

ASSESSMENT OF BARRIERS PREVENTING RECYCLING PRACTICES AMONG BARS AND EATERIES IN CENTRAL SOUTH AFRICA

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ABSTRACT

Recycling is an important aspect of a sustainable society and depends largely on the willingness of consumers to participate in this practice. Some regions in South Africa recycle actively, but none in the central part of the country do yet. The area selected for this study included Bloemfontein, Welkom, Bethlehem, Clarens, Kroonstad, and Kimberley, which are all located in the central part of SA. Eateries and bars are businesses that generate a large amount of recyclable solid waste in terms of glass, plastic, paper, polystyrene, metal, and compostables. By identifying the barriers preventing these businesses from recycling, the local municipalities and recycling services could create a solution. Owners or employees of eateries and bars completed a self-administered questionnaire. Empirical data were obtained on knowledge of recycling and participation in recycling. Likert scale type questions were used to identify barriers that prevent recycling practices and to determine motives that could encourage the implementation of recycling programs. The respondents indicated a willingness to recycle if there is a financial benefit, as well as support offered by the municipality or government. Barriers that prevent recycling practices included implementation effort and cost, as well as lack of knowledge thereof. Only a small number of the respondents were aware of buy-back centres or collection services. These results indicate that these businesses do not grasp the impact that they can have with their recycling contributions and that the giveback would be worth the effort. They are also unaware of the services available to assist with implementation and practices of a recycling plan. The municipality and government would have to get involved by enforcing businesses to comply with recycling laws that should be implemented.

Keywords: eateries, recycling, sustainable practices, solid waste.

1 INTRODUCTION

SA implemented the National Environmental Management: Waste Act (Act 59 of 2008), which requires standard information of waste as an indication for policy decisions and measure implementation. The Waste Act states that – the minister must implement a national waste management strategy – declare priority waste streams – prescribe measure regarding management of waste streams – set recycling targets for waste streams – set waste minimization targets for waste streams and – ban some waste streams completely from landfills. However, in 2011, 98 million tons of waste ended up in landfills. It consisted of roughly 59 million tons of general waste, 48 million tones uncategorized waste and 1 million tons of hazardous waste. In 2011, approximately 10% of the waste generated in SA was recycled [1].

2 RECYCLING IN SOUTH AFRICA

The government in SA is either unwilling or incapable to legalize waste related legislation [2]. Most (59.7%) of the municipalities in SA could not, under the legislation, successfully accomplish their waste management operations because of inadequate equipment, staff, and small budgets. Education, knowledge and basic skills are important amongst workers, technicians, and professionals in the waste management and environmental sustainability fields. Research showed that when waste workers maintain a higher status and education, the



public would be more accountable towards them; this can cause a chain reaction, which can result in cleaner cities [3].

Ringwood stated that 10% of waste is recycled, and 90% ends up in landfills. Should separation at source be implemented, it will not only minimize the large amounts of waste going to landfills but also unlock the economic potential of this waste stream [4]. Solid waste that is managed wrong can have several direct and indirect effects on the environment [5].

Recycling serves many functions, for instance (1) reducing the amount of waste going to landfills, (2) preservation of precious resources, (3) saving energy and (4) reducing the carbon footprint [6]. Garforth-Venter and Garforth-Venter [7] divide recycling into two parts, internal and external recycling. Internal recycling refers to reusing waste products created by a manufacturing process. For instance, reusing the peels of fruit to compost from a factory that produces jam or fruit juice. External recycling refers to reusing some or most parts of a product that has already been used and discarded. For example recycling glass bottles and containers, plastic bottles, newspaper and soda cans.

In SA, consumers are not aware of the procedures regarding the proper disposing of packaging for recycling. For example, clean recyclables are easier to handle and process, therefore, recyclables collected from the curbside need to be cleaned first [8].

The recycling process begins when recyclables are separated from the waste. Recyclables refer to products that can be recycled. This separation can occur in multiple ways. These methods include single-stream recycling, dual-stream recycling and source separation recycling [9].

Individuals that are open to change, altruistic and feel closer to nature, are more likely to be pro-environmental. Behavioural context, individual characteristics, and individual knowledge and experience are factors that influence waste management behaviour. That being said, people who have better access to recycling, tend to recycle more. People with stronger values and knowledge, as well as awareness of the waste problem, are more likely to reduce waste. People who find reusing behaviour convenient are people that have storage space.

