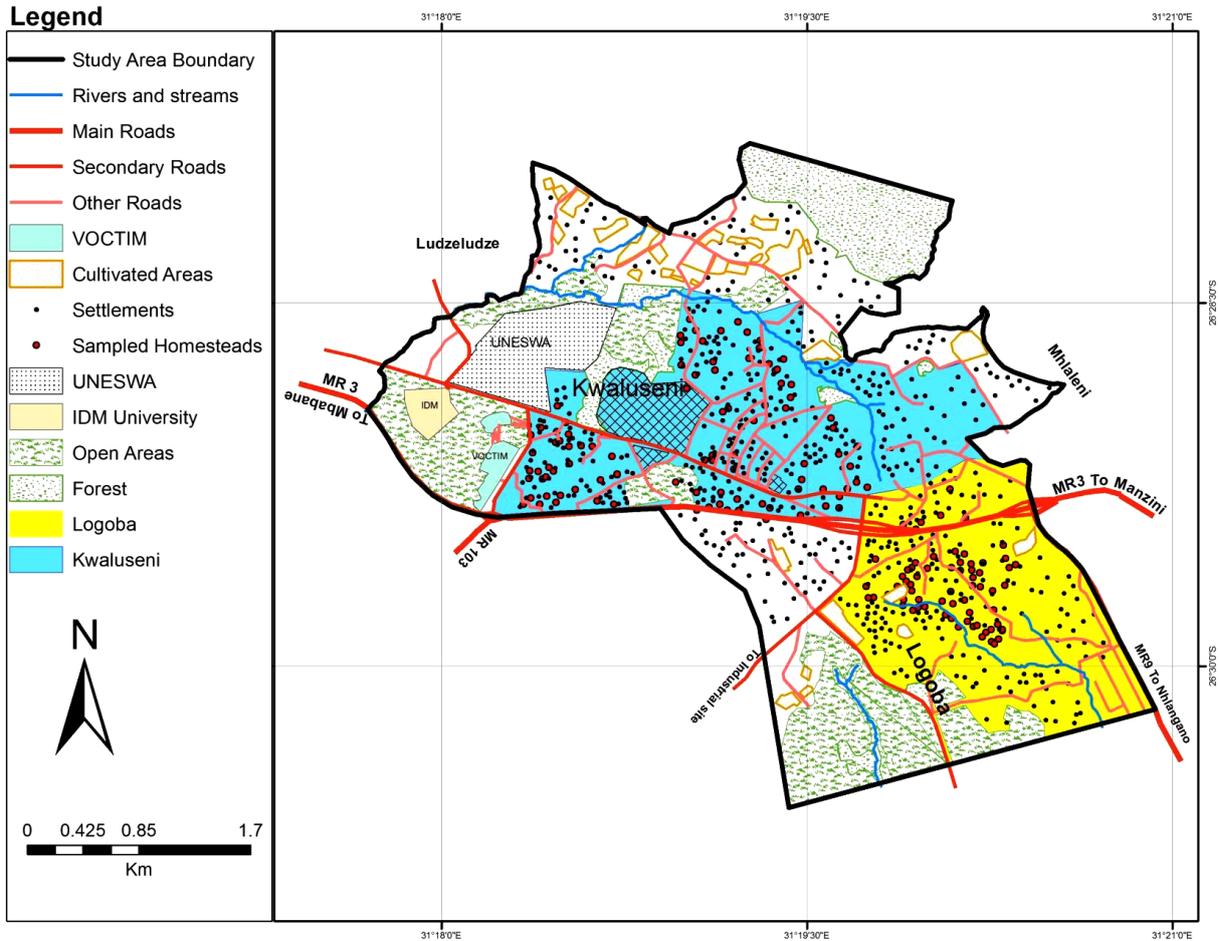


Fig. (4). Sampled homesteads at Kwaluseni and Logoba chiefdoms.

