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FOOD WASTE MANAGEMENT IN FAST FOOD RESTAURANT

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APPRECIATION

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Thank you.

ABSTRACT

In Malaysia food waste management can be seen getting reduced most of it is discarded with solid waste and the food waste can not be composted. If food waste is composted will have a great impact on environmental sustainability. According to Nadia Hamid (2016), cost of disposal increases when food waste is wasted too much and is not profitable if not well managed. Disposal of wasted food waste such as vegetables and fruits can be recycled into dish washing or organic flooring products. It can also be used as compost fertilizer, animal feed or biogas generation raw materials.

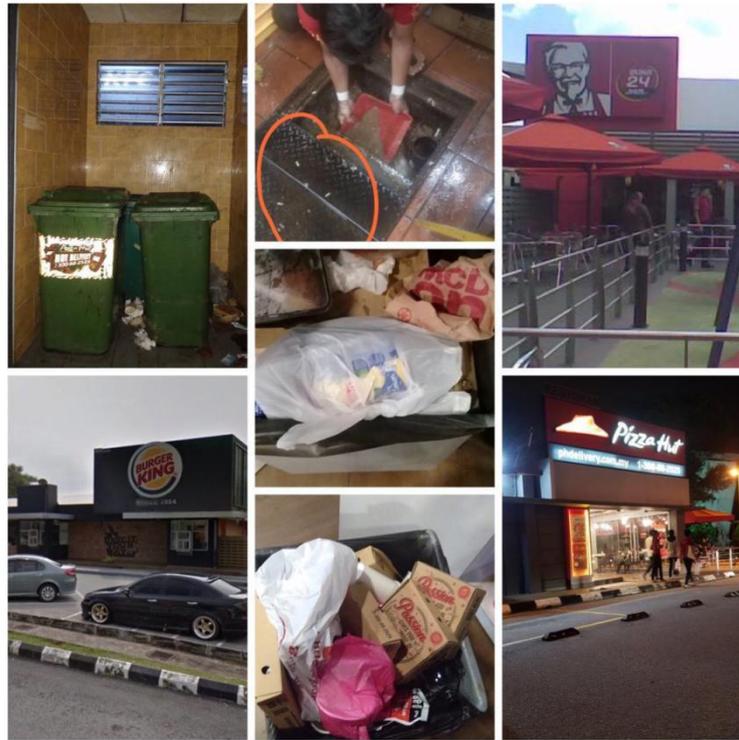
Keywords— Food waste, Fast food restaurant, Application

ABSTRAK

Di Malaysia pengurusan sisa makanan dapat dilihat semakin berkurangan dibuang dengan sisa pepejal dan sisa makanan tidak boleh dikompost. Sekiranya sisa makanan kompos akan memberi kesan yang besar terhadap kelestarian alam sekitar. Menurut Nadia Hamid (2016), kos pelupusan meningkat apabila sisa makanan dibazirkan terlalu banyak dan tidak membawa keuntungan apabila tidak diurus dengan baik. Pembuangan sisa makanan yang terbuang seperti sayur-sayuran dan buah-buahan boleh dikitar semula ke dalam pencuci pinggan atau produk lantai organik. Ia juga boleh digunakan sebagai baja kompos, makanan haiwan atau bahan bakar generasi biogas.

Kata kunci- Sisa makanan, Restoran makanan segera, Permohonan

DESCRIPTION OF THE STUDY



Food waste is defined as food cooked idle like rice, meat, fish, noodles, bread and tubers potatoes (Derman & Bentham 2006). In Malaysia, home residential and food processing industries such as hotels, restaurants, foodstalls, meat processing factories, seafood processing plant and manufacturing plant Breads generate a lot of food waste everyday. According to the 9th Malaysia Plan report, in the year 2005, an estimated 9.57 million MT of waste solid generated and out of this amount 25% or 2.39 million MT is a waste of food. The amount of waste food is expected to reach 3.75 million MT in 2020 (25% of the total amount of 15.0 million tonnes during the year).

1.0 INTRODUCTION

The definition of solid waste of any other substance in accordance with this Act or any other written law required by the authority to be disposed of, but does not include scheduled wastes as described under the Environmental Quality Act 1974 [Act 127],

Integrated waste management and open disposal Zero By 2020 is integrated not just the goal but is an effort towards managing solid waste resulting from human activities and preserving the polluted environment. Environmental care is very important because it is an important asset to the well-being of human life.

Residual kitchen waste generated during preparation process food (refers to raw materials such as skin bark, vegetable root, fish intestine and etc).