Recycling can be characterized as fundamentally normative behaviour, relying on access to facilities, awareness of these facilities, and perceptions of convenience. Thus access to recycling facilities has a large impact on recycling. However, it has a negative effect on the intentions to reduce and reuse more waste. Knowledge is important, but the effect of abstract knowledge is weak as opposed to policy and concrete knowledge, which is more significant. Recycling experience has little effect on recycling behaviour, but it appears to have an impact on their willingness to reduce and reuse waste, creating a snowball effect [10].

The National Waste Management Strategy (NWMS), created by the Department of Environmental Affairs posed some challenges faced in SA:

- There is no infrastructure in SA that requires separation or diversion of waste from landfills to buy-back centers and recycling plants.
- The existing waste management infrastructure is outdated.
- Because of a growing population and economy, increasing amounts of waste is being generated; this increases the pressure on limited waste management facilities.
- Waste management and the expenses regarding it are not valued by the industry or consumers, which resulted in the disposal of waste as the easy option.
- Waste treatment options are more expensive than landfill costs.
- Legal landfills and hazardous waste facilities are scares.
- Waste systems became more complex because of urbanization and industrialization.



- Unfinished and insufficient waste services for informal and rural areas caused unpleasant living circumstances.
- Submission of waste data is not obligatory, as a result, there is limited understanding of national waste flows.
- Waste management is not supported by the regulatory environment [11].

The Waste Act provides waste management measures in order to help achieve waste management goals and overcome challenges:

- Waste classification and management system provide organizing and evaluation levels for waste disposal.
- Norms and standards provide clear standards for waste management in different stages.
- Licensing required for activities that need to be done according to guidelines and conditions.
- Industry waste management plans to help companies manage their waste.
- Extended producer responsibility (EPR) by industries are responsible for certain product after-sales and the after-care. These products could have toxic elements or pose management challenges.
- Priority wastes require special waste management measures to ensure that there is no risk toward human health, safety, and the environment.
- Economic instruments support or prevent certain behaviour and arguments other regulatory instruments.

The National Waste Management Strategy is institutional inclusive because achievement relies on the public sector, private sector, and civil society. To implement the Waste Act successfully, all of the below has a responsibility [11].

The government must outline standards, regulations, legislation and integrated waste management plans. Waste management must be regulated by means of licenses enforcement of their conditions. The South African Waste Information System (SAWIS) must be implemented. Waste management officers must coordinate waste management activities. Proper import and export controls must be ensured, and effect to multilateral agreements must be given. There have to be plans developed for future needs as the expansion of cities and towns arise, while in the meantime expand access to basic levels of waste services. The establishment of a national recycling infrastructure must be facilitated. Framework for the remediation of contaminated land must be provided. Lastly, the government must form a partnership with the civil society and the private sector.

The private sector should take the EPR very seriously, take responsibility for their products' life cycle. The generation of waste should be reduced and cleaner technology practices established. Systems, facilities, and operations should be launched to take back recyclable waste at the end of the lifecycle, to close the loop. Waste management technologies must be developed to manage all the waste produced in the country according to the hierarchy. Waste management plans must be prepared and implemented. Comply with licensing conditions and regulations set by the government.

The civil society should separate waste at source. Take part in waste awareness movements, as well as recycling initiatives. Comply with waste regulations. Restaurants could fall under both categories, the private sector, and civil society.



3 RESTAURANTS AND RECYCLING

Amongst others, restaurants generate large quantities of solid waste made up of paper, plastic, glass, cans and tins, food waste, etc. A waste audit allows restaurants to perceive the waste they produce; this is the first step towards reducing the amounts of waste they generate.

Food industries are capable of reducing input and disposal costs by implementing structured practices. This practice should be to rethink, then to reduce, then to reuse and lastly, to recycle [12].

Despite various acts, measurements, declarations, policies, strategies and action plans developed and approved in South Africa over the last two decades, the recycling figure stands still at 10%. Other countries that are more efficient include Switzerland 52%, Austria 49.7%, Germany 48%, The Netherlands 46%, Norway 40%, Sweden 34% and the United States 31.5% [13].