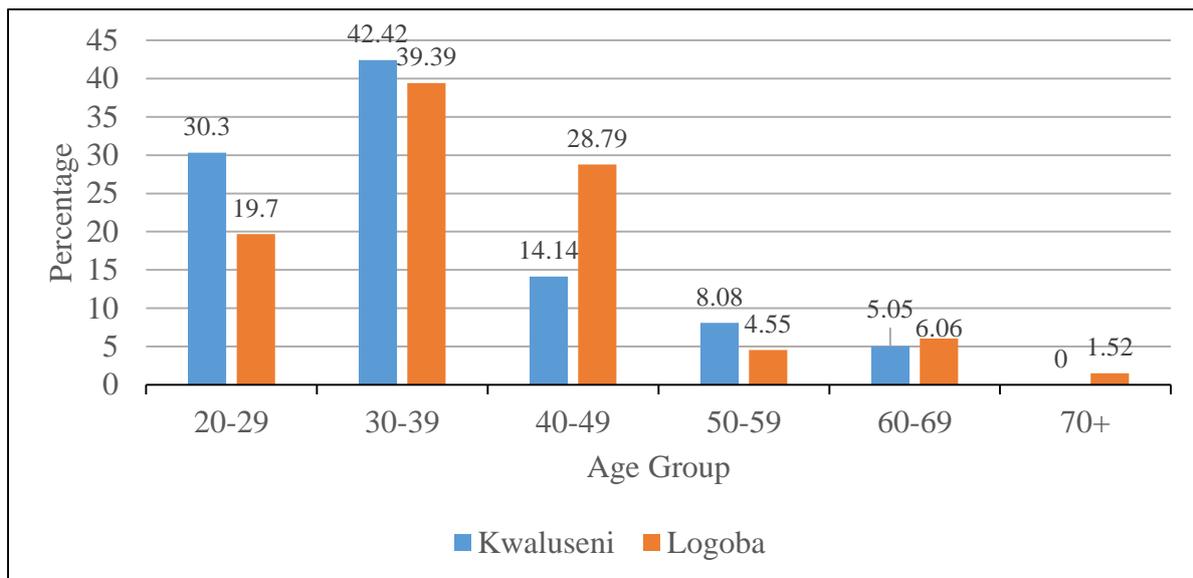


Fig. (5). Age of respondents at Kwaluseni and Logoba chiefdoms.

The second and third dominant age groups were 20-29 and 40-49 (Fig. 5). Correspondingly, this is expected since the two chiefdoms are close to the Matsapha Industrial site which is perceived to avail job opportunities. However, when cross tabulating age and occupation status of the economically active group to ascertain the socio-economic status of the respondents in the two chiefdoms, the findings depict that 30% were unemployed, 32% self-employed and only 38% were employed (Table 1).

Regarding education level, 3.03% of the respondents from Kwaluseni chiefdom and 12.12% from Logoba chiefdom were not educated (Fig. 6). The dominant highest level of education attained was High school (Kwaluseni 45.45% and Logoba 48.48%) followed by tertiary (Kwaluseni 42.42% and Logoba 27.27%) (Fig. 6). This is justified considering that the University of Eswatini is located within the Kwaluseni chiefdom; hence more respondents with tertiary education.

3.1. Knowledge and attitudes of consumers towards plastic

bag pollution

A majority of the respondents claim to use plastic bags when going shopping (96.9% from Kwaluseni and 98.5% from Logoba). The findings indicate that among the respondents who use plastic bags when shopping, 83.23% always use them, 10.56% use plastic bags often and 6.21% sometimes use plastic bags. Notably, a majority (52%) of those who use plastic bags when shopping are males at Kwaluseni chiefdom. Contrary, at Logoba chiefdom, more females (52%) use plastic bags when shopping than males.

To assess whether education level has an influence on the usage of plastic bags when going shopping, cross-tabulation was done. From the cross-tabulation, it transpired that the level of education does not have an influence on the usage of plastic bags when going shopping (Fig. 7). For instance, the findings show that those with high school education (37.50% from Kwaluseni and 41.54% from Logoba) are the leading group in terms of usage of plastic bags when shopping followed by those with tertiary education in both the locations (Fig. 7).

Table 1. Age and occupation status of respondents at Kwaluseni and Logoba chiefdoms

Age Group	Unemployed		Self Employed		Employed		Total	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
20-29	24	15.48	8	5.16	11	7.10	43	27.74
30-39	18	11.61	24	15.48	26	16.77	68	43.87
40-49	3	1.94	13	8.39	17	10.97	33	21.29
50-59	2	1.29	4	2.58	5	3.23	11	7.10
Total	47	30	49	32	59	38	155	100

