

Research Article

Waste Management in KFC and Pizza Hut Case Study in Semarang, Indonesia

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Abstract - The study looked into the extent of the proper waste management of KFC and Pizza Hut, fast food restaurants in Semarang City, Indonesia. The waste management of fast food restaurant highlighted on reducing the food establishment demand for virgin raw materials through increasing waste prevention and recycling. The aim of the research is to clarify the importance of waste management to keep our environment and also to implement waste management policy properly as well as to support the customer participation in waste management which could done by improving human behavior in dealing with waste generated by fast-food restaurants such as KFC and Pizza Hut due to a huge amount of waste generated by them. The method of this study Samples were collected through guided interviews using the snowball method, the result found out that daily volume of waste generated by these restaurants varies by day of the week for example, the KFC waste volume increases in the days of the weekend, which generates about 2 m³ per day, either for Pizza Hut generates less than KFC, it's about 1, 5-2 m³ per day.

Keywords: Waste management, Fast-food restaurants, Policy, Human behavior

Introduction

Humans have always produce waste and disposed it in some way, so waste management is not a new issue. What has changed are the types and amounts of waste produced, the methods of disposal, and the human values and perceptions of what should be done with it (USEPA, 2009).

Over the past few decades, People have become increasingly concerned about not only the management and disposal of waste but also the difficulty of balancing the benefits of a healthy environment with the economic costs to achieving

those benefits (www.terrificscience.org). The conflict often arises over what disposal methods should be used, whether costs of certain disposal methods outweigh benefits (or vice versa), and who should bear the economic burden.

It was practiced solid waste segregation through a comprehensive sorting process that begins at the store and continues to secondary facilities for material recovery and reprocessing. From the store, segregation already begins through separate trash bins for biodegradable or organic waste and non-biodegradable waste. These waste materials are bagged, collected and transported in sanitary closed vans to the Materials Recovery Facility, where secondary segregation takes place. Here the waste is further sorted into paper, plastic cups, spoons, forks and straws, food waste, and residual or non-recyclable waste.

The increasing issue and concern of how much danger waste pose to both the human and the non-human population has made its management a genuine concern throughout the world. Despite government efforts, the management of waste disposal has remained the major environmental problem.

The practice of improper waste disposal results in unsanitary surroundings that eventually attract disease-carrying insects and canines. Sometimes itinerant scavengers would often ransack the solid waste disposal in open receptacles or even sip the plastic containers before they are collected for final

disposal. Stray animals and wind compound the problem by scattering the waste left by scavengers.

Education and awareness in the area of waste and waste management is increasingly important from a global perspective of resource management and the hospitality industry. Student must be aware in the waste management program of the fast food chain. For the above reasons, the researchers are encourage and challenge to undertake this study to be able to know if the managers and the employees know how to properly dispose their waste in their establishment.

The research aims to know to know the implementation of waste management KFC and Pizza Hut fast food restaurants. Then, to know the customer's waste behavior in KFC and Pizza Hut fast food restaurants. It also wanted to get the best way to manage waste in KFC and Pizza Hut fast food restaurants The research made used use of the descriptive type of research to analyze the data gather on the waste management in KFC and Pizza Hut fast food restaurants.

Materials and Method

The respondent (informants) of the study were twenty six (26) which composed of one managers, two workers and ten customers in every branches of selected fast-food restaurants such as KFC and Pizza Hut. It was used guided interview (in-depth interview) in the study. It consists of three (3) parts: The terms of waste management in KFC and Pizza Hut, customer's behavior in waste management and the participation of customers in waste management at KFC and Pizza Hut.

The draft of the guided interview was presented to the advisers for comments and revision. The research incorporated the suggestions made and final copy of guided interview was ready to be used. The respondents (informants) were oriented about the purpose of the study before they were asked to answer the set of questions regarding the waste management. The data was personally collected using snowball method. The data obtained from guided interview were tallied, interpreted and analyzed using excel.

