

Reduction of Food Waste Generation in the Hospitality Industry

Sanaa I. Pirani and Hassan A. Arafat

Advanced Technologies and Environmental Research Institute Center for Water (iWATER),
Masdar Institute of Science and Technology, Abu Dhabi, United Arab Emirates

Abstract

The global hospitality industry (hotels, restaurants, etc) is witnessing a steady growth, accompanied by the generation of significant quantities of waste. For example, the hospitality sector in the United Arab Emirates is forecasted to grow at more than 10% annually over the next four years and its tourism sector is expected to see a at least a 67% growth in revenue by 2016. The Abu Dhabi Tourism and Cultural Authority (ADTCA) aims to reduce the amount of hotel waste going to landfills by 20% as a first step in its environmental program. What is more, with respect to Abu Dhabi in particular, recently, the Abu Dhabi Centre of Waste Management has recently implemented a Program which includes a tariff system that charges per ton of waste produced by establishments in the commercial, industrial and construction sectors when generating more than 250 tonnes of waste per year.

In 2012, 2,063 tons of solid waste was disposed of in landfills by hotels and hotel apartments in Abu Dhabi. This waste includes food waste, which is the most significant component of hospitality waste. The issue of food waste in the hospitality industry is a global problem, and is an area on which very little research is done. What is more, food waste is an important material to divert from landfills since it contributes significantly to climate change as a result of decomposing to create methane, a potent greenhouse gas. By targeting the hospitality industry this research is able to target a smaller sector (relative to households), but one that tends to produce more food waste per customer. Along the same lines, the initial implementation of policies and subsequent follow-up inspections would be easier in the hospitality sector than in households.

In this work, data was collected from chefs/EHS (Environment, Health and Safety) and management personnel at 17 UAE hotels/hospitality sector establishments through interviews which helped identify the roots and dimensions of this multifaceted issue and underline the regulatory, cultural and economic perspectives involved. The extent of correlation between these variables was evaluated using the statistical Fisher's exact test. These interviews helped to establish the current scenario in the UAE, in general, and Abu Dhabi in particular.

It was found that a very small percentage of the hotels actually promote themselves as being sustainable since most guests do not choose a hotel due to sustainability-related matters. Moreover, only approximately 45% of the hotels are on track to reach the ADTCA targets. Though many Abu Dhabi hotels are looking into carrying out composting on their premises or have already started implementing it, yet others are hesitant to do so due to the high cost of the composting machines, the lack of space available at their premises for the machines, and/or due to the generation of an insufficient amount of waste compared to the amount required for such machines.

In addition, materials flow analysis (MFA) of the food waste in several Abu Dhabi hotels was utilized as a tool to quantify the proportions of food waste produced at the different stages of the foodservice process, thereby defining the scale of the food waste problem as well as the potential stages of the foodservice process where waste reduction can take place. A number of MFAs were carried out to compare between different serving styles, seasons, etc. Figure 1 below shows the form of results obtained from a typical MFA and depicts the results from a data collection procedure carried out during a lunch buffet at a UAE hotel. Figure 2 compares the MFA results of

a lunch buffet vs. a wedding buffet where different serving styles were employed. The values obtained as a result of the MFAs have proven that in order to improve the situation, the strategies by which restaurant managers determine how much food to prepare and serve daily need to be addressed along with the public's habits. A solution that could be pursued is the implementation of a true menu engineering software which monitors previous trends and helps restaurant managers make future plans accordingly.