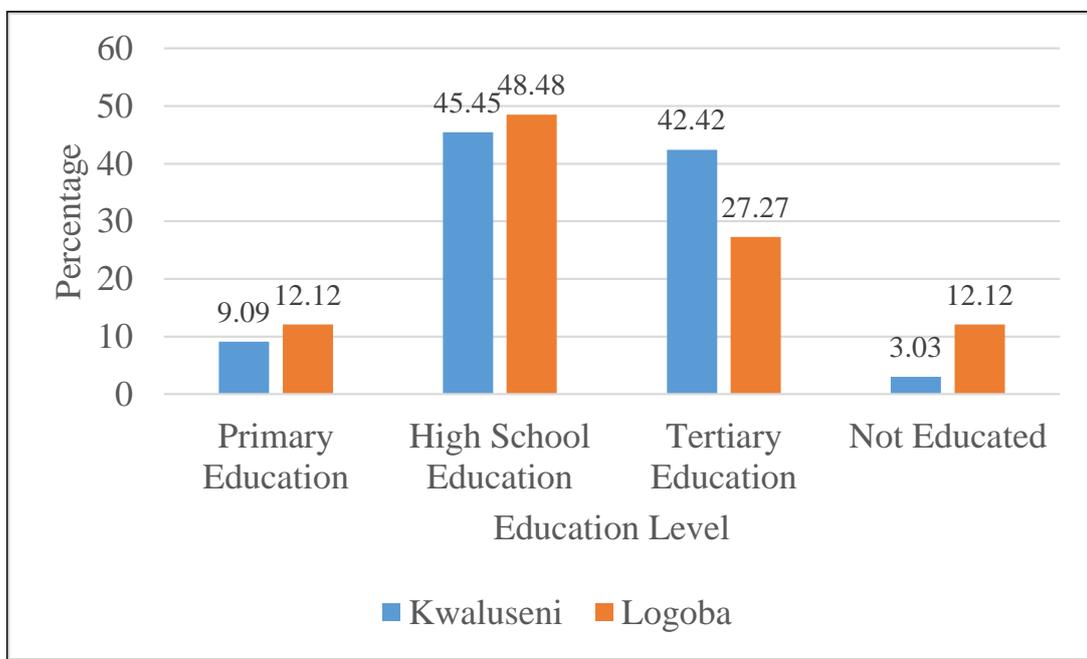


Fig. (6). Education level of respondents in Kwaluseni and Logoba chiefdoms.

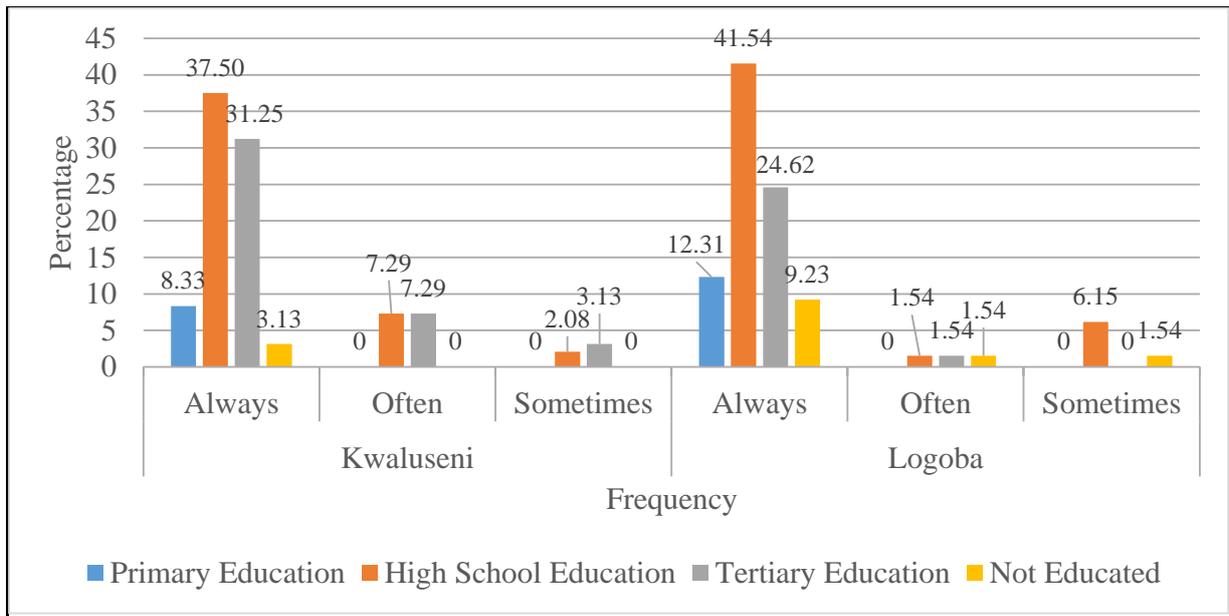


Fig. (7). Education level and frequency of plastic bag usage at Kwaluseni and Logoba.