Results and Discussion

The Existing Condition of Waste Management in KFC & Pizza Hut

The Amount of Waste Generated By KFC & Pizza Hut

It has directed several questions to the target assemblies in a research supervisor and workers in fast food restaurants (KFC, Pizza Hut), depending on the phenomena (indicators) that we have in the research. The daily volume of wastes generated by these restaurants varies by days of the week. For example, the KFC waste volume increases in the days of the weekend, which generates about 2 m³ per day, either for Pizza Hut generates less than KFC, it's about 1,5-2 m³ per day. It's known that fast food restaurants as any other business which generate a huge amount of waste every day which lead to uncontrolled waste whenever there is no properly waste management. In this case, KFC and Pizza Hut in Semarang should be have good strategy in waste management term to avoid the negative impact of waste on the environment and health. It could observe that waste generated by KFC is more than Pizza Hut from (figure 1) as following:

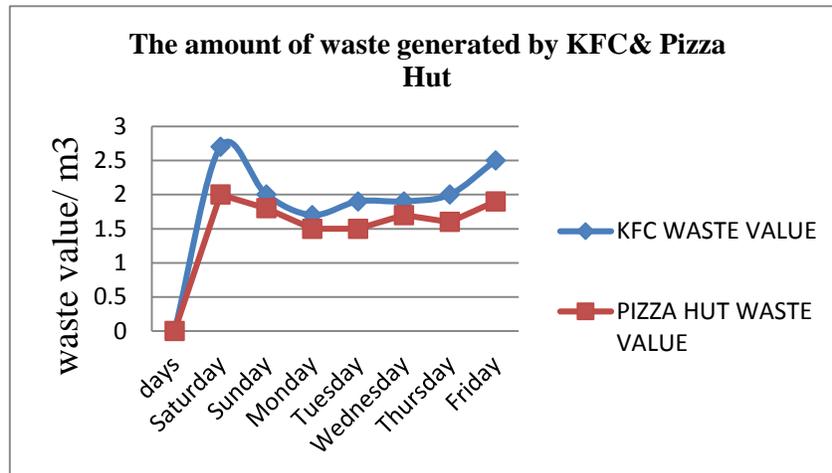


Figure 1. The Amount of Waste at KFC & Pizza Hut

According to Jacob Kuczeruk (2011), with the average restaurant such as McDonald's now producing around 100,000 pounds of waste a year in USA, clearly it is time for a much needed change to occur. If it compare the amount waste at KFC and Pizza Hut in Semarang city-Indonesia, it will see that these restaurants generate a huge amount and its between (1.5 m³-2 m³) per day, 60 m³ per month or 720 m³ per approximately.

The Contain Of Waste Generated By KFC & Pizza Hut

Through the results of this research, It can seen the contain of waste of the papers and Foods and drinks leftover, beverages packaging and

various kinds of plastic. Through this research all kinds of waste which mentioned above had not observed, due to their waste dealing in the kitchen into the plastic bags than the temporary waste storage.

There are some differences between the volume and the content of waste in pizza Hut and KFC, where the percentage of organic waste generated by the KFC only 30% and 70% of non-organic waste. In contrast, the percentage of organic waste at Pizza Hut is about 60% and 40% inorganic due to Pizza Hut policy which uses materials and utensils made of glass, porcelain and plastic that can be washed and used again.

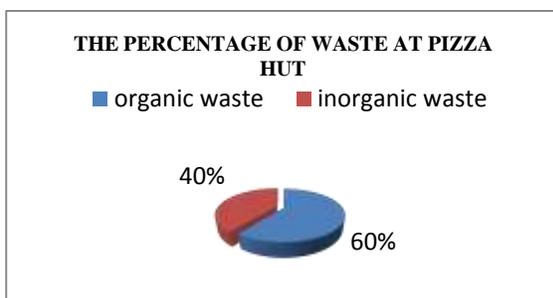


Figure 2. The Contain Of Waste at KFC

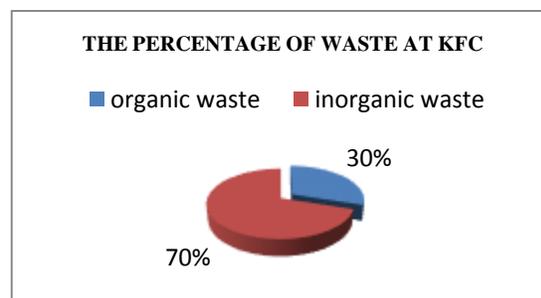


Figure 3. The Contain Of Waste At Pizza Hut

Waste Management Facilities at KFC & Pizza Hut

According to supervisors and workers, waste management programs in these restaurants or anywhere else needs to be very large budgets to use the available techniques in this area. The facilities in KFC and Pizza Hut are very simple, where each of KFC and Pizza Hut used Temporary waste storage, $\pm 2 \text{ m}^3$ approximately. According to development Division 2012, 2013 in Westminster City about waste storage requirements, 1.5 cubic meters per 20 dining spaces. Note: 50% of this capacity must be retained for the storage of separated waste for recycling. This is not a generally applicable minimum requirement. The pictures below shows the exists facilities in KFC & Pizza Hut. Based on the results, KFC and Pizza Hut's customers thought it is not enough to carry out waste management in an integrated manner. There is a couple of trash bins at the car parks as well as at every door inside those restaurants. It has been observed

through this research that the waste facilities at these restaurants are not enough especially inside the dining area. They used plastic bags to collecting the waste.