The remaining food waste generated from the use food

1.1 BACKGROUND RESEARCH

Customers dispose of food waste and solid waste in the same bin will cause the waste to mix and avoid surrounding areas. Especially at peak times, the disposal of waste will increase and if not monitored properly it will make the premises look less clean and will cause diseases and reproduction of insects such as cockroaches and flies to come in and the customers will be uncomfortable to enjoy the food there.

1.2 PROBLEM STATEMENT.

Problem statement is where irregular waste management is and cause contamination to occur because it does not separate waste from solid waste to food waste. This is because customers do not dispose of food waste after a meal is because management does not create a waste bin between recyclables and food waste.

1.3 RESEARCH OBJECTIVES

The objective of the study is :-

- To help restaurant management to manage waste disposal more efficiently
- To know how much food waste is disposed of by either recycling or disposal
- To be able to identify the exact weight of the food waste or other wastes daily.

1.4 SCOPE OF THE RESEARCH.

To conduct research on customers at fast food restaurants in Section 13 Extreme Park.

1.5 THE IMPORTANT OF STUDY

The importance of this study is to facilitate an organization that manages such an employee at the fast food restaurant premises as well as facilitating customers and providing them with awareness of the cleanliness that needs to be taken care of while outdoors.

1.6 CONCLUSION.

Based on what I observed, I can identify the problems that they have no good method of managing food waste on their premises. If they have a good way to manage the food waste and to be transported to the compost, the food waste can be used as a substance for the agricultural industry and can reduce the contamination of the food premises. The customers will always happy to come to the restaurant because of good managing the food waste and solid waste.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The comments highlighted in this chapter are definitions, concepts, problems with food waste management and actions to be taken by consumers and management to ensure food waste can be isolated. This is because most of the previous studies tell about the discharge of food waste inconsistent and cause pollution of odor.

2.2 Previous studies on food waste

Food waste is defined as food cooked idle like rice, meat, fish, noodles, bread and tubers potatoes (Derman & Bentham 2006). In Malaysia, home residential and food processing industries such as hotels, restaurants, food stalls, meat processing factories, seafood processing plant and manufacturing plant Breads generate a lot of food waste every day. According to the 9th Malaysia Plan report, in the year 2005, an estimated 9.57 million MT of waste solid generated and out of this amount 25% or 2.39 million MT is a waste of food. The amount of waste food is expected to reach 3.75 million MT in 2020(25% of the total amount of 15.0 million tonnes during the year).

Based on the results SWCorp (2016) , it is clear that these factors can contribute to the loss of commodities and profits in the food industry. Food waste disposal is increasing, and the food industry will face business problems if production of raw materials and raw materials decreases.

Reducing food waste should be initiated by the food industry throughout the country. With this, business and economic growth can be maintained without affecting the business

2.3 Composting of food waste

In Malaysia food waste management can be seen getting reduced most of it is discarded with solid waste and the food waste can not be composted. If food waste is composted will have a great impact on environmental sustainability. According to Nadia Hamid (2016), the cost of disposing of food waste increases and wastage of food waste is easy. Disposal of wasted food waste such as vegetables and fruits can be recycled into dish washing or organic flooring products. It can also be used as compost fertilizer, animal feed or biogas generation raw materials.

Based on Muhammad Asyraf Amran (2015) Among the things we can do is Kitchen Composting helps reduce the use of landfills and helps fertilize the soil by improving soil health through macro nutrients and micro-organisms through compost generated.

It also helps to improve nutrient content in the soil to a simpler and more easily absorbed plant for healthy growth. It can even improve the chemical, biological and physical levels of soil resources and reduce density and soil compression.

Additionally, it can improve the ventilation and water reservoir ability to prevent disease from the soil.

In addition, wet food waste is rich in organic matter (Tsai et al., 2007) and minerals are easy to decompose (Yang et al. 2006). If this waste is left idle and untreated immediately, it is easy to decompose by microorganisms pests from the environment (Tsai et al., 2007), encouraging pest insect, pest and disease emit stench that can affect beauty environment (Yang et al., 2006).

Next, Aminah Abdullah (2010) many previous studies have shown waste foods can be treated and recycled as ingredients livestock feed, used in composting to produce organic fertilizer, ingredient for produces biogas and produces heat.

Last but not least, composting is one of the approaches commonly used for recycling organic waste municipalities with food waste are the main component. According to Adhikari et al. (2007), understanding of food waste physics of chemicals is it is important to build a composting system design which is precisely because of eating habits and availability of different local products.