Eateries and bars could follow the next steps to implement a successful recycling program:

1. Start by writing a policy statement to show that the company is committed to recycling. In the policy, specific goals must be set which is measurable. For example, the restaurant must reduce 20% of the actual garbage thrown away. Goals like this must then be communicated and explained to all employees. For a small business, a recycling coordinator can be appointed to manage a recycling program. Bigger businesses can appoint a recycling team with members from all the different departments to develop a recycling program.
2. A waste audit must be performed to determine the amounts and type of waste is generated. This will help to decide how many collection containers will be needed, and how often the waste must be collected. After the recycling program is implemented and managed, a second waste audit must be performed to see if the program is, in fact, working and reducing the amounts of waste generated.
3. With knowledge gained from the first two steps, the third step is then to reduce and reuse. The generation of unnecessary waste must then be prevented by reusing what is possible and reducing the consumption of resources.
4. Identify materials that are recyclable based on the waste audit. Glass, paper, plastic, metals, and oil are the most recycled materials. These materials can all be placed in different identifiable bins for each material. This will make it easy for employees and even clients or customers to spot and recycle.
5. Contact a recycling facility. There are recycling facilities that are willing to do weekly collections of recyclables, and they are even willing to pay you instead of the business having to pay them.
6. Buy recycled products. By purchasing recycled products, a demand is created, which is good for the economy.
7. The success of a recycling program can rely on the education and promotion of recycling. Employees and customers must inform and educate [14].

“The Constitution of South Africa, (1996) provides the foundation for environmental regulation and policy in South Africa. The right to environmental protection and to live in an environment that is not harmful to health or well-being is set out in the Bill of Rights (section 24 of Chapter 2)”.

This vital right supports the environmental policy and law, more specific the framework environmental legislation established by the National Environmental Management Act, (Act No. 107,1998):(NEMA). The Waste Act essentially reforms the law regulating waste



management, resulting in a coherent and integrated legislative framework addressing the steps in the waste management hierarchy.

The waste management hierarchy consists of options for waste management during the lifecycle of waste, arranged in descending order of priority. In order, it starts with waste avoidance, reduction, reuse, recycling, recovery, treatment, and finally ends with safe disposal [11].

4 METHODOLOGY

A purposive sampling technique was applied, and a total of 114 eateries and bars were identified to participate. These included sit-down and takeaway restaurants, bars and coffee-shops in Bloemfontein, Kimberly, Bethlehem, Clarens, Welkom, and Kroonstad.

Empirical data were collected by means of a questionnaire containing 82 questions and statements. Likert-scale questions were included, based on a scale of strongly disagree to strongly agree, while others included scales of never to always. Sections of questions were included in determining (1) the participant's knowledge of recycling, (2) daily actions, habits, willingness and motivation regarding recycling, (3) information regarding the establishment's use of disposable, recyclable materials, and (4) the municipality's involvement and basic services.

5 RESULTS

The following data was extracted from the completed questionnaires. On a scale from strongly agree to strongly disagree, participants were asked about recycling and saving money, the implementation of recycling and the support of the government towards recycling (Fig. 1). These questions were included to ascertain the participant's knowledge of recycling and also, a willingness to recycle.

It was found that more than 70% of the participants agreed that they could save money by recycling. Furthermore, 70% of the participants also agreed that recycling is a process that is difficult to implement. Recycling can be characterized as fundamentally normative behaviour, relying on access to facilities, awareness of these facilities, and perceptions of convenience [10]. As soon as people perceive recycling as effective and operational, the more likely they are to contribute or to fully participate [15].

People are always looking for convenience. According to Wagner [23], there are five factors that can determine convenience: (1) knowledge requirement, an individual's knowledge on what and who to recycle; (2) proximity to collection points, distance to travel in order to drop off recyclables; (3) one's opportunity to drop off materials, regular business hours might not work for most individuals; (4) accessibility of collection points, participation will increase when individuals combine their recycling trip to a drop off point with a more desirable activity; and (5) the ease of the process.

In the end, collection systems are usually referred to as more convenient than drop-off systems.

Almost 100% of the participants agreed that the government should support recycling at all levels (Fig. 1). In the UK, the government intervened not only with regards to legislation and waste strategy but also with financial support and the formation of the Waste and Resources Action Program (WRAP), which developed markets for recycling materials that would have gone to landfills. The government also provided support for smaller local municipalities to develop working recycling infrastructures and programs. The result was that recycling participation increased dramatically [18]. People generally know that it is necessary to recycle and they mostly agree that the government should support recycling. It is just the matter of getting systems and program in place.