Waste Management Process at KFC & Pizza Hut

Based on the research results, after the customers finished at KFC their eating, waste will be taken by KFC teams and then stored it in the trash bag in the dining area. After those bags will be filled with waste, KFC teams remove it to the temporary waste storage outside the buildings. Next, everyday at 06.00 am, officer from City Public Service take that waste into their truck and bring it to landfill. On the other hand there are two kinds of waste in Pizza Hut. Wet waste which contains of Pizza ingredients such as vegetables and meats, dry waste which contains of package materials such as cans cartons, we can see the process of waste management at KFC & Pizza Hut as following:

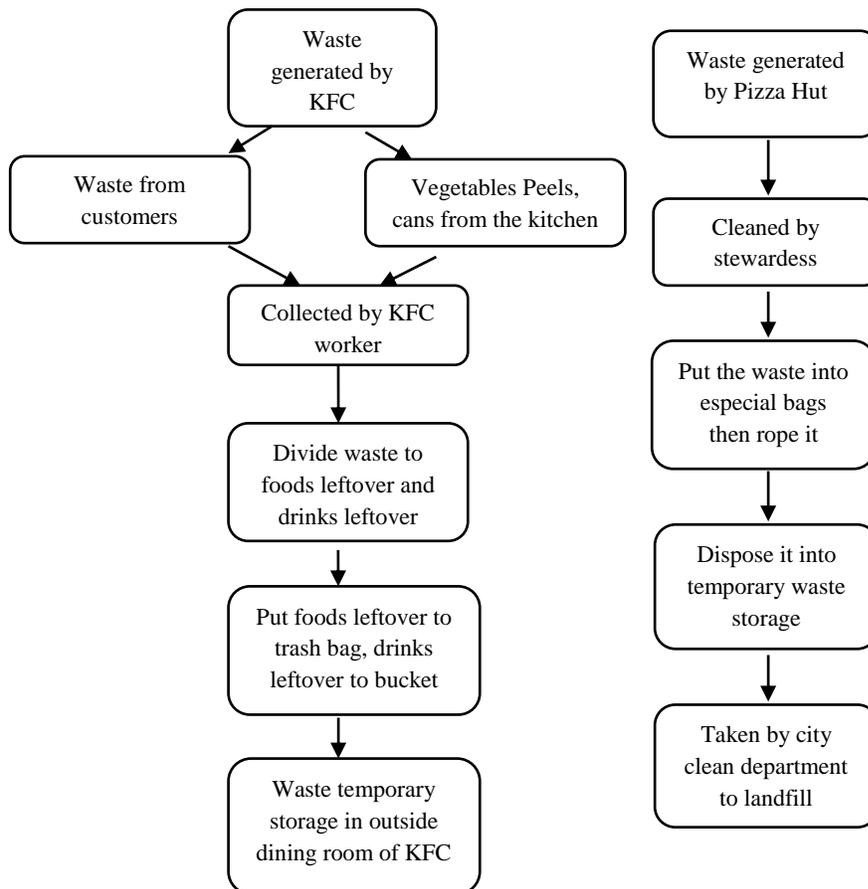


Figure 4: KFC & Pizza Hut Waste Management Process**Waste Management Policy at KFC & Pizza Hut****Formulation of Waste Management Policy at KFC & Pizza Hut**