2.4 Impact of waste of food on nature preservation

Based on Mstar online (2016), the amount of food waste in Malaysia is 15,000 tonnes per day in 2016. And after studying that 20 per cent or 3000 tonnes of food waste can be avoided. Based on the SWCorp study the average weight of food for an individual is 0.45 kg for every food. and 15,000 tons of food waste can actually feed 11 million people, 3 times a day.

Table.2.1 shows a List of Countries and The Average Weight of Food for an Individual.

No	Countries	KG/DAY/PERSO N
1	Malaysia	0.544
2	Hong Kong	0.50
3	Singapore	0.36
4	Taiwan	0.35
5	United states	0.30
6	Korea	0.29

Sources : Dr Mohd Pauze Mohammad Taha (2016)

2.5 Methods of food waste disposal

High demand in the market has caused the premises to grow as mushrooms. But one problem that arises is the production of food waste. We produce too much food left over especially during festive seasons and public holidays.

Remains consist of excess or damaged food which is the solid waste of domestic waste that most households in the country dump. The Solid Waste and Public Cleansing Corporation (SWCorp) has released data on solid waste food composition at 55% of the landfill, making it the highest waste.

The residual food waste comes from several sources such as residential and municipal areas, hotels, food premises, higher education institutions, schools, commercial centers and factories. Usually the excess food that is not eaten or sold is thrown into the trash and the final destination is at the landfill. This is particularly worrying as it indirectly contributes to the increased volume of waste disposal sites.

One of the most effective methods of reducing waste is to recycle. Food waste such as excess rice, vegetables, fruits and animal fat can actually be recycled into compost. The process of producing this compost steel is to process the food with an effective microbe. The rest of the food is dried first to remove water content, then processed with the same material and then used as composting fertilizer for replanting chemical fertilizers.

Most developed countries make the rest of this kitchen a steel compost. Not only does it save space for waste disposal but also soil and water pollution as a result of the fertilizers used are organic sources.

Therefore, awareness of solid waste management should be applied starting from home especially food. We as a society are concerned about taking this waste seriously to protect the environment for future generations.

2.6 Advantages of recycling food waste

During the millennium, Malaysia recorded only 10.5 per cent recycling, showing that our country is lagging far behind developed countries that reach over 70 per cent.

The findings from the National Solid Waste Management Department show that the country's waste disposal composition statistics are very high without taking steps to reduce it.

Among the highest were food waste of 44.5 percent followed by plastic 13.8 percent, disposable diapers 12.1 percent and garden waste 5.8 percent.

To conserve the environment, individuals can apply Kitchen Waste Composting by using food waste in each home as an alternative to preserving the environment.

Most developed countries make Kitchen Waste Composting a daily hobby and even private institutions and international universities conduct research on it such as Sweden and Japan.

This process of recycling food is better known as Kitchen Composting when food waste is processed into steel compost. Food waste such as excess fat, banana peel, vegetables and so on can be recycled.

We need to inculcate a sense of responsibility to the environment and even to have the task of utilizing, managing and preserving the universe well. God created the universe for the benefit and well-being of all His creatures, especially humans.

The greed and bad behavior of some people towards nature can be detrimental to the person himself. As a result, landslides, floods, drought and polluted water are harmful human behavior.

Among the things we can do is Kitchen Composting to help reduce landfills and even help fertilize the soil by improving soil health through the action of nutrient macro and micro organisms through composting.

It also helps to increase the nutrient content of the soil to a simpler, more easily absorbed form of plants for healthy growth. It can even improve the chemical, biological and physical levels of soil resources and reduce soil density and compression.

In addition, it can improve the ventilation and water reservoir's ability to prevent disease from the soil.

Therefore, to preserve the beauty of the earth from contamination we can apply this technique as an effort to conserve the environment to ensure the well-being of future generations. We should all be responsible for managing the rest of the food more wisely so that our green environment remains clean, comfortable and fresh.

2.7 Domestic food waste management

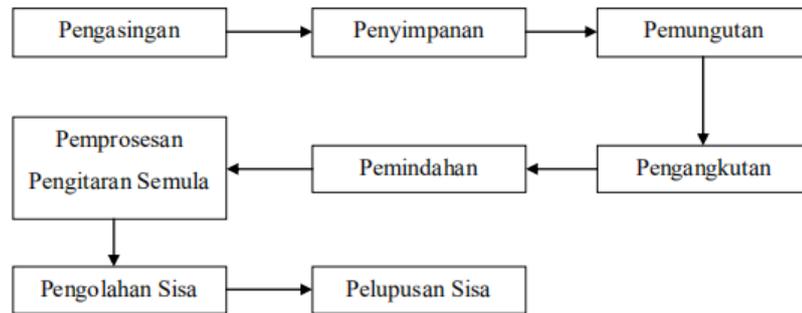


Figure 2.1 Components of Food Waste Management

Source: PPSPPA 2013

Based on Figure 2.1, the components of the food waste management, demonstrates a complete component of food waste management from the restaurant to food and solid waste disposal sites. This means food waste management is a management that involves management starting from isolation, collection and ultimately disposal or recycling into composting for agriculture.