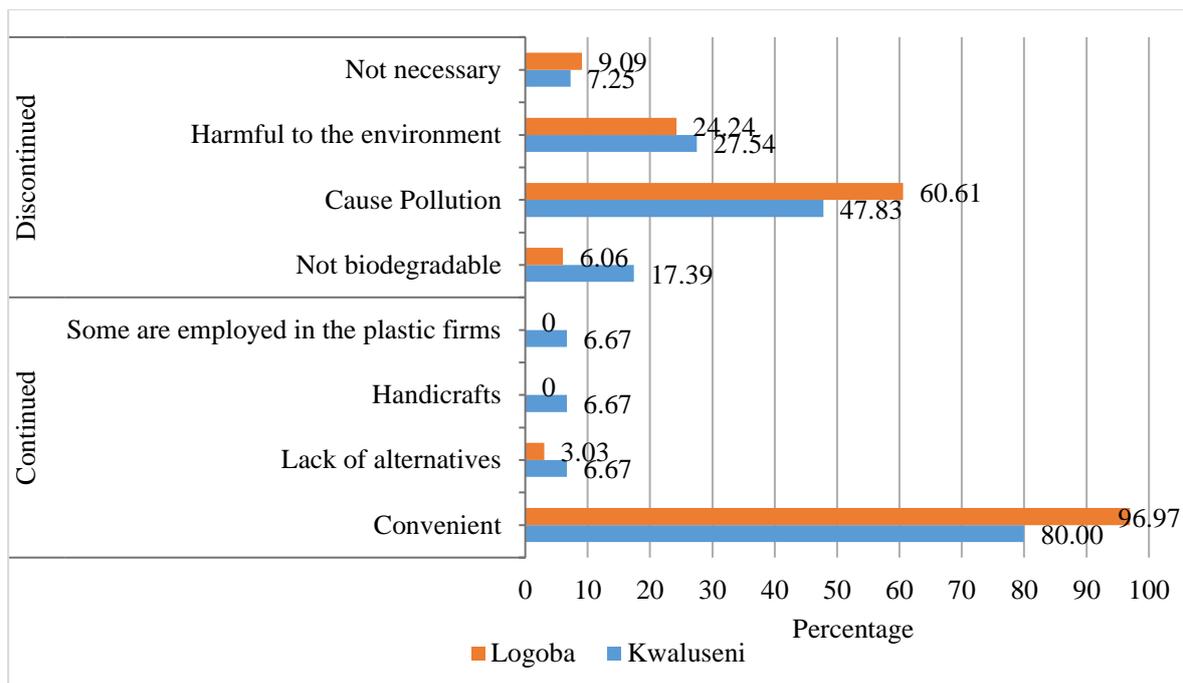


Fig. (8). Reasons for continuing and discontinuing the use of plastic bags in both chiefdoms.

In both chiefdoms, respondents were of the view that usage of plastic bags is increasing (92.93% at Kwaluseni and 92.42% at Logoba). The respondents’ reason for the increase in the use of plastic bags is mainly because plastic bags are easily or freely available (34.42% at Kwaluseni and 19.48% at Logoba). Another reason for the increase in the use of plastic bags is the lack of alternatives (14.29% at Kwaluseni and 12.99% at

Logoba). In addition, the usage of plastic bags in the chiefdoms is promoted by their being light in weight. This therefore, indicates that if plastic bags may be made available at a cost, there might be a decline in their usage.

A majority of the respondents both from Kwaluseni (80%) and Logoba (96.97%) chiefdoms were of the view that plastic bags usage should be continued because of its convenience

(Fig. 8). Another reason given for continuing with the use of plastic bags is the lack of alternatives (Kwaluseni (6.67%) and Logoba (3.03%). Moreover, respondents from Kwaluseni chiefdom (6.67%) advocated for the continuation of plastic bags usage because these are used by self-employed people to make handicrafts for sale (Fig. 8).

On the other hand, other respondents advocated for discontinuation of plastic bags usage. One of the reasons for discontinuing plastic bags usage was because they cause pollution (47.83% at Kwaluseni and 60.61% at Logoba) (Fig. 8). Another reason for discontinuing plastic bags usage was because the respondents from Kwaluseni (24.24%) and from Logoba (27.54%) chiefdoms viewed plastic bags as harmful to the environment (Fig. 8). This is justified because plastic bags take an incredibly long time to break down and when they do, they release toxic substances that contaminate all life forms including the soil and water. Correspondingly, 17.39% of the respondents from Kwaluseni and 6.06% from Logoba reported that they advocate for a discontinuation of plastic bags usage because they are not biodegradable (Fig. 8).

Regarding sources of information on environmental issues, the findings depict that the media plays a vital role in

informing consumers on environmental issues. In both the chiefdoms, the media is the leading source of environmental information (44.44% at Kwaluseni and 28.79% at Logoba) Table 2 . Other respondents indicated that they use their own experience as sources of knowledge (32.32% at Kwaluseni and 19.70% Logoba) (Table 2).

In terms of how plastic bags harm the environment, the findings reflect that one way is through pollution (42%) (Fig. 9). The findings also depict that plastic bags release toxic substances (17%) that cause a threat to the soil and micro-organisms in the soil (Fig. 9). In addition, 15% of the respondents stated that plastic bags are a threat to vegetation growth more especially grass and 13% of the respondents claimed that plastic bags when indiscriminately disposed of may also lead to clogging of drainage systems like road drainages (Fig. 9). Notably, the findings show that the respondents know about the problems caused by plastic bags on the environment more especially if they are not well managed. In contrast, 13% of the respondents claimed that plastic bags do not bring any harm to the environment (Fig. 9).

Table 2. Sources of knowledge on environmental issues.