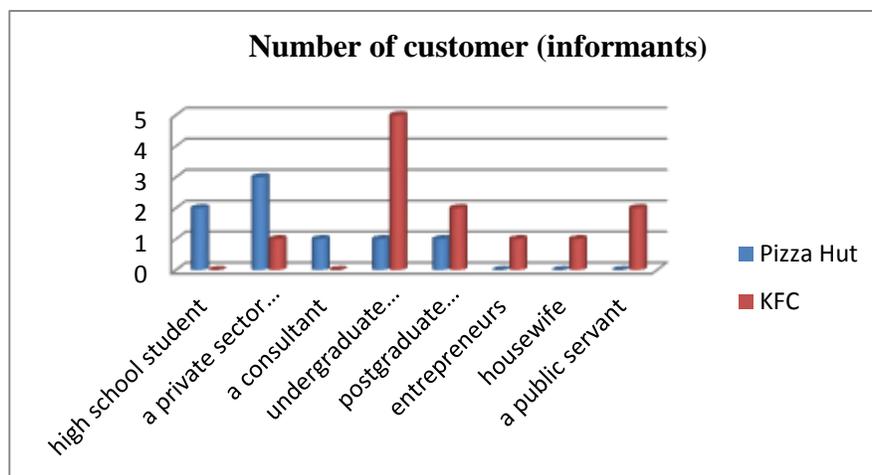
The research directed some questions about the policy of KFC inside big markets it was found out that every branch of KFC has a similar waste management policy.

Different policy is used only between KFC single outlets like this KFC Pandanaran Branch with KFC inside mall, for example KFC Citraland Mall Branch. KFC outlet inside mall will follow waste management policy from mall itself. KFC have been using green action policy.

Based on KFC & Pizza Hut supervisors, special regulations in waste management have been implemented since those fast food restaurants started. They said that to implement waste management deeply, they have to understand about KFC & Pizza Hut's vision and mission about keeping the work location clean and comfortable for consumers, even new employees must know how to deal with waste.

Involvement of Waste Management Policy at KFC & Pizza Hut

In this research, It was interviewed one supervisor and two workers and also 8 customers from KFC & pizza Hut that concerned as the involvement of waste management policy in the research, The samples that have taken are 50% of customers are male and 50% female from both of those restaurants and the informants were included high school ,undergraduate, postgraduate students, a consultants, a private sector employee, public servants, entrepreneurs and housewife who have different education level and knowledge in waste management policy term. It was directed several questions about waste management policy in these restaurants. According to the research result, the customers from those restaurants realize that they themselves make waste exist as our activities result. So, we have to manage waste properly that wastes do not pollute our environment. On the other hand people as customer will feel uncomfortable if the waste management does not apply in KFC & Pizza Hut, then the environment will become less favorable for the community, waste which scattered everywhere will cause odor and bad sight.

**Figure 5: KFC & Pizza Hut Number of Customers**

The Implementation of Waste Management at KFC & Pizza Hut

Waste Management Communication at KFC & Pizza Hut

Based on the supervisors and workers of KFC & Pizza Hut answers, the implementation of waste management will be completed when the communication about waste management is delivered as good as possible, they have same method to communicate from managers to workers using a daily briefing in the morning and in the work shift turnover. For the newly worker

in Pizza Hut, they have to attend the training monthly general meeting which is one of its matter is how to manage waste.

KFC & Pizza Hut management thought that waste management is not customer's responsibility, they have to deal with customer as a king, they just focused on how to serve the customer as well as possible and make them Comfortable. In those restaurants the communication has done using several way such as, Oral speaking, written, memo, poster and email. The research has interviewed some customers in KFC and pizza Hut to see their behavior whether they participate in waste management.

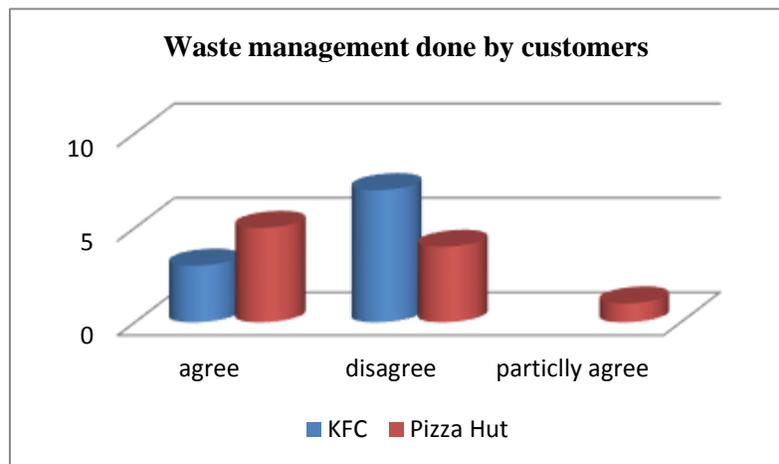


Figure 6: Waste Management Done by Customers

The results were very close for both of restaurants 7 of KFC customers believed that waste management is not customer tasks and some of them were wondering why customers must manage the waste, while 3 of KFC customers agree to manage in those restaurants. It depends on KFC policy, and the waste management facilities inside the restaurant for ease of operation for customers. In Pizza Hut, 5 customers agree for waste management to be done by them, one of them prefers that waste management to be done partially (see figure 6), for example, put the garbage in the allotted space. Other wise, 4

customers do not think that it's a good idea because they come to eat not to collect waste.

