Waste Management of Fast Food Chains in Ozamiz City, Philippines

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Abstract

Food chains are among the fastest growing businesses today. However, the large amount of wastes generated by these establishments threatened the environment and the health condition of the society they serve. This study determined the waste management practices adopted by selected fast food chains in Ozamiz City. Problems encountered in implementing waste management procedures were also identified. A cross-sectional survey was conducted using a structured questionnaire which passed the Cronbach's alpha reliability test. Results revealed that more than 50% of fast food chains complied the waste management practices with wastes segregation (98.3%) as the most practiced. However, inaccurate segregation still persists. Collection (ranked 1), and inaccurate segregation (ranked 2) of wastes were the problems identified by 41.7% and 35.0% of the respondents, respectively. Hence, problems with adherence towards efficient waste management activities still exist. The results imply that the city waste collectors and the staff responsible for waste segregation need a thorough knowledge of the significance of efficient waste disposal practices.

Keywords: collection, disposal, environment, establishments, segregation

Introduction

Food chains are among the fastest growing businesses today. Westernization pursuing diversity, speed, and convenience promoted the development of the fast food industries (Seo et al., 2011; Jekanowski et al., 2001). Urbanization along with modern education also influenced change of preference and behavior of society. Consumption habits are changing due to the popularity of fast food chains (Holmer et al., 2001). Convenience and necessity become more important than food quality that a working woman would prefer to buy food from the outside rather than cook at home (Damle, 2011). Fast food chains thereby grow rapidly, expanding their availability and consumption (Jekanowski et al., 2001). Concurrently, most individuals prefer to eat or buy food at fast food chains because of the speed, accessibility, and good taste (Rydell et al., 2008). However, fast food chains generate a large amount of waste that threatens the environment and the health condition of the society they serve (Smith, 2006). Fast food wastes are mostly disposable materials (Smith, 2012) or packaging materials (Aarnio & Hamalainen, 2007). Kuczeruk (2011) identified and estimated components of fast food waste stream as follows: organic (food waste) (52.5%), paper (33.0%), plastic (11.6%), metal (1.6%), and glass (0.6%). The combination of disposable or packaging materials and food wastes contributed primarily to the waste generated by fast food chains. Disposable or packaging materials contributed about 50% of the litter that increased pollution in the waterways (Cheeseman, 2014). Poor handling and disposal of waste cause significant environmental problems by creating breeding grounds for pathogenic organisms and the spread of infectious disease (Boadi & Kuitunen, 2005). Food wastes that decompose in landfills may produce methane, a greenhouse gas, or breakdown of nutrients that may leach and pollute the ground water and waterways (Environmental Protection Agency [EPA], 2012).

Studies in different places of the Philippines showed a tremendous increase in garbage generation from fast food chains. Garbage crisis in Metro Manila continues as the volume of solid waste is increasing not only among households but from commercial establishments such as fast food restaurants (Torres, 2013). Tons of wastes are generated for a year in Batangas City, and the waste

management of counter service restaurants has also played a crucial role in eliminating the waste disposal problem (Festijo & Yuzon, 2013). In the recent monitoring of Solid Waste Management Board (SWMB) in Cebu City, some fast food chains were violating provisions of Republic Act 9003 (CebuCity Pio, 2014). In the report, non-segregation of garbage, improper disposal of solid waste and septage, improper handling and disposal of used cooking oil, gray water treatment and disposal, and non-compliance to Environmental Sustainability Action Plan (ESAP) ordinance were the violations committed. The situation prompted the SWMB to conduct an orientation for some managers on the requirements of food establishments. In Cagayan de Oro City, one possible reason for the increase of solid garbage collected per capita was the higher waste generation rate from fast food chains (Holmer et al., 2001).

In Ozamiz City, Philippines, large-scale food establishments which include fast food chains, ranked third as solid waste generator, with an average generation rate of 135.90 kg/day per establishment. Total amount of waste generation was 9,426.25 kg of solid wastes/day or 3,440,581.30 kg/year (Matunog & Awa, 2013). Despite the implementation of Republic Act 9003 to reduce the waste, the problems of solid wastes in the city continue to escalate. The problems have threatened the environment that may pose a health hazard to the residents. The high influx of waste from commercial establishments including fast food chains associated with dense population has caused deterioration in the water quality of creeks in the city and could pose a human health hazard (Enguito et al., 2013).

With the growing number of fast food chains in Ozamiz City, it is imperative to determine the practices observed, and problems encountered by fast food chains associated with waste management activities. The result of the study may help the corresponding staff and agencies to address the discrepancies in establishing an efficient waste management.

Materials and Methods

Research design

This study utilized the descriptive research design. The cross-sectional survey method with the use of questionnaire of Festijo and Yuzon (2013) with modifications was employed. The modifications were based on the policies indicated in R.A. 9003 that are also implemented by the local government of Ozamiz City and on the guidelines, practices, and problems of waste management of each food establishment that were gathered during the preliminary visit. Part 1 of the questionnaire was composed of 13 questions on the practices of the respondents on waste management. Part II was composed of nine questions on the problems encountered by the respondents on waste management. All items in the questionnaire were answerable by yes or no. Each item was ranked based on the calculated percentage to determine which among the waste management practices was most or least practiced and to identify the prevailing problem encountered. The Cronbach's alpha reliability test was run, and the value of 0.769 ensured that the questionnaire was reliable. Follow-up interviews were also conducted with the respondents during the retrieval of the questionnaires for clarification and additional information.

The list of fast food chains from the city government office was the basis for the selection of the establishment. Quick service, limited menu, food cooked in advance while being kept hot, food is prepared and packaged and is available for take-out were the criteria used to verify if the establishment listed could be classified as a fast food chain. All 10 food establishments listed qualified as fast food chains based on the criteria above. Due to limited resources, six food establishments were randomly selected by drawing lots from the total number (10) of fast food chains listed in the city's registered businesses.

Profile of the respondents

The criterion for selecting the respondents was the nature of their work in the food chain. All personnel involved in the management, collection, and disposal of solid wastes were selected as respondents. Two managers and 18 crews from each of the six representative establishments comprised a total of 120 respondents. The demographic

profile of the respondents was not included as the majority of them were having transient status. Managers were being transferred from one branch to another from time to time while most crew were employed on a contractual basis. The respondents were selected from the preliminary visit to the establishment and the schedule for the conduct of the survey was also arranged during the visit.

Sampling

The informed consent was served to target respondents before the conduct of the study to obtain their consent to participate. The objectives of the study, the anonymity, and confidentiality of the responses, voluntary participation and the right to refuse participation were also emphasized in the consent form and discussed with the managers and the crew. All respondents participated voluntarily in the study. The questionnaires were personally retrieved and follow-up discussions were conducted for some clarification. The data were collected over a two-month period from April to May 2014.

Statistical analysis

The percentage distribution of respondents as to their practices of waste management was used in the analysis of data. Based on the percent distribution of the respondents, each practice was subsequently ranked to identify the most prevalent problem encountered in the implementation of waste management.

Results and Discussion

Table 1 shows the percent distribution of respondents towards their responses on the identified waste management practices among fast food chains in Ozamiz City. The data revealed that more than 50% of the respondents ascertained that the 13 waste management practices existed in their establishments with the waste segregation into biodegradable and non-biodegradable ranked as the most practiced (98.3%). The commitment of the establishments towards waste reduction program is also revealed by providing recycling program and decreased demands for raw materials. Educating the staff through seminars, training, symposium and the use of billboards and slogan

ensured the widest dissemination of their practices of waste management. Outsourcing hog growers to collect their food wastes and public/private collectors of recyclable wastes, as well as on-site composting, are a noteworthy effort towards the reduction of solid wastes that will reach the dumpsite. Reduction of food waste disposal at the dumpsite helps lower the methane gas production (EPA, 2012). However, the non-practicing establishments, as revealed by a minimal number of respondents, cannot be simply disregarded for they may defeat the effort of the majority.

Table 1. Percent distribution of respondents as to the practices of waste management in the fast food establishment in Ozamiz City.

Practices	% of Respondents		Rank
	Practicing	Not Practicing	
1. Segregation of waste into biodegradable and non-biodegradable	98.3	1.7	1
2. Conduct of seminars, training, or symposiums on waste management disposal to staff	94.2	5.8	2
3. Compliance with Ecological Solid Waste Management Act of 2000 / R.A. 9003 awareness	87.5	12.5	4
4. Conduct of waste reduction program	89.2	10.8	3
5. Recycling of wastes	71.7	28.3	9
6. Conduct of effective recycling program for items such as glass, paper, plastic, etc.	80.0	20.0	8
7. Reduction of demand for raw materials such as styrofoam, papers, plastics, etc. through increasing waste prevention and recycling	80.8	19.2	7
8. Composting of food waste on-site	61.7	38.3	12
9. Provision of space for an on-site composting set-up outside the establishment	59.2	40.8	13
10. Periodic conduct of a waste audit	85.0	15.0	5.5
11. Use of billboards and slogans on waste management and reduction	64.2	35.8	11
12. Outsourcing other public/private sectors that collect hog waste.	85.0	15.0	5.5
13. Outsourcing other public/private sectors that collect recyclable wastes	70.0	30.0	10

*n=120

Fast food establishments in the area had been responding to R.A. No. 9003, Article 2, which mandated segregation and reduction of wastes. High implementation on waste segregation is ensured by declaring this mandate as the general action or standard operating procedure (SOP) in maintaining proper waste disposal practices (Festijo & Yuzon, 2013). This undertaking explains why waste segregation was highly observed in counter service restaurants in Batangas City (Festijo & Yuzon, 2013) and Metro Manila (Bennagen et al., 2002). According to Isuryatej (2013), waste segregation is significant for proper waste treatment to achieve clean and friendly environment. Increased waste prevention by reducing the demand for raw materials was also highlighted in the study of Festijo and Yuzon (2013).

The majority of the food chain establishment in the area used seminars, training, symposium, billboards, and slogan to disseminate their waste management activities. These undertakings, in some way, raise the awareness of crew members on proper waste management adopted by the establishment. Environmental education and awareness creation are important means of enhancing better practices of waste management (Festus & Ogoegbunam, 2012; EPA, 2012). Furthermore, dissemination of all waste management issues was identified as one of the essential mechanisms to ensure accelerated coverage of waste disposal services (United Nations Environment Program, n.d.; CebuCity Pio, 2014). These findings could be the basis for Nixon (2003), in South Australia, to design a community education and awareness strategy to help support the State Waste Strategy work towards a vision of zero waste.

Fast food chains in Ozamiz City are also engaged in outsourcing with other public/private sectors that collect hog waste and recyclable waste. These practices reduced the amount of wastes that reach the dumpsite, an implication that majority of fast food chains in the area diligently embrace the practices of waste reduction management. Collection of kitchen and recyclable wastes by recyclers is one of the areas checked under solid waste reduction and retrieval system in the checklist for environmental performance of food establishments (The Ecolabelling Program in the Philippines, n. d.)

Even the practices, unlikely to be done by the fast food establishment, such as composting and the provision of space for the process earned 61.7% and 59.2% positive responses, respectively. Composting is a more stringent strategy in reducing expenditures on waste disposal (Griffin, 2009). However, the number of respondents with the negative responses to these two practices is not negligible. Understandably because most food chain establishments are just renting and are concentrated in the heart of the city where buildings are very close to each other made composting difficult to carry out.

Table 2 shows the different problems commonly encountered by fast food chains in Ozamiz City in the implementation of waste management practices. The nine identified problems persisted in some establishments as perceived by less than 50% of the respondents. Four of these problems were identified by more than 30% of the respondents to exist in their establishments. These four problems include wastes left on the ground during collection, inaccurate segregation of wastes, a limited number of linkages with public or private sectors that collect wastes, and irregular schedule of the collection of waste products. Clearly segregation, collection and the transport of wastes are still the main problems that food establishments are facing in the area. Problems about personal knowledge and government policies were identified by less than 20% of the respondents.

Table 2. Problems encountered by fast food chains in the practice of waste management.

Problems	Present (%)	Rank
1. Improper waste management	23.3	5
2. Health hazard of the customer and the employee.	18.3	7
3. Government policies on waste management.	17.5	8
4. Lack of knowledge about proper waste disposal system.	14.2	9
5. Irregular schedule of the collection of waste products.	31.7	4
6. Limited number of linkages with public or private sectors that collect wastes.	32.5	3
7. Inaccurate segregation of waste.	35.0	2
8. Lack of awareness in managing the proper disposal of waste.	20.0	6
9. Wastes that are left on the ground during collection.	41.7	1

*n = 120

Two of the most prevailing problems encountered by food establishment in the area are segregation (35%) and collection (41.7%). Segregation can be related to the personal knowledge of the crew carrying out the task while collection is related to the knowledge of the city garbage collector. Only 14.2% of the respondents declared having a problem with knowledge of proper waste disposal which means that 85.8% were already equipped with the knowledge. Also, the problem regarding government policies on waste management was only perceived by 17.5% of the respondents which means that 82.5% are familiar and understand government policies regarding waste management. These inconsistencies may indicate that there are crew members, equipped with the know-how on proper waste disposal and management, who still refused to observe proper waste segregation. This result conforms to the findings of Hilario (2014) which showed that fostering effective proper waste management is not just a government responsibility but requires the commitment of every individual.

Improper waste segregation may contribute to the most identified problem in the area which is, wastes left on the ground during collection, as garbage collector may prefer to collect wastes which are properly segregated. However the result cannot eliminate the idea that garbage collector, at some points, may have collected the wastes from food chains haphazardly, leaving behind remnants of wastes on the ground. Improper waste segregation was also observed in Metro Manila (Bennagen et al., 2002) and Wawa, Batangas City (Laquador et al., 2013).

The limited number of linkages with public or private sectors that collect wastes can lead to another problem which is irregular collection schedule of wastes. The effect of these two problems can also cascade down to the occurrence of wastes left on the ground. Delayed collection of wastes provides opportunity for the scavengers including animals to scatter the wastes which made the collection of wastes time consuming. In this event, the garbage collector may leave some of the wastes on the ground.

These problems existed not only among fast food chains in Ozamiz City but in the Philippines as a whole, despite the creation of various policies by the government (Atienza, 2011). Even in Nigeria, the issue of waste material management persists notwithstanding the

existence of policy platform that addresses the challenges of waste management (Adekunle et al., 2012). Similarly, in Kolkata, India, inadequate management and improper bin collection also contributed to the poor collection of municipal solid wastes (Hazra & Goel, 2008). These results demanded continual provision of an intense awareness campaign on proper waste management for efficient waste management activities (Atienza, 2011) particularly among fast food chains in Ozamiz City.

Segregation of wastes into biodegradable and non-biodegradable was positively identified as practiced by 98.3%. However, inaccurate segregation of wastes was also recognized by 35% of respondents as a problem. These inconsistencies revealed that, although mandated, there are still some crew members in food establishments having the problem in segregating wastes. Apparently, the commitment of individual stakeholders in food chain establishment is needed towards efficient waste management.

Conclusion and Recommendation

Waste management is already in place among fast food chains in Ozamiz City. The results revealed that more than 50% of fast food chains complied the waste management practices with wastes segregation (98.3%) as the most practiced. However, inaccurate segregation still persists. Collection (ranked 1), and inaccurate segregation (ranked 2) of wastes were the problems identified by 41.7% and 35.0% of the respondents respectively. Hence, problems with adherence towards efficient waste management activities still exist.

Continuous environmental education and awareness campaign among the crew members of fast food chains are necessary to remind regularly the importance of an efficient waste management. Showing models for different waste disposal procedures, specifically in the reduction, segregation, and recycling, may help enhance the capability of the crew in carrying out such activities. Apparently, there is also a need to review and align the guidelines and policies observed in fast food chains with that of the government to achieve an efficient waste management program.

Acknowledgment

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