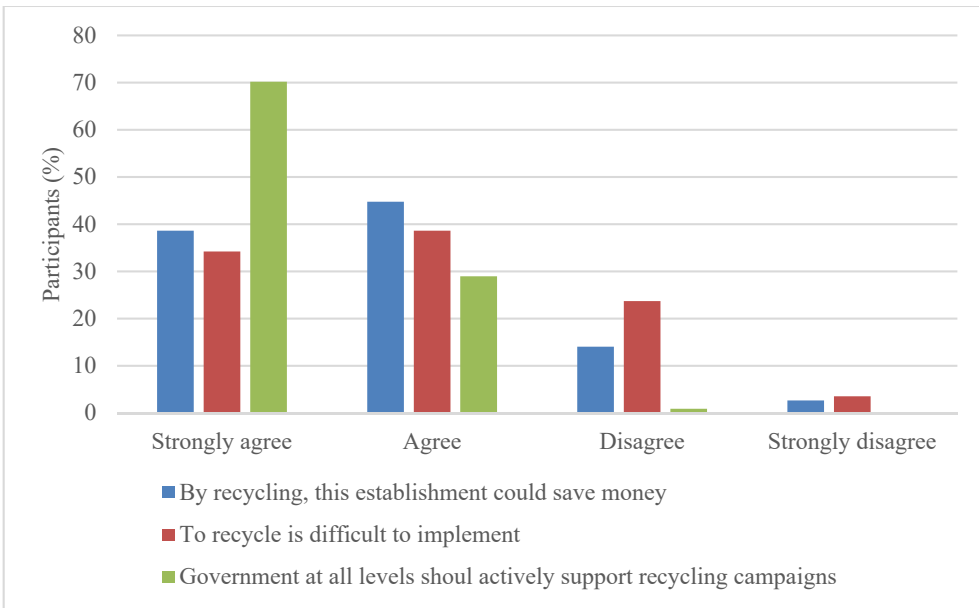


Figure 1: Level of agreement of participants to possible barriers.

For non-recyclers, it is normal to discard of all waste in a single bin, in order for this behaviour to change, information on what and how to recycle have to be supplied, as well as providing support to make the change easier and make recycling systems accessible. To inspire non-recyclers to begin recycling every day, interventions are needed to address different issues like knowledge and understanding of recycling, and service provisioning [19].

The participants indicated (Table 1) that they consider it time-consuming to sort waste; they also indicated that it is more the staff's duty to recycle and that customers would not help to sort the recyclables. If there are bins provided, customers could participate in the recycling, especially at fast-food restaurants where your food is served in a cardboard box or polystyrene container. It should not only be the duty of the staff but everybody's responsibility to recycle more efficiently. People with access to recycling equipment or services, tend to recycle more. It can be concluded that people with access to recycling facilities or bins in restaurants would be more encouraged to recycle [10].

More than 80% of participants agreed that it is time-consuming to sort through the waste. This could be true because they might not be equipped with the necessary bins and a functioning recycling program. According to FSG property services [21], recycling is overlooked as it is time-consuming to sort and cannot be dumped with the regular waste. This makes recycling less appealing to businesses, as they do not want to sort through the different recyclables or the inclination to deal with the multiple companies needed for removing different the types of waste.

The willingness of staff to sort the waste could rely mostly on easy access to recycle bins and strict rules and regulations. Easily accessible bins in dining areas can also motivate customers to sort through their recyclables in store. In addition, storage space for the recyclables is a hindrance as most restaurant and eateries use their space to receive and dining

Table 1: The level of agreement of participants with statements containing possible barriers to recycling practices.

Statements	Strongly agree	Agree	Disagree	Strongly disagree
It is time-consuming to sort through the waste	35	46	16	3
Staff is willing to sort through waste	16	46	32	6
Customers will sort through waste if there are clearly marked bins	14	25	49	11
Lack of information is an obstacle	46	43	8	3
Lack of storage is an obstacle	55	33	10	2
Lack of recycling institutions is an obstacle	51	37	9	4
The cost of setting up a recycling program is an obstacle	39	40	18	3
The cost of buying reusable items is an obstacle	37	32	26	4
The cost of maintaining reusable items is an obstacle	36	40	23	1

guests. It has been noted by Vassanadumrongdee and Kittipongvises [20] that inconvenience can be associated with (1) lack of storage space, excessive time requirements, or possible risks associated with recycling; and (2) it requires bringing recyclables to a drop-off point. The desire for comfort and convenience are motivators for recycling behaviour.