Source of Knowledge	Kwaluseni		Logoba		Total	
	Frequency	%	Frequency	%	Frequency	%
Own experience	32	32.32	13	19.7	45	27.27
Friends/Family	4	4.04	8	12.12	12	7.27
School/Tertiary	17	17.17	13	19.7	30	18.18
Media	44	44.44	19	28.79	63	38.18
All of the above	2	2.02	1	1.52	3	1.82
None	0	0	12	18.18	12	7.27
Total	99	100	66	100	165	100

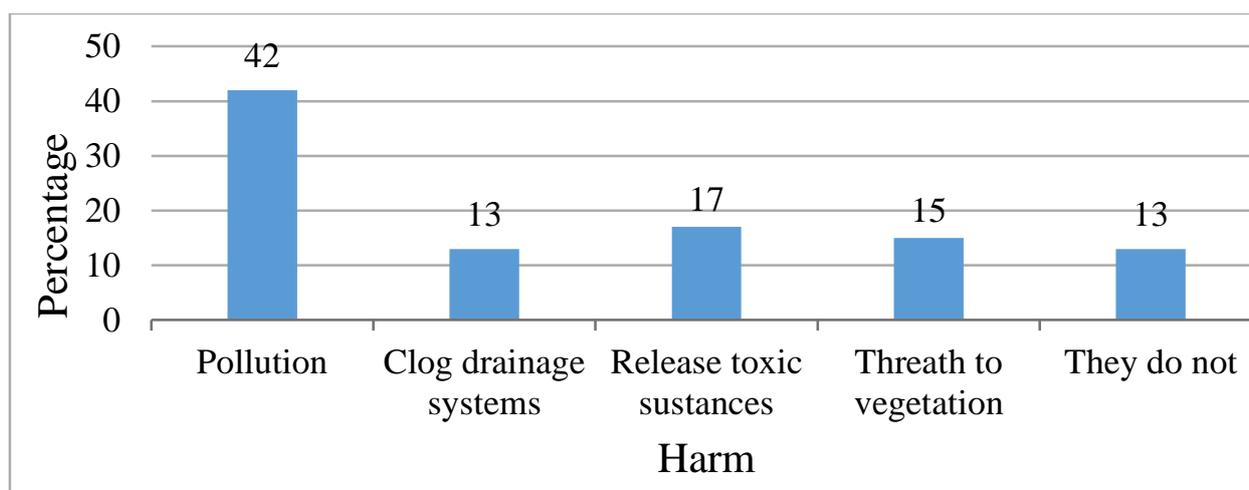


Fig. (9). Harm to the environment by plastic bags in both chiefdoms.



Fig. (10). A full waste bin near houses at Kwaluseni chiefdom.



Fig. (11). Waste disposed in an open space at Logoba chiefdom.

With regard to areas seriously polluted by plastic bags, the findings depict that at Kwaluseni chiefdom; they are market places (23.23%), followed by residential backyards (22.22%) (Table 3) (Fig. 10). Furthermore, 20.20% of the respondents stated that open spaces are also seriously polluted by plastic bags and 15.15% claimed roadsides are also seriously polluted (Table 3). On the other hand, at Logoba chiefdom the seriously polluted areas include roadsides (22.73%), open areas (22.73%) and residential backyards (18.18%) (Table 3) (Fig.

11). The findings indicate that there are problems with the way consumers manage their plastic bags.

3.2. Plastic bags waste reduction strategies

The findings reflect that some consumers are already using reusable shopping bags (62.61% at Kwaluseni and 40.91% at Logoba). However, respondents do not always use reusable shopping bags. Notably, in both chiefdoms, 10.23% of the respondents claim to always use reusable bags when shopping,

29.55% claim to use reusable shopping bags often and 60.23% sometimes use reusable shopping bags when shopping. This, in turn, reflects that only a few individuals consistently contribute to the reduction of plastic bags waste through the usage of reusable bags, thus there will be a slight decline in plastic bags waste or no decline at all.

It is obvious that at the end of their short service life, plastic bags become wastes. Therefore, it was imperative to assess how consumers dispose of plastic bag wastes in the two chiefdoms. For instance, it transpired that 25% of the respondents at Kwaluseni and 19% at Logoba claimed to reuse some plastic bags and throw away others (Fig. 12). Notably, Kwaluseni chiefdom had a higher percentage of plastic bags consumers (12.0%) who 'use and throw away' all plastic bags while Logoba chiefdom had only 4%. This practice ('use and throw away') is particularly attributed to the availability of plastic bags free of charge in large quantities to the consumers. Other than 'use and throw away', respondents also burned plastic bags (9.1% at Kwaluseni and 9.1% at Logoba) as a way to dispose them of (Fig. 12).