The Customer's Behavior in Waste Management At KFC & Pizza Hut

The most important things that we have touched in the term of waste management is the human behavior and dealing with waste, this research has been focused on customer behavior in particular, taking into account the number of customers who come to KFC and Pizza Hut as well as other factors that affect on the behavior, such as understanding of the effects of waste on health and the environment.

The Number of Customers And The Duration Of Staying At KFC & Pizza Hut

Through the search results, supervisors and workers of KFC and Pizza Hut see that the most busiest days of the week is on Saturday and Sunday (weekend), especially in times of lunch and dinner, as well as vacation days, therefore the amount of waste generated is very large. For the period spent by customers in both of the KFC and Pizza Hut, it's usually between 30 minutes to 3 hours in KFC (Family customers \pm 30 minutes, young customers \pm 1-3 hours), but

for Pizza Hut, the term is usually less than the KFC ranging from 30 minutes to 1.5 hours.

Based on the answers of the customers at KFC and Pizza Hut, that the most customers who have been interviewed, they come to KFC for 1-3 times a month, sometimes more than four times a month, but for Pizza Hut the customers come rate is less than KFC, where they went about 1-2 times a month and it was due to higher prices and quality of food. On the other hand, the most busiest days at the fast food restaurants are weekends and holidays, especially at times of lunch and dinner.

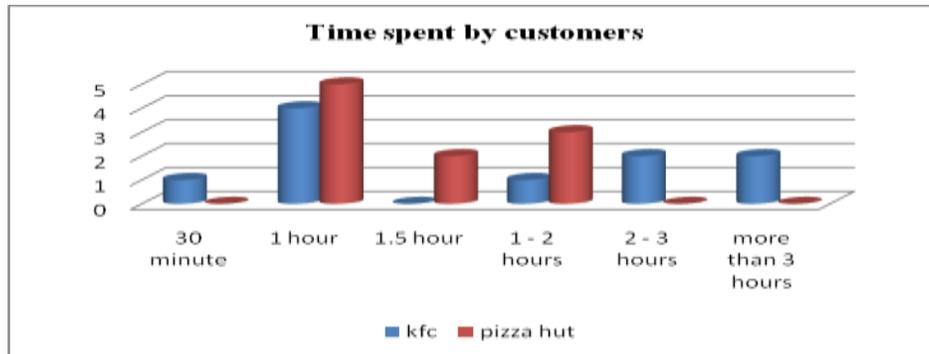


Figure 7: Time Spent By Customers At KFC & Pizza Hut

According to the customers who have been interviewed about the time they spend inside fast food restaurants (KFC and Pizza Hut), the results showed that the customers of KFC spend period ranging from (30 - 3) or 4 hours, while Pizza Hut customers spend duration between (1 - 2) hours.

Waste Management Knowledge

Supervisors and workers in KFC have little knowledge of waste management term, for example, the use of plastic in large amounts every day is very bad and harmful to the environment. Therefore the waste should be managed well to prevent environmental pollution. For Pizza Hut's supervisors, they have a good knowledge about waste management better than KFC's employees. They said that the waste should be managed as good as possible. An effort to manage waste

started from sorting, transferring, loading unloading and final disposing to landfill, the waste can be benefit in our life.

Most of the customers of KFC have knowledge about the term waste management, where 8 of the customers who have been interviewed known that waste management is an attempt to minimize waste and disposed it to prevent the environmental pollution or reduce the negative impact of waste, for example in waste management Sorting waste to organic and inorganic waste. (Produce organic fertilizer from organic waste, Reuse or recycle inorganic waste). As for Pizza Hut, all customers who have been interviewed have knowledge about waste management, where they considered that waste management is the process of treating solid waste and offers variety of solutions for recycling items

that don't belong to the trash. It is about how garbage can be used as a valuable resource. As well as the way to manage the waste well in order to keep the environment and the people. The

diagram below shows the number of customers who have knowledge about waste management at KFC and Pizza Hut