Research has indicated that the first important factor was the convenience of the waste-collection system. Consumers with access to a kerbside collection system are likely to sort more of their recyclables than consumers without a similar system. Another important factor was that better communication and additional information could improve the sorting of recyclables [20]. Almost 90% of all participants agreed that the lack of knowledge or information of what and how to recycle is an obstacle. Thomas and Sharp [19] stated that the provisioning of services and basic knowledge of how to recycle equally play a significant role in the recycling habits of people.

Most participants agreed that they would be willing to implement recycling practices if there would be a financial gain (Fig. 2). The enforcement of recycling by municipalities or government by awarding fines for waste offenders was also indicated as a significant motive. According to research reward highly affects attitude towards recycling habits. An increase in reward can increase attitude towards recycling by 41.4%. By providing rewards, it would positively change their social beliefs and form a positive attitude towards recycling. This also indicates that respondents have a positive perception of reward as an economic instrument [16], [17]. Shaw and Maynard [16] investigated the potential of financial incentives to enhance householders' kerbside recycling behaviour in London. They found that respondents have a positive attitude towards a reward for increasing recycling behaviour in communities. In both studies, it is apparent that reward, most likely financial, can increase recycling. Amini et al. [17] also stated that an increase in penalties affects perceived behavioural control, an increase in penalty lead to the decreased perception of difficulties and impossibility of recycling by 34%.

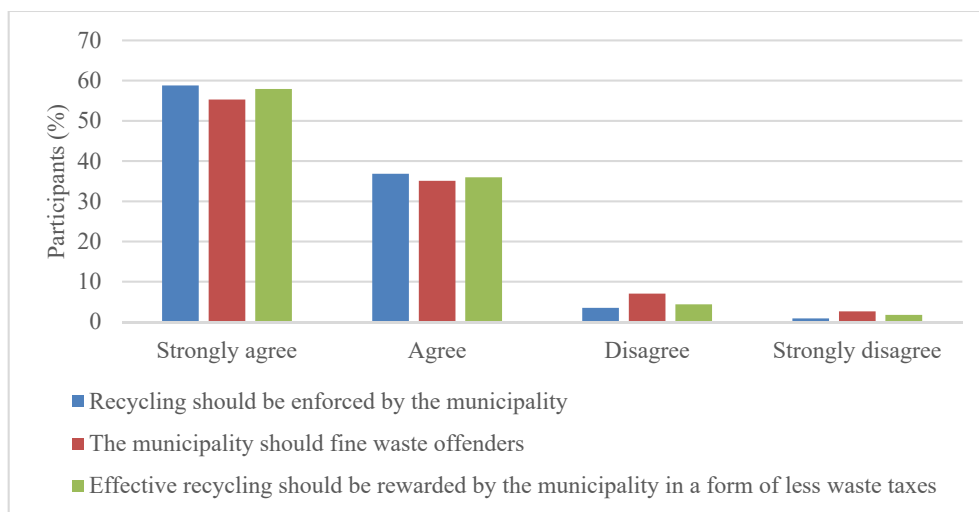


Figure 2: Level of agreement of participants to possible motivators.

6 CONCLUSION

The data extracted from the completed questionnaires were clear on various barriers and motivators in regard to recycling. Businesses do not grasp the impact that they can have with their recycling contributions. At present, there is no motivation to persuade the eateries and bars to recycle. There is no effort to reduce and recycle, although they agree with the fact that recycling should be pursued. There also do not seem to be enough information available to educate these owners and managers to be aware of the consequences of the actions by not implementing sustainable practices.

South Africa's Waste Act and Integrated Waste Management Plan have the right guidelines, strategies, and principals. Unfortunately, none of these is implemented successfully. Law enforcement could be a solution, as these consumers will only participate in recycling if they are motivated or forced.

Municipalities could also consider turning the waste management and recycling systems completely over to the private sector. In return, people in the private sector should realize that waste management is a profitable business and should encourage the public, businesses, and household to recycle and separate at the source.

The need for recycling in Central South Africa is crucial as it is stated more than once that only 10% of SA's waste is recycled. Private recycling institutions, local municipalities, and eateries and bars should make a joint effort in order to get a successful operation running.

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