Noteworthy is that, consumers face a number of challenges when disposing of plastic bags. For instance, 31.5% of the respondents from both chiefdoms indicated that the waste bin was far from their houses (Table 4). Another problem faced by the consumers is the issue of no waste bins in the homesteads (32.3% at Kwaluseni and 34.8% at Logoba) (Table 4). In such cases, respondents had no choice but to dispose of their wastes on empty spaces near their houses (Fig. 10). Furthermore, 9.09% of the respondents at Kwaluseni and 16.7% at Logoba (Table 4) pointed out that in some instances, the waste bin is

sometimes full and it takes some time to be emptied (Fig. 10). Normally, the waste in the homesteads is collected by a tractor donated by Eswatini Environment Authority (EEA) to the Kwaluseni *Inkhundla* and it services both chiefdoms. Notably, it takes some time for the waste bins to be serviced because some homesteads are not easily accessible by road due to the nature of the settlement patterns (being unplanned) in the two chiefdoms.

3.3. Willingness to Pay

The findings indicate that 51.70% of the respondents from both chiefdoms support the trend of selling plastic bags to consumers in the shops and they believe that the charge can reduce plastic bags pollution. Moreover, 26.67% of the respondents voiced out that they would oppose the trend of selling plastic bags and 21.66% said they are really unsure. In both chiefdoms, most of the respondents were willing to buy each plastic bag only at E0.50 (29% at Kwaluseni and 19% at Logoba) (Fig. 13). Noteworthy is that those who were not willing to buy the plastic bags suggested some other ways in which plastic bags could have been reduced. For instance, 31.68% of the respondents in both chiefdoms suggested that plastic bags should be completely banned in the country, whereas 26.67% suggested that plastic bag usage can be voluntarily reduced by consumers through behavior change. Furthermore, 25% of the respondents in both chiefdoms suggested environmentally friendly methods of carrying goods like paper bags, while 16.67% emphasized on increasing awareness on the problems caused by plastic bags on the environment.

Table 3. Seriously polluted areas at Kwaluseni and Logoba chiefdoms.

Polluted Areas	Kwaluseni		Logoba	
	Frequency	%	Frequency	%
Open spaces	20	20.20	15	22.73
Market places	23	23.23	6	9.09
Roadsides	15	15.15	15	22.73
Residential backyards	22	22.22	12	18.18
Rivers	2	2.02	5	7.58
Everywhere	14	14.14	7	10.61
None	3	3.03	6	9.09
Total	99	100	66	100

Table 4. Problems faced when disposing of their plastic bags.

Problem Faced	Kwaluseni		Logoba		Total	
	Frequency	%	Frequency	%	Frequency	%
Waste bin is far	27	27.3	25	37.9	52	31.5
No waste bin in the area	32	32.3	23	34.8	55	33.3
Waste bin is not accessible	9	9.09	11	16.7	20	12.1
At time full	16	16.2	6	9.09	22	13.3
No problem	15	15.2	1	1.52	16	9.7
Total	99	100	66	100	165	100

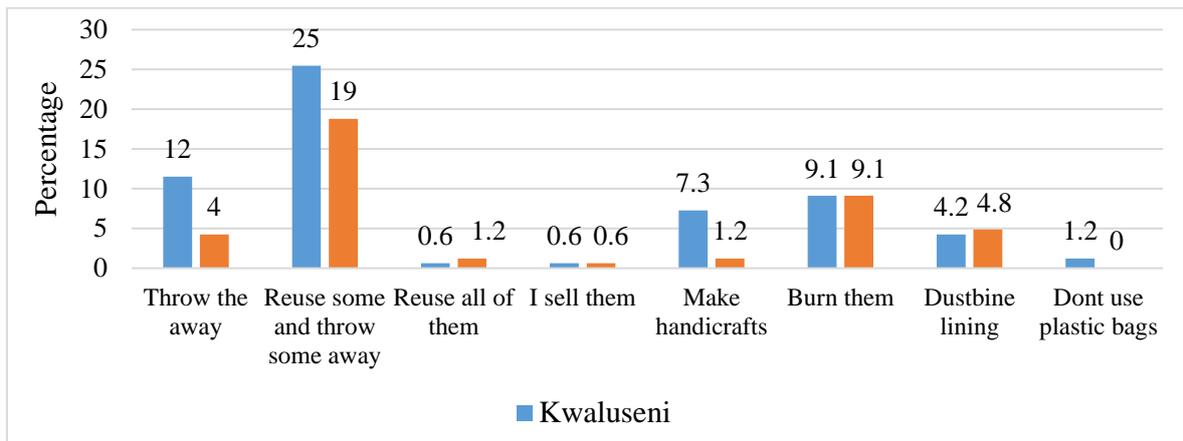


Fig. (12). Method of disposing plastic bags after carrying groceries home in both chiefdoms.