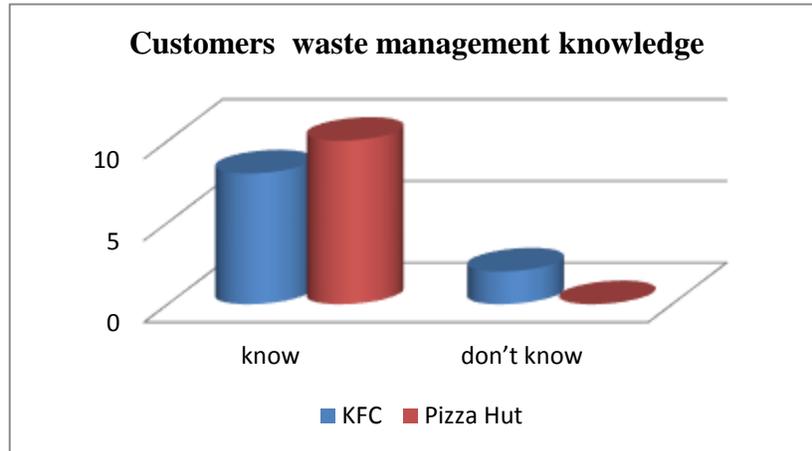


Figure 8: Customer's Waste Management Knowledge

The Impact of Waste on the Environment and Health Knowledge

In pizza Hut, supervisors and workers said that waste impact on the environment would be through garbage or solid waste that disposed in the river or sanitation may be a major factor for flood. The effect of waste on health, may be because of the leftovers, which is remained without management on the ground, therefore the disease is transferred by flies, insects and bacteria.

The customers of KFC and Pizza Hut have sufficient knowledge about the negative impact that may be caused by waste at the absence of

sound management. All the customers who were interviewed believe that the negative impact of waste on the environment begins by burning waste directly which leads to air pollution, therefore affect on the people health. On the other hand, the disposal of this waste into rivers or sewage increases the possibility of spread the disease by some insects such as mosquitoes.

There are differences between the customers of KFC and Pizza Hut at the extent of their knowledge about the impact of waste on the environment and health, the graph below shows how many informants how have in-depth and simple knowledge.

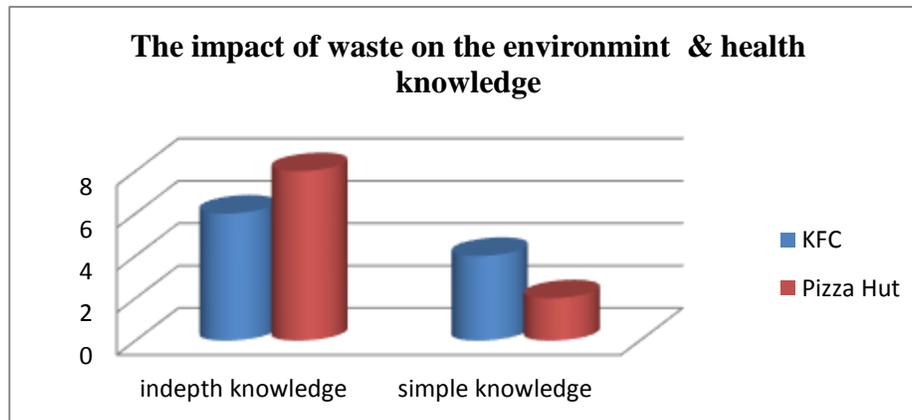


Figure 9 Customers Knowledge about the Impact of Waste On The Environment & Health

Reduce, Reuse and Recycle (3R) Understanding

According to KFC's supervisors and workers, waste volume in KFC depends on how many customers eating in KFC. So, they do not think about reducing waste volume because it mean the number of customers are reduced too. Waste from temporary waste storage, then will be disposed to landfill without being reused and recycled.

Pizza Hut's supervisors and workers thought that Reduce, reuse and recycle as their understanding is waste bank that encourage people to sort their waste (organic and inorganic). they could sell inorganic waste which still has value and make organic fertilizer from organic waste. they said that there is no 3R in Pizza Hut, usually they just did reselling materials like can and carton. other waste should be disposed. Based on the KFC's customers or informants who have been interviewed,

of them have a good understanding of the 3R. either 5 customers have a superficial understanding and one of them do not know in this term. Pizza Hut's have 8 of their customers who have a good understanding while the others do not anything about it.

They believes that reuse, reduce and recycle are important process to manage waste properly, they said that reduce is minimizing the use of materials that have potential to be a waste, reuse is using waste that still can be used without changing its form, recycle is changing form of waste and making them have a higher price and benefit.