Conceptually, domestic food waste management is at a stage restaurant from waste generation to waste collection only (EcoCanada 2010). During the course of the food waste management at the restaurant level, several components also took place leading up to disposal and collection of such waste. This shows that food waste management at this restaurant management level will involve components of isolation, storage and collection only. Based on in this component, the prospects in identifiable management are as operations, service providers, and the community. Prospects in this component also affects the overall management of waste management, because without it source of residual income then there is no waste to be managed, collected and eventually disposed of. Efficient food waste management is reflected in the waste hierarchy Exile foods that emphasize reducing waste before reaching the site disposal.

2.8 Operational management operation.

In terms of food waste management especially in management operations

In addition, there are a number of issues that can be seen to affect efficiency the waste management operator. The problem is frequency collection, waste management and labor procedures. All three of these issues can indicate whether the operation performed is efficient or not.

2.9 Society effects

Next in the management of this food waste, the community is a customer paying for and receiving food waste management services offered. To evaluate the effectiveness of management's performance of attitude and role society also needs to be taken into account.

This group actually generates the rest food and also need effective waste management to enable it the comfort of life is achieved. Public attitudes need to be evaluated and identified whether society is willing to pay or not pay for its services given as well as openness or acceptance in management adaptation leftovers.

This is important to enable operation and waste management reached an optimum level through the response provided by community. In other words, the response provided allows operation management adapts and also has alternative management methods if the management at the present time is not favored by the people local.

2.10 Conclusion

Management of food waste occurring in any area also involves aspects operations, management, community and government. is an element which is basic and commonly seen in any study.

That distinguishes between studies that has been done in terms of data collection and distribution, as well the effects and the steps taken in resolving the problem.

In addition from that, it has the same pattern. However in the study. This is not just a look at the usual norms that can be seen in food waste management.

Therefore, the study this is expected to open a new chapter in the management of food waste that was carried out.

CHAPTER 3 RESEARCH METHODOLOGY

3.1 Introduction.

The research methodology covers the methods, methods and approaches used for achieving the objectives and goals of the study. The methodology of the study made the study carried out more systematic and more focused course of study in achieving objective. This chapter will explain the methodology of the study used in the study conducted. The authors have planned on a regular basis the research methodology and strategic strategies used to obtain information and data through the rules specific. This chapter will also discuss in detail a few key points in the methodology and strategy used in completing this study, among others is:

1. Population and sampling.
2. Instrument of study.
3. Data collection procedures.
4. Data analyzer technique.

The research methodology and strategies are structured to obtain information and data to achieve the objectives and goals of the study as described in fig. 3.1 following

3.2 Research design

This study will be conducted using the experimental design in triplicate.

3.3 Questionnaire

The questionnaire was a popular study in the study Researchers because the questionnaire can cover broad areas and can framed easily. Through questionnaire information regarding respondents can be kept secret. This allows respondents to answer questions related to comfortable without worry or worry.

The questionnaire presented in this questionnaire is a closed question. Type of this question is easy to analyze and delight respondents to provide answer because he is only required to choose one of several answers given (Syed Arabi: 1998: 135).

The questionnaire was conducted with a brief explanation from the author of the questionnaire conducted and stated that all personal information was kept confidential. This question is not a test and there is no right or wrong answer. Respondents were not given time to answer. Questionnaire more focused on to get data on waste management of the premises. Examples of questionnaires such as in Appendix A.

The authors have chosen the population of this study from three fast food restaurants that have a lot of customers who are easy to do research:

The fast food restaurant that involve is:

1. Pizzahut Extreme Park
2. KFC Extreme Park
3. Burger King Extreme Park
- 4.

3.4 Data collection

Before conducting a study at the premises, the author requested permission from the restaurant management to do the research. the writer also explains the purpose of doing this research on the respondents' premises and the form of the research questions given and asking them to answer the study questions at a particular time. respondents can also ask if any of these questions are not understood and the author will explain them