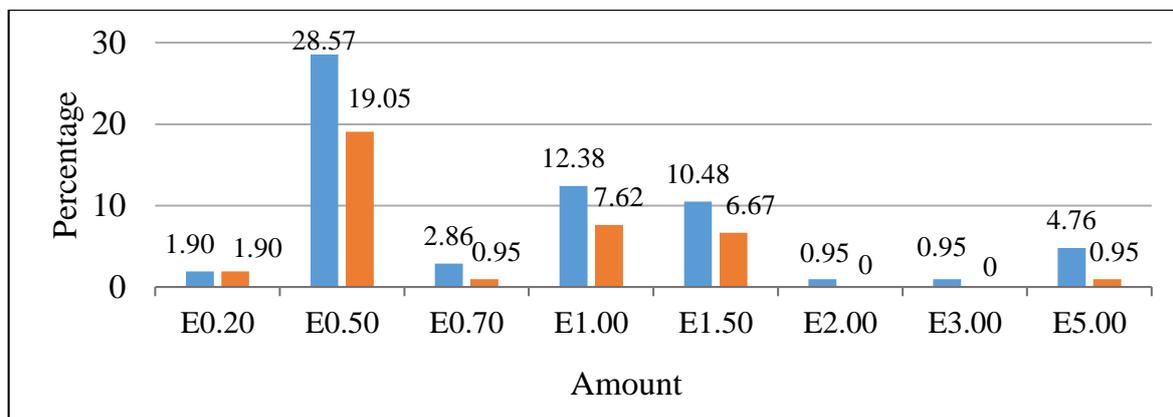


Fig. (13). Harm to the environment by plastic bags in both chiefdoms.

3.3.1. Foreseeable impacts of the plastic bags tax levy

In general, it is known that everything has positive and negative impacts hence the plastic bag tax levy. Respondents pointed out that there are both positive and negative impacts of the plastic bags tax levy. From the findings, it was observed that 65.5% of the respondents in both chiefdoms anticipated that the plastic bag tax levy will help in the reduction of plastic bag usage. Consequently, plastic bags pollution will be reduced since the usage of plastic bags will also be minimized. Respondents also voiced out that buying plastic bags will help raise environmental awareness and thus promote the usage of reusable shopping bags instead of plastics bags (18.1%). In contrast, 16.4% of the respondents indicated that the plastic bag tax levy will have no positive impact.

With regard to the anticipated negative impacts, respondents (33.9%) pointed out that the plastic bag tax levy will add an extra cost to their living. Moreover, 20.9% of the respondents from both chiefdoms stated that buying plastic bags will create an inconvenience in their shopping experience.

Furthermore, 19.4% of the respondents pointed out that those who will afford to buy plastic bags will continue to cause pollution through their indiscriminate disposal of waste. It also transpired that 2.4% of the respondents feared for job losses in the plastic bags manufacturing firms since the firms would be making fewer sales when consumers are to buy plastic bags in the shops. Contrary to this, 23.4% of the respondents indicated that they foresee no negative impact of the plastic bag tax levy.

3.4. Views of Key Informants on the Plastic Bag Tax Levy

3.4.1. Community authorities

Plastic bag usage in both chiefdoms is viewed to be increasing and this increase is instigated by some reasons. According to the community authorities, the increased usage of plastic bags is due to the fact that they are available for free in large quantities. It was also found that there is a low level of awareness on the problems caused by plastic bags on the environment among the community members. Moreover, since

plastic bags are light in weight, it is, therefore, more convenient to use them when carrying groceries and moving around.

According to the community leaders in both chiefdoms, plastic bags waste is a menace. Community members do not dispose of their waste plastic bags in rightful places. It was pointed out that some of the compounds/ homesteads do not have proper areas where waste is disposed and in cases where there are, it takes some time to service them since they are inaccessible. In mitigating the problems of plastic bags waste management, the community leaders try to educate the community members on proper waste management strategies and even invite speakers from Eswatini Environment Authority (EEA) to also raise awareness among community members. In some instances, the communities embark on clean up campaigns with the assistance of EEA, Matsapha Town Board and at times with students from the University of Eswatini (UNESWA), as well as pupils from surrounding schools namely; Swazi National High School, Phumelele High School, Kwaluseni Primary and Kwaluseni Infant Primary School.

Community leaders from both chiefdoms indicated that they were much aware of the proposed Control of Plastic Regulation of 2015 and were happy about it. They, however, pointed out that not all community members are happy about it. This is because they feared that the regulation will hit hard on their standard of living. Also, some of the community members from chiefdoms were employed by the plastic bags manufacturing industries and they feared for their job security.

3.4.2. Eswatini Environment Authority

The Eswatini Environment Authority (EEA) also noted with concern the rapid increase in plastic bags usage. The EEA pointed out that the growing population, especially in the urban and peri-urban areas, significantly leads to an increase in the usage of plastic bags. Also, an increase in affluence of the local population contributes to an increase in the usage of plastic bags since people afford to buy groceries in large quantities thus requiring a large quantity of plastic bags to transport their grocery home. The diversification of commodities especially those that need to be packed before they are sold also contribute to the increase in plastic bags usage.

