Food Waste Management – Perceptions, Decisions, and Actions: The case of Guatemala City Department Restaurants

Juan Luis Andre Monzón Santos
Food Waste Management – Perceptions, Decisions, and Actions: The case of Guatemala City Department Restaurants

Juan Luis Andre Monzón Santos

Supervisor: Peter Söderbaum
Evaluator: Cecilia Mark-Herbert
List of figures

Figure 1: World – Location of Guatemala ................................................................. 2
Figure 2: Food and Drink Material Hierarchy........................................................... 8

List of tables

Table 1: Outline for Classification of Interviewee responses per Framework and Categories .... 20
Table 2: Interview and Interviewee’s Complementary Information ................................ 20
Table 3: Comparison of Results through Research Questions ......................................... 33
Food Waste Management – Perceptions, Decisions, and Actions: The case of Guatemala City Department Restaurants

JUAN LUIS ANDRE MONZÓN SANTOS


**Abstract:** Food waste has implications for the people, the planet, and profits. It presents a global problem which normally requires a local solution. Around 6% of the global food loss occurs in Latin America. However, the region lacks a clear strategy to address the issue, which is also true at the national level for countries such as Guatemala. Furthermore, the perception of different actors in the country towards food waste and its management remains unknown. The aim of this research is to explore on the attitudes towards food waste that might exist in the country by focusing on the restaurant sector with the objective of producing a holistic understanding of the issue. Concentration on the restaurant sector provides additional information of the matter, on a sector that shows limited research on it. To fulfill this objective, a case study was conducted, one that involved the participation of three actors directly related to restaurants as either managers or owners and an actor involved in the Municipality of Guatemala City. The research utilized semi-structured interviews and a review of the literature available on the subject as means of data gathering. The analysis was supported using the Triple Bottom Line Framework, a Positional Analysis ideology, the Sustainable Development Goals and the EU Waste Framework Directive.

The results showed varied perceptions from the actors on the categorization of food waste, although impacts on an economic, environmental, and social dimension derived from food waste were acknowledged by all of them; being the latter the most prominent. For the actors, the generation of food waste was significant at the customer level, but was also influenced by the type of service provided by the restaurants. Additionally, the approaches selected by them to either directly or indirectly manage food waste covered a vast range of actions. Finally, the actors understood as key for addressing the food waste issue, the raising of awareness on the subject.

**Keywords:** Actors’ insight, Earth Sciences, Food Waste Management, Guatemala City, Sustainable Development, Triple Bottom Line

Juan Luis Andre Monzón Santos, Department of Earth Sciences, Uppsala University, Villavägen 16, SE- 752 36 Uppsala, Sweden
Food Waste Management – Perceptions, Decisions, and Actions: The case of Guatemala City Department Restaurants

JUAN LUIS ANDRE MONZÓN SANTOS


Summary: Food that is not used for the purpose of feeding humans, besides representing resources that are not used efficiently, and having negative consequences for the society, the environment, and the economy, is classified as food waste. In Latin America, according to the Food and Agriculture Organization of the United Nations, 6% of all the global food is lost. And despite some individual and very specific actions have been taken to address the issue, the region does not have a clear strategy. Moreover, in Guatemala, a country located in Central America, research on the topic is scarce, and how people feel about food waste and its management is unknown. This thesis researched on the perception of different actors towards food waste, focusing on actors involved in restaurants given their constant interaction with food and its management. The research was conducted through literature review and interviews with the actors, that included 3 restaurant owners and 1 official from the Municipality of Guatemala City. To broaden the scope of the research several supporting frameworks were utilized, and aided on the generation of a more complete understanding on the thoughts of the actors. The results from the research showed a variety of perceptions from the actors regarding the impacts of food waste, the actions they have taken to address the issue, and the opportunities and obstacles they see for the management of food waste. However, the environmental, economic, and social dimension of the issue were acknowledged by the interviewees, being the latter the most relevant one for them; stating the importance of a change in behavior and raising of awareness and consciousness from all people towards the issue.

Keywords: Actors’ insight, Earth Sciences, Food Waste Management, Guatemala City, Sustainable Development, Triple Bottom Line

Juan Luis Andre Monzón Santos, Department of Earth Sciences, Uppsala University, Villavägen 16, SE- 752 36 Uppsala, Sweden
1. Introduction

Earth-system processes are threatened due to human pressure; potential risks include deteriorating conditions for food production, ecosystem loss and water shortages, among others (Griggs, 2013). As a response, the United Nations member states, building on the Millennium Development Goals, adopted a new set of goals with the objective of advancing prosperity for all and protecting the planet – the Sustainable Development Goals (Friedrich, 2016). Among several issues addressed for the “prosperity for all” in the SDG’s, pressing matters such as food related issues are included which can be noted in the 2nd Sustainability Goal: “Zero Hunger” oriented towards ending hunger, achieving food security and the improvement of nutrition, and promoting sustainable agriculture (United Nations, 2016). And from the 12th Goal: “Responsible Consumption and Production”, which established as one of its main targets “halving per capita global food waste at the retail and consumer level and reduce food losses along production and supply chain, including post-harvest losses” (Ibid.).

1.1. Problem Background

The impact of food loss and food waste has implications for the people, the planet, and profits; the three dimensions that conform the Triple Bottom Line which is recognized as a framework that “captures the essence of sustainability” (Aschemann-Witzel, Hooge & Normann, 2016) (Beretta et al., 2012) (Slaper & Hall, 2011). All around the world approximately 1.3 billion tons of food designated for human consumption is either lost and/or wasted (FAO, 2014a). Food waste occurs at different stages of the food value added chain, in high income countries this is usually at the end, in contrast with low-income countries where it happens at the beginning (Betz et al., 2015). Several studies have been conducted on reduction and prevention of food waste, but their focus has been mainly on the prevention at the production stage and those that go past this stage, put emphasis at the retailer level (Engström & Carlsson-Kanyama, 2004). This has led to less research being conducted in areas such as the hospitality sector which includes, among other things, restaurants (Marthinsen et al., 2012). Additionally, the significance of food waste has only recently been acknowledged, which results in the existence of literature gaps, specially of food waste generation outside the household (Papargyropoulou et al., 2016).

As stated by Grosse (2016, p.1): “food waste is a global problem but where and how it happens is often a local issue that requires a local solution”. For example, the European Commission as means of supporting the tackling of this issue has decided to elaborate a common EU methodology to measure food waste, create a platform to foster interaction between EU member states and different stakeholders, clarify EU legislation related to the topic and examine ways to improve “best before” labelling (European Commission, 2016).

According to the estimations produced by the FAO about 6% of the global food loss in Latin America and the Caribbean, and around 15% of the food produced in the region is either lost and/or wasted (FAO, 2014a). However, in this region there hasn’t emerged a clear strategy to address food loss and waste reduction. National governments have taken individual actions, such as the implementation of food banks in countries like Guatemala, Chile, and Mexico (Ibid.). Despite this fact, the Guatemalan environmental management is recognized in its environmental profile as so rudimentary that not even the most basic aspects of solid waste management have been implemented (IARNA-URL, 2012). So, although food waste management is a highly relevant issue in the world agenda and that actions have been taken all around the globe, Guatemala is still lacking concrete strategies to address this issue (Ibid.). Furthermore, the position of the different stakeholders in the country regarding food waste and how to manage it remains unknown.
1.2. Aim
The aim of this study is to describe and explain the perceptions, and actions, if any, that exist towards food waste management in restaurants in a developing country. Additionally, this study thrives towards the creation of a holistic understanding of the food waste management issue in restaurants and how the opinions of different stakeholders might provide an initial step for the development of a national strategy regarding the issue.

1.3. Research Questions
The research questions serving as guide to fulfill the aim of the study is the following:

- How do the different actors involved in Guatemala City Restaurants perceive food waste and food waste management in restaurants and its impacts?

- Why or why not, do different actors involved in Guatemala City restaurants, consider food waste and food waste management an issue and how is it being handled?

- What motivates different actors in Guatemala City Restaurants to engage more actively in food waste and its management?

1.4. Overview of Study Area
This section provides a general overview of the area of study including the country’s and City’s location, their demographic and economic profile, as well as a brief description of the situation of municipal waste management in Guatemala City.

1.4.1. Guatemala Description and Location
Guatemala, a country located in Central America, closer to North America, as seen in Figure 1 is “one of the most ecologically diverse nations of the planet with 14 different eco-regions and great biological and cultural diversity” (USAID, 2016). The country of Guatemala has 16.7 million people, constitutes the most populous country in the region (Ibid.); as well as being the largest economy in Central America (Embassy of Guatemala in Stockholm, 2008).

Figure 1: World – Location of Guatemala (Source: Mapsofworld, Image by Unknown)
The map shows how the country borders with Mexico to the North and West, and with Honduras and El Salvador to the East and Southeast, respectively, and its access to both Pacific and Atlantic Oceans. Guatemala is divided in 22 departments, which in turn are divided in municipalities. In the department that bares the same name as the country, Guatemala, the country’s capital Guatemala City, is located (Enciclopedia Guatemala, 2013). Guatemala City is the largest city in Central America, with over 4 million inhabitants in the metropolitan area and a population density of around 1,578 persons per square kilometer (INE, 2013; Bolaños, 2015). Furthermore, it is part of the metropolitan area with greater development from Mexico City to Bogotá; and combines commercial movement with modernity, positioning the City as an excellent business hub (Ciudad de Guatemala, 2014).

1.4.2. Guatemala City’s Waste Management

Along the country, the most used technique of waste disposal, representing 66% of the practices, are the open sky landfills. It is important to note that many of the landfills used do not have an appropriate infrastructure for the treatment of waste, given that they just serve as final disposal areas; and from the total amount of waste deposits in the country, not even one has the proper authorization to operate issued by the Ministry of Environment, i.e. all of them lack the approval of their environmental permit (United Nations, 2009). In Guatemala, the entity in charge of the coordination and execution of the technical and legal adequate actions for the management of solid waste is the National Commission for Solid Waste Management, CONADES, for its acronym in Spanish (Ibid.).

Among the many issues confronted regarding waste management by the different municipalities around the country, one can point out to the high population increase rate, urbanization, and the production and consumption patterns; as well as a lack of an efficient and systematized classification of the waste and its recollection (Ibid.). The department of Guatemala City is ranked number one in the country for solid waste generation with over 45% of the total (United Nations, 2009, p.48). The waste that is most generated in the country’s metropolitan area is organic waste representing the 63% (Ibid.). The only available space for the disposal of waste in Guatemala City is an open sky landfill known as “Relleno Sanitario de la Zona 3”, which is also used by 9 other municipalities (Barillas, 2015). This landfill which was established in 1953, and which daily receives around 3,000 tons of waste (Pinzón, 2016, p.1), has been requested by the Environment and National Resources Ministry, MARN for its acronym in Spanish, to be closed (Pitán, 2016). However, as even the Mayor of Guatemala stated in 2014, there isn’t a plausible alternative to an area for waste disposal (Pinzón, 2016), which would make the shutting of the landfill a long and complicated process, that needs to involve 10 municipalities. As long as there is no other place to dispose of waste, this one can’t be closed (Pitán, 2016). This reality that is confronted by Guatemala City highlights the need to reduce the amount of waste that is being poured daily into the landfill, and which a portion of said waste proceeds from food that is thrown away.
2. Background
The purpose of this section is to provide a general background which include previous results and information on the study area. Additionally, it serves as support of other findings and describe the subject. The situation of food waste management in Guatemala, and Latin America is briefly presented, as well as food waste management in the hospitality sector.

2.1. Food Waste Impact
When food is not used for the purpose of feeding humans, it is established that the resources are used inefficiently, resulting in negative consequences at the societal, environmental, and economic level; in this sense, food waste is “one of the sustainability issues that needs to be addressed” (Aschemann-Witzel, et al., 2015).

2.1.1. Areas of Impact
Food waste has substantial negative economic, environmental, and social impacts (Papargyropoulou et al., 2016). In FAO (2011), it is highlighted how food waste has an impact on food security, food quality, economic development and on the environment. Aschemann-Witzel, et al., (2015) also pointed out towards how food waste has impacts at a societal, environmental, and economic level on the sustainability of the food sector.

The social impacts of food waste range from how an increased demand for food raises its price, to how a reduction of food waste could represent a major strategy to feed the growing world population. Understanding that around one third of the global food production is wasted and over 800 million people suffer from chronic hunger, represents a major step towards grasping the social impact of food waste (Chrobog, 2014). The social impact of an increasing food price, relies on the fact that a lower price might represent more access to food for consumers (FAO, 2011). Furthermore, hunger undermines all other humanitarian and development goals (Global Food Banking Network, n.d.). According to FAO (2013a), hunger and malnutrition social costs are very high, being that those are pillars for human health, well-being, and physical and cognitive development. Inadequate solid waste management can have several negative impacts on the health of people, especially, when waste is disposed in open sky landfills, where a significant amount of food waste goes, they contribute to the proliferation of diseases (Tello et al., 2011).

The environmental impacts of food waste have not yet been analyzed in depth in any study (FAO, 2013b), however from an environmental perspective and its consequent impact, food waste represents a waste of the resources used to produce said food, such as, waste of land, water, and energy. Food waste also has an impact on climate and biodiversity (Ibid.). Food waste generates, needless CO₂ emissions without them achieving the purpose of their generation, which is feeding people (FAO, 2011). The impact of this kind of CO₂ emissions, which are in vain, are ranked as third top emitter after USA and China (FAO, 2013b). The impact of food waste on consumption of surface and ground water resources is approximately 250 km³ in the United States; and food waste, in the sense of produced but not consumed food takes up around 30% of the worlds agricultural land area (Ibid.). In addition, food waste represents the largest solid waste in the US landfills (Chrobo, 2014), a fact that could also be held true in other landfills around the world. Food waste rotting in landfills generates methane gas, which has an impact 25 times higher on climate change than CO₂ (EPA, 2017a). The removal of food waste from landfills “would make the same positive gas emission contribution as taking 25% of all cars, traversing America’s roads” (Chrobog, 2014, p.14). Moreover, food production represents stress for the planetary boundaries in regards to the boundaries of climate change, biodiversity loss, and the Nitrogen and Phosphorus cycles (Aschemann-Witzel et al., 2015).
These environmental impacts derived from food waste also have an economic impact which based on producer prices can be estimated at USD 750 billion (FAO, 2013b). Reports on the UK, state that a family discard around USD 1,170 per year (Gardner, 2014). The economic impacts of food waste affect as shown both the producer and the consumer. In the case of the producer it represents the loss of resources which have a cost such as fossil fuel for storage, processing or distribution, or any other kind of energy employed, water, labor, and raw materials, as well as organization and planning costs (FAO, 2014b). Any type of waste along the supply chain and production chain represents a cost for the producer, and an ill-managed resource. For the consumer, if food is discarded, it represents a cost and loss of economic acquisitive power for a resource that was not consumed or taken full advantage of (Ibid.).

It is also important to acknowledge and consider the reasons, which are related to the impacts presented, as of why the wasting of food should be considered as an unethical behavior.

2.1.2. Ethical Considerations of Wasting
Any behavior that results in the wasting of resources should be considered unethical, given that this kind of act prevents people in dire need of said resources to attain them. All around the world 800 million people are suffering from hunger or food insecurity, which if considered, would place the wasting of food as an unethical or immoral act (Peeler, 2015). Wasting food shows a lack of consideration towards people who would have loved to have that resource, it also shows a lack of consideration towards the importance of food, of the fact that people are dying all around the world of hunger, and of the fact that food banks struggle to find and provide enough food (Bloom, 2012).

In addition, the wasting of food has embedded the wasting of other valuable resources such as water, oil, and land; a fact that adds to considering wasting food as unethical (Ibid.). As shown in the section above, wasting of food has impacts at an environmental, social, and economic level, which, if analyzed as an issue with such a broad range of negative effects, derives in the conclusion of how behaviors that do not address this issue are devaluing its true and hard consequences (Bloom, 2012).

2.2. Food Waste in the Hospitality Sector
Literature on food waste management in the hospitality sector is scarce (Pirani & Arafat, 2014). And studies that focus on the reasons for wasting food are also limited, where the most prominent ones on the matter are focused on household food waste in the UK, USA, and Australia (Parfitt, Barthel & Macnaughton, 2010). This section focuses on the causes, sources, as well different prevention measures and actions taken to address food waste.

2.2.1. Causes and Sources
As stated before, literature on food waste management in the hospitality sector is scarce, however, some existing studies can shed light on the causes and sources of food waste, which then might be applied to restaurants, part of the hospitality sector. It is estimated by Pirani & Arafat (2014) how food waste account for 56% of the garbage from restaurants; which hint at how edible food might be part of that 56%.

Food waste sources from restaurants can be divided as in Papargyropoulou et al. (2016) based on its generation source, division that comprised the preparation waste and customer plate leftover waste. Furthermore, purchased food that afterwards is lost in the form of food waste could represent an additional source of food waste (Ibid.). Papargyropoulou et al. (2016) based on a previous research conducted by the Sustainable Restaurant Association in 2010, defined the preparation waste as waste generated from “overproduction, peeling, cutting, expiration, spoilage, overcooking, etc.”. And, they
defined Customer Plate leftover waste as” “food discarded by customers after the food has been sold or served to them”. Other causes and sources of food waste are dependent on the way the restaurants operate and provision for food, together with the basis on which the food is prepared and/or served (Ibid.). Pirani & Arafat (2014) mention poor stock rotation, over preparation, inadequate portion control techniques, inappropriate storage of stock, quality of food, frequency of delivery of ingredients to the restaurants, menu variety, portion sizes, style of food service and inaccurate forecasting of consumer demand, among the factors of food waste generation.

Engström and Carlsson-Kanyama (2004), sum up sources and divide food waste into five categories depending on where they originate: Storage losses, preparation losses, serving losses, and plate waste, and leftovers. In the study: “Food Waste in the Swiss food service industry” presented by Betz et al., (2015, p.4), the results showed that from the 100% of waste, 60% were serving losses, 25% plate waste and 10% preparation losses.

In Sweden between 11% and 13% of food waste is plate waste being the largest source of loss (Engström & Carlsson-Kanyama in Pirani & Arafat, 2014). In restaurants in the UK, 65% of food waste is categorized as preparation waste, 30% as customer’s plate waste, and 5% as spoilage (Sustainable Restaurant Association in Pirani & Arafat, 2014). In restaurants in Finland, 19% of all the produced and served food was discarded; being 6% of it kitchen waste, 5% service waste and 7% leftovers (Silvennoinen et al. in Pirani & Arafat, 2014).

The fact that one of the most mentioned causes for food waste in restaurants points towards the customers, highlights the importance of stating as independent causes of food wasting consumer-related factors. The reasons found in studies that delve deeper in this area could serve as basis for further research in other ambit, such as the hospitality sector. Among the reasons found for wasting of food in households, “consumer attitudes, values, and behaviors towards food” and different degrees of food knowledge impact the individual’s tendency to waste food, which supports and could also explain the underlying factors of an important amount of food being wasted in restaurants due to consumer’s plate leftovers (Parfitt, Barthel & Macnaughton, 2010). Causes of food waste from consumer-related factors also include the lack of planning and purchase, storage, preparation, and reuse of food, which also resembles the causes found in restaurants as of reasons of food wasting; as changes in food offered could increase food waste for a period of time (Aschemann-Witzel, et al., 2015). Furthermore, aspects such as time constraints and little regard towards food waste reduction behaviors, knowledge in storage and cooking, a culture of consumerism and abundance, food price, appearance as extrinsic cue of quality, confusion on data labelling, habits and perceptions of the consumer, lack of connection between consumers and production, and overall, the macro-economic factors of legislation and technology, such as economic incentives or dis-incentives may be reasons for oversupply, inefficiencies and finally