On the other hand, The customers in both restaurants understand about the importance of these processes in waste management. Producing fertilizers, economic benefits, and conservation of natural resources are as protect the environment from pollution. The diagram below shows how far the customer understanding in 3R (Reduce, Reuse, Recycle) term.

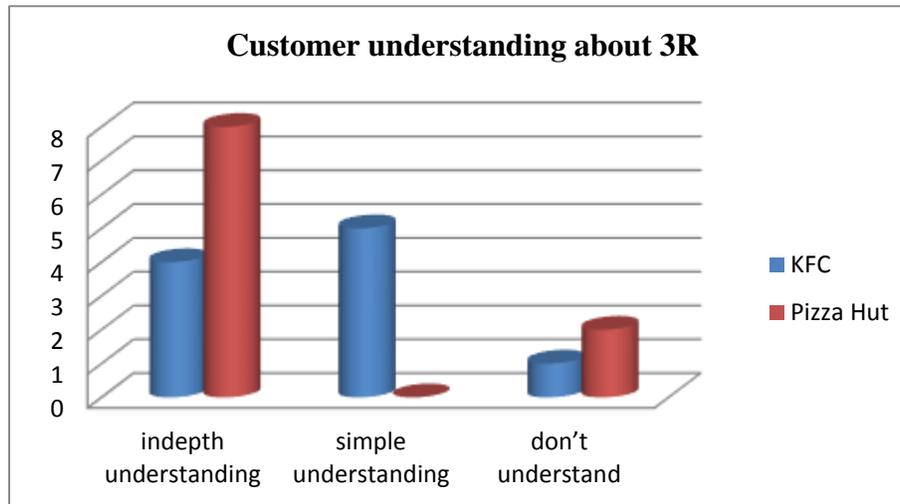


Figure 10: Customers Understanding About 3R (Reduce, Reuse, Recycle)

Customer's Participation in Waste Management at KFC & Pizza Hut

Asking the Customers to Participate In Waste Management

The managers and workers of KFC think that they cannot ask their customers to participate in waste management directly, because it will make them uncomfortable, they thought that the best participation from the customers is throwing their waste in the trash bin. Different from KFC, Pizza Hut's managers and workers

fully support the idea of customer participation in waste management, they said it's a good idea, but it depends on the pizza Hut policy in Indonesia and all over the world.

In KFC, 50% of customers who have been interviewed do not agree to participate in the process of waste management, While 50% of others approve to participate. As for Pizza Hut's customers who have been interviewed do agree to participate in waste management, the diagram below shown how many customer agree and disagree in KFC & Pizza Hut.



Figure 11 Customers Participation in Waste Management

Customers Serve Themselves (Serve Yourself)

The managers and workers of KFC do not believe that the customers will accept serve themselves application, because that will make the place uncomfortable for them as was mentioned before. In Pizza Hut, the matter is quite different, the managers and workers as usual very enthusiastic about such initiatives in term of waste management, where the pizza manager and workers have background and experience in yourselves service application.

In KFC, 70% of customers who have been interviewed agree to serve themselves, They said that it could be done if there are advantages such as making especial price of food for them. As for the other 30%, they refuse serve themselves, because they think that makes them feel uncomfortable in this restaurants. As for Pizza Hut, 60% of customers who have been interviewed agree to serve themselves while 40% refuse that at all. The diagram below show how many customer agree and disagree at KFC & Pizza Hut.



Figure 12: Customers Serve Themselves

The Successful Waste Management An Idea At KFC & Pizza Hut

The KFC's managers and workers do not have an idea to make a successful waste management in this restaurant, they believe that the indicator of successful waste management is the number of customers who come to this restaurant.

As for Pizza Hut's managers and workers, they have some ideas that may lead to successful waste management, it can be done by educate the customer about waste management and also sort the waste to organic and inorganic that will make the customer comfortable and keep the environment clean as well.

In KFC, The customers who have idea to make waste management are 40% of the customers that have been interviewed, they said that the waste management could be successful if KFC provides enough trash bin and applied waste management regulation at restaurants while some of them thought that what are done till now is enough. Whereas 60% of customer do not have idea about it. In Pizza Hut, The customers who have some idea to make waste management successful is about 70%, they thought that it could be done by making some posters about the term of waste management and educated the customers about it, While 30% of them do not have an idea. The diagram below shows how many customers have an idea to make waste management successful at KFC & Pizza Hut.