A notable number of problems in the usage of plastic bags have been identified. The environmental inspector pointed out that currently, the country has no comprehensive recollection mechanism for used plastic bags; hence they end up in the environment either as solid waste or contribute to air pollution when they are burnt. Furthermore, even the proportion that is recollected ends up mostly in landfills due to the inadequacy of recycling initiatives. In addition, the EEA noticed that some of the uncollected plastic bags end up clogging streams and some are consumed by livestock.

It is also transpired that the EEA once piloted a regulation to control the usage of plastic bags in the country. However, the legislation did not come into force and it is still a draft pending parliamentary approval. With regard to the overall reception of the regulation by consumers, the EEA discovered that a larger proportion of the population in the country felt that the regulation was long overdue and was looking forward to its

promulgation. The EEA anticipates that through the plastic bag regulation, it will be ensured that plastic bags introduced into the country are those that are recyclable. Also, the issuance of plastic bags from shops will be reduced since people would be reusing them. However, the legislation is anticipated to have minimal effect on the motivation of highly affluent people's usage of plastic bags.

4. DISCUSSION

This section discusses the findings of the study on the perceptions of consumers in peri-urban areas on the plastic tax levy, using Kwaluseni and Logoba chiefdoms as case studies.

4.1. Consumers' Perceptions

The findings of the study revealed that plastic bags utilization is increasing in both the chiefdoms (92.93% at Kwaluseni and 92.42% at Logoba). It was found out that the availability of plastic bags free of charge was the main reason for the increase in plastic bags usage in both chiefdoms. The findings are corroborated by Hammami *et al.* [15], who also figured out that increasing plastic bag pollution was a result of plastic bags being highly available at a low cost or not at all.

With regard to willingness to pay, the study observed that the consumers were willing to pay. However, the consumers noted that paying for plastic bags would also impact negatively on them. For instance, they anticipated that they may not afford to pay for the plastic bags which in turn may interfere with their standard of living. The results of the study are in agreement with those of Raje *et al.* [16], who observed that consumers in the low-income settlements normally express their inability to pay more due to a continuous increase in the price of other basic amenities like food, shelter and clothing.

4.2. The Plastic Bag Tax Levy

The findings indicated that the plastic bag tax levy in the country is still a bill, awaiting parliamentary approval as reported by an officer from the Eswatini Environment Authority. Whilst the bill is still waiting for parliamentary approval, there are other legislations used to control the disposal of plastic bags. These include the Litter Regulations of 2011, Waste Regulations of 2010 and the Environmental Management Act No. 5 of 2002. However, these legislations do not directly address the utilization of plastic bags, since they were not crafted to control plastic bags usage in the country but rather proper waste management. Therefore, this means that controlling plastic bags usage is still a challenge in the country. As such, there are more problems resulting in the continuous availability of plastic bags for free.

Based on the findings of the study, it is evident there is a need for alternatives to plastic bags since the tax levy has not yet been effective in the Kingdom of Eswatini. Notably, the alternatives must be those which are environmentally friendly such as jute bags, paper bags, bio-degradable bags and reusable bags [8]. In particular, Jalil *et al.* [8], argue that jute bags are recommended as an environment-friendly substitute to plastic bags because they are made from a biodegradable material, which is derived from a plant fiber called jute, mostly comprising cellulose. Regarding paper bags, they are also

recommended as an environment-friendly substitute to plastic bags because the natural fibers of paper and its recyclability produces a positive image of the paper bags as observed by Jalil *et al.* [8]. Furthermore, although considered a probable option, biodegradable plastic bags are not eco-friendly as they contain toxic materials which have harmful effects on the environment as witnessed by Jalil *et al.* [8]. Finally, there are the reusable bags which include rigid plastic boxes and baskets; thick plastic bags; woven plastic bags; cloth bags; and the oldest market containers, cane woven baskets as discussed by Jalil *et al.* [8]. Noteworthy is that Jalil *et al.* [8], contend that reusable bags can cause a lot of environmental toxicities, particularly to the agricultural sectors and therefore their users must be environmental sentient as well as coupled with a sense of civic-mindedness.

CONCLUSION

Based on the findings of the study, it can be concluded that a majority of the respondents in both chiefdoms supports the plastic bag tax levy and are also willing to pay for the plastic bags. However, the amount which most respondents are willing to pay for a plastic bag is relatively small (E0.50), which may have a little effect on reducing plastic bag usage among the population. Even though the initiative of the plastic bag tax levy is a good move in addressing issues of plastic bags pollution in the country, a lot still needs to be done to enjoy its benefits.

CONSENT FOR PUBLICATION

Not applicable.

AVAILABILITY OF DATA AND MATERIALS

Not applicable.

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CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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SUPPLEMENTARY MATERIAL

Supplementary material is available on the publishers web site along with the published article.

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