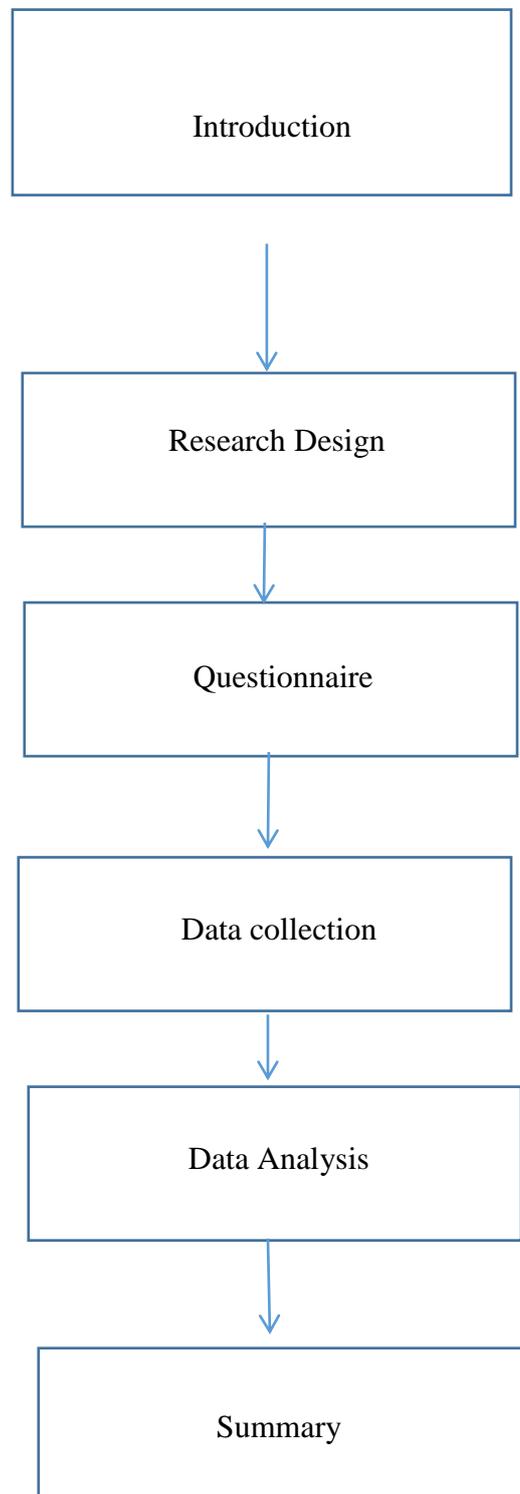
3.5 Data Analysis

The data collected will be processed and analyzed using Google form and Microsoft Excel. The use of the software will make it easier for authors to accurately analyze the data obtained and save time. Analyzes are considered appropriate because in parallel with the objectives. The data that has been analyzed will be presented with the help of the graph to facilitate understanding of the results of the study

3.6 Summary

Based on the research conducted by the author, the authors find that the food waste is not well managed. so the management proposes that their premises be at the best level in terms of food waste management. And can also control the level of cleanliness of their premises and also instill the nature of preserving the environment

FIG 3.1 The flow of the research process is carried out



4.1 INTRODUCTION

This chapter focuses on the results of the research conducted. Analyze and interpret and submit to answer the questions. A questionnaire was conducted for customers, manager and employees of fast food restaurant to study the types of food waste that is often thrown away.

4.2 RESPONSE RATE

A total of 10 questionnaires were mailed to respondent through food waste , with 9 were returned, representing 16.7% of the response rate. The response rate was considered realistic considering the difficult to separate food waste with other rubbish.

4.3 DEMOGRAPHIC PROFILE OF RESPONDENTS

The respondent were mostly manager restaurant fast food and the customers.