Figure 13. The Successful Waste Management An Idea

In Surabaya and Medan, Indonesia. public awareness was improved after receiving guidance concerning environmental issues which related to uncontrolled waste. This program was performed as community based waste management. The program successfully applied 3R (reduce, reuse, recycling), which included waste separation at the source and composting. In Yala, Thailand, the poor communities in reducing waste was triggered by exchanged the trash for nutrition food. They empower themselves in environmental awareness. All of above ideas can be as a guide for KFC and Pizza Hut in Semarang - Indonesia.

Conclusion

There are difference between malls KFCs policy and general KFC, malls KFC have to follow malls policy. One of KFC policies is green action that cared about the environment and human health. As for Pizza Hut waste management policy, should have strict procedure to manage waste and food safety standard to prevent our food contaminated. The research shows that the customers who have taken are 50% males and 50% female, based on the customers at these restaurants waste generated indicate to their activities, so whether the waste not managed properly it will lead to the environmental pollution and make the place uncomfortable.

Waste management communication as part of implementation in KFC & Pizza Hut done using a daily briefing in the morning and in the work shift turnover as well as other method such as, Oral speaking, written, memo, poster and email. The number of customers how agree about the waste management to be done by them in these restaurants (KFC & Pizza Hut) are very small, it indicate to bad behavior on waste management. Although some customers agree it will be throwing the garbage in the allotted space.

The percentage of customers who want participate in waste management at KFC was 50% fully participate, for Pizza Hut 90% of customers agree to participate. It is good to know however that the most customers were aware about the problem of waste. the customers participation in waste management indicate to their behavior in this term.

The successful waste management in KFC and Pizza Hut could be done using many tools such as education, promotion and staff education, event promotion and training are essential for the successful implementation of a waste management plan. There are several methods which can be used to change behavior to improve participation or correct problems as well as waste management facilities. All the informants and people could actually

participate in waste management to be the best efforts in these restaurants or wherever. The customers in these restaurants could also play their part in waste management properly. However, all of these things would not be materialized without an active approach from the government to facilitate this change to happen.

Recommendation

1. For KFC & Pizza Hut's Owners And Government

- a. The government should develop and implement a waste management policy at KFC and Pizza Hut business (fast food restaurants) that outlines practical approach waste management practices including creation and enforcement of waste management policy framework, incentives, public participation, awareness creation and education extension, proper waste collection and disposal procedures and support mechanisms to waste handlers by providing protective gear.
- b. The research recommends KFC and Pizza Hut to use alternative materials especially which able to use many times to minimize waste generation and to conserve natural resource in the environment as well as the corporate institutions as KFC and Pizza Hut, should be encouraged to implement corporate social responsibility (CSR) plans on welfare of waste handlers for long-term sustainability of their enterprises, by nurturing markets and creating socially and environmentally sound values so as to grow cost-effective investment.
- c. The government should run monitoring approach about waste management at KFC and Pizza Hut, to implement relevant penalties and incentives waste management.

2. For KFC & Pizza Hut's Mangers, Workers And Customers

- a. Improving human behavior in dealing with waste by educate the people such KFC and Pizza Hut's staffs and customers about the benefit of waste management and also the impact of waste on the environment and health, It can be done using specific guidance related to waste and its consequences and also using proper waste management communications.
- b. providing waste management facilities at KFC and Pizza Hut (fast food restaurants) which very important part to implement waste management properly and also to assimilate a huge daily amount of waste.
- c. The research recommends to implement 3R (reduce, reuse, recycle) properly at KFC and Pizza Hut in Semarang - Indonesia, It can be done using the previous case study which got success in the term of 3R. For example, create especially team for sorting waste inside these restaurants.
- d. The research recommends provision of a separate cell at the sanitary landfill for the ashes of incinerated hazardous wastes and composting of waste generated by KFC and Pizza Hut (fast food restaurants), whether there is no sanitary landfill, it will cause the groundwater pollution by leachate water from waste dumps.

3. For Waste Management Participant At KFC & Pizza Hut

The research recommends separation of waste at KFC and Pizza (fast food restaurants) Hut in Semarang city - Indonesia for easier collection, disposal and recycling ensuring participants

accrue maximum benefits from the practices and support for research and popularization of adoption of appropriate and low cost waste management technologies that are locally available to reduce handling cost of, especially recyclable waste. The participation of customers is a great significance in terms of waste management and its success, as well as changing human behavior in dealing with waste.

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