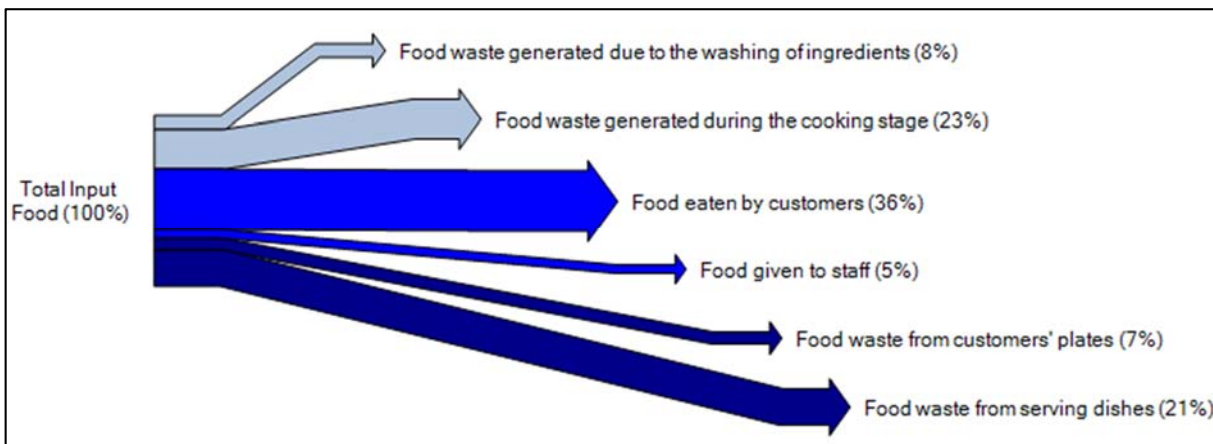


Figure 1: Materials Flow Analysis for a lunch buffet at a UAE hotel

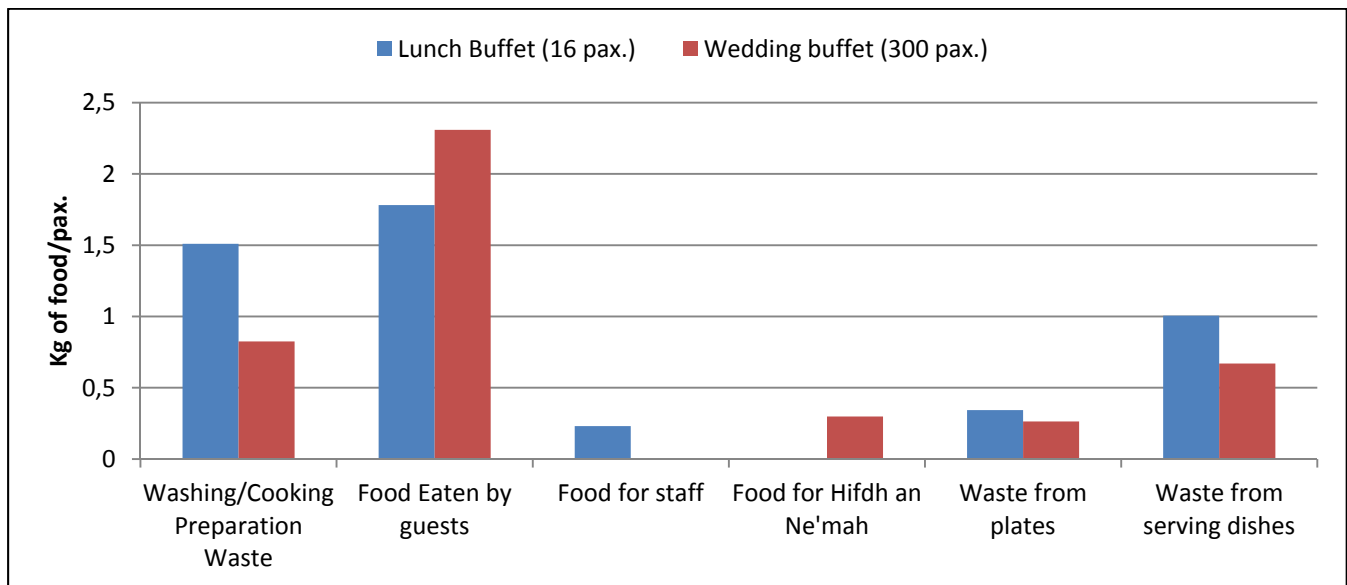


Figure 2: MFA results for a lunch buffet vs. a wedding buffet at UAE hotels

This study examines the quantification of the food waste problem in the hospitality sector from a unique perspective. No such data was available, especially in the Middle East region. The results of this study have shown how a reduction in the consumption of food resources may be achieved. The findings of this study would lead to policy recommendations that would address fundamental systemic changes in the area of sustainable consumption trends and would also be of relevance in other countries of the Middle East with fast-growing hospitality sectors, though oftentimes the simultaneous advancement in their waste management sectors has not been as quick.