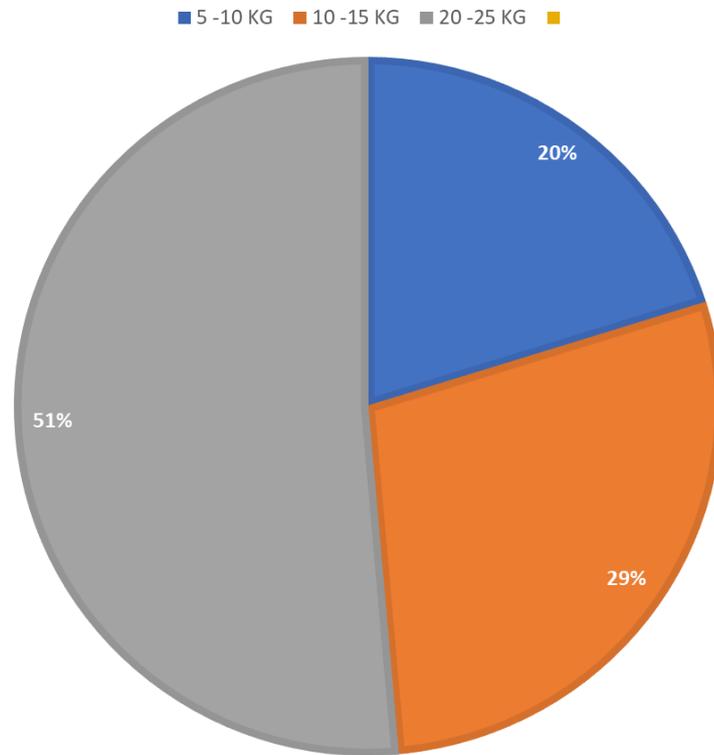
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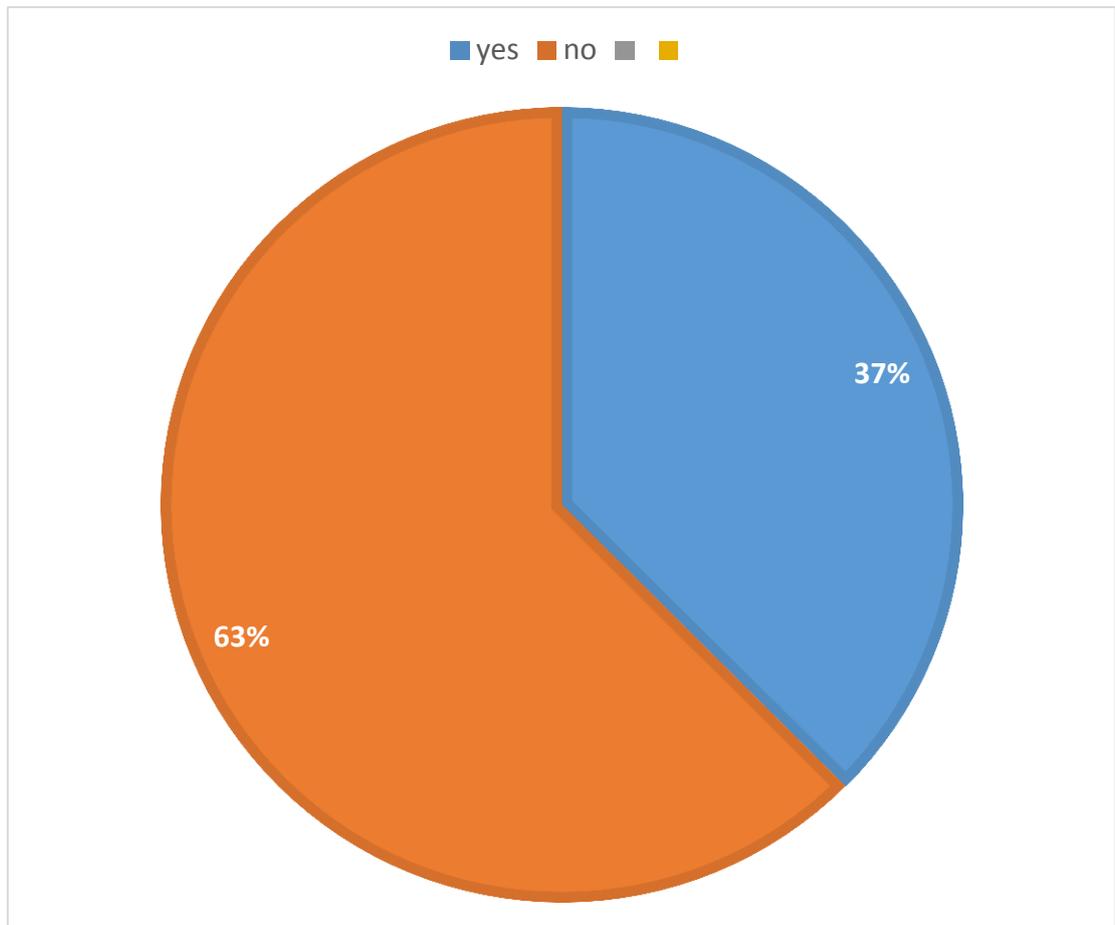
4.4 RESEARCH FINDING

1) In a given day how much food is wasted



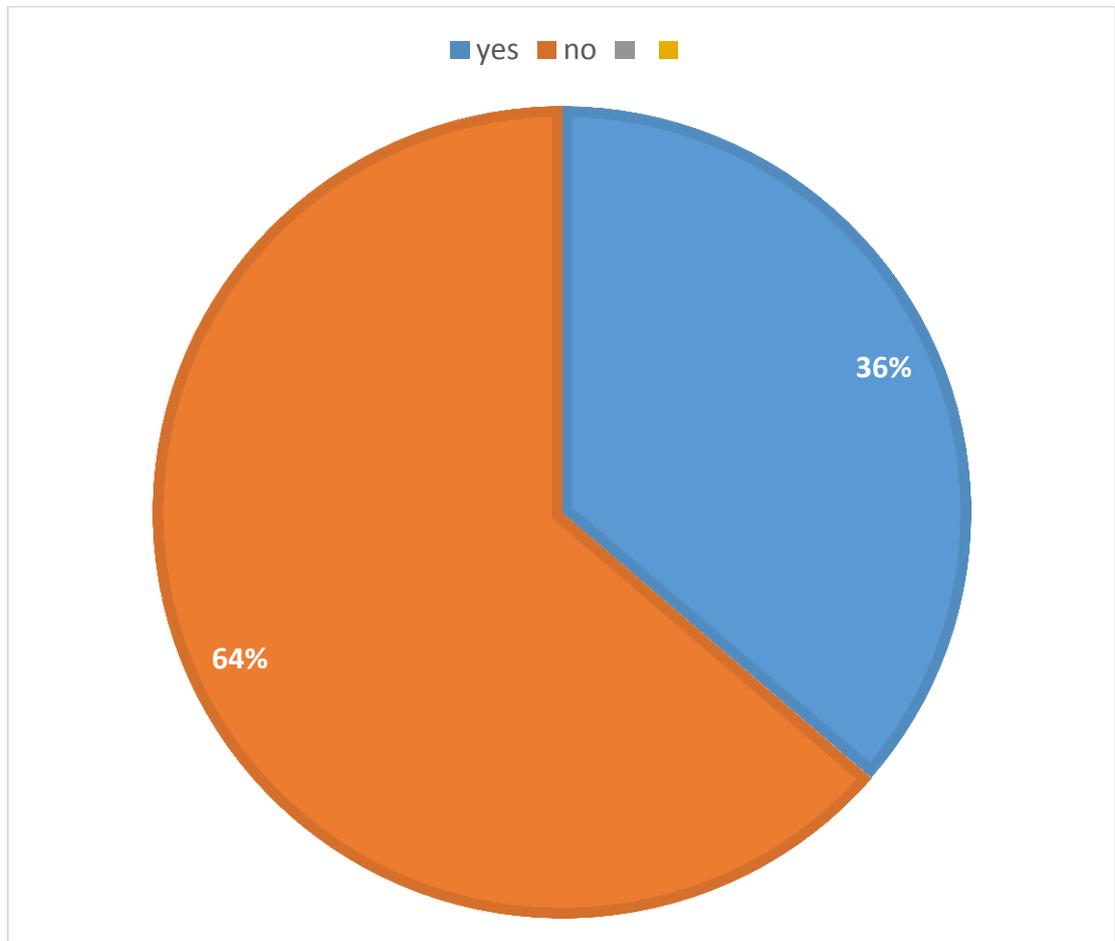
Based on a survey of studies that have carried the weight of 20 – 25 (Kg) food waste most of the time. Between the three restaurant, KFC is the most weight because the restaurant is operational for 24 hours a day.

2) Are there any complaints from customers regarding the cleanliness of your premises?



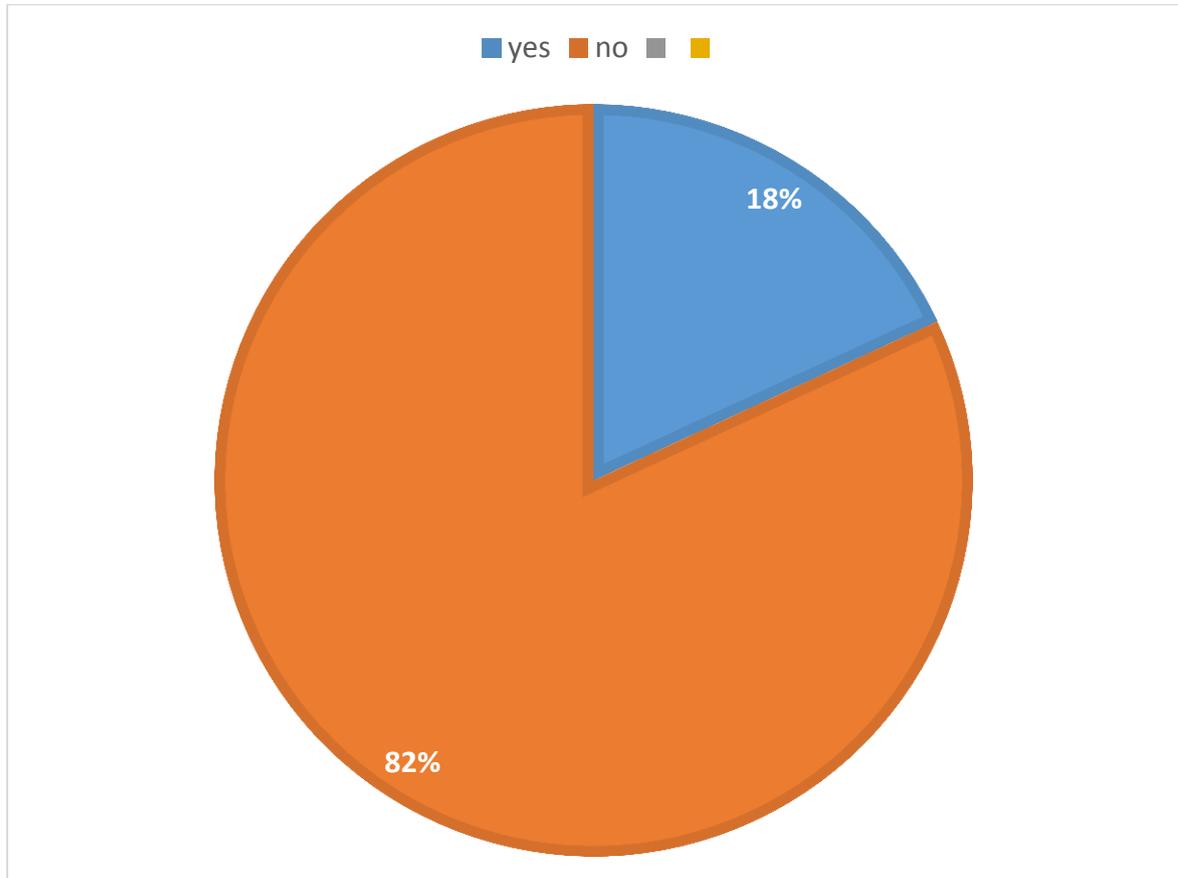
Based on the results and analysis, this premise does not have many complaints about the cleanliness of the premises because weekly cleaning always be done by the staff daily before closing the store.

3. Are solid waste and food waste disposed separately?



Based on studies only KFC restaurants provide separate bin but burger king and pizza hut does not separate the waste food and make easy for staff to do the cleaning and the waste can be compost.

4. Do customers separate food waste and solid waste?



Based on analysis, some customers separate food waste and solid waste into the bins provided, and some customers leave or mix food and solid waste in one bin. It because the customer wanted the easy way to separate it with the premise must have more than one bins.

4.5 CONCLUSION

The results of this study found that some restaurants do not separate food waste and mix it in one bin. Only KFC restaurant that separate the food waste. Besides that, customers also play an important role because most customers do not isolate food waste and just leave it on table.

Management of food waste occurring in any area also involves aspects operations, management, community and government. is an element which is basic and commonly seen in any study.

That distinguishes between studies that has been done in terms of data collection and distribution, as well the effects and the steps taken in resolving the problem.

In additional from that, it has the same pattern. However in the study this is not just a look at the usual norms that can be seen in food waste management.

Therefore, the study this is expected to open a new chapter in the management of food waste that was carried out.

CHAPTER 5

CONCLUSION

5.1 Introduction

The discussion was based on the findings and some of the problems that arose and the discussion was compiled to provide a robust discussion of all the issues involved.

Through the discussion, a study findings can be summarized and can be completed quickly and intelligently.

5.2 Discussion

The following is a discussion of the results obtained and the problems that arose during the study of "Food Waste Management at the Fast Food Restaurant" as restaurant owners can use the ideas from our findings to reduce and simplify take care of it.

5.3 Conclusion

The aim of the 10-month "Food Waste Management In The Fast Food Restaurant" study to achieve the original objective of this study was investigated and studied where this study can help restaurant management to manage waste disposal more efficiently and also. This study we also look at how much food waste is disposed of by either recycling or disposal. In collaboration with the restaurant manager we were able to identify the exact weight of the food waste or other wastes daily.

The initial investigation phase was the first phase of the study to be carried out. This phase involved the process of identifying problems faced by users and managers. This phase can also determine the objectives and scope of the study and can further study the research done. Identifying the objectives is crucial to solving the problem. This phase is important to provide an initial overview of the study being studied.

Based on gantt charts, it is possible to identify and determine the progress of activities undertaken in stages to help students monitor their studies throughout the 4-5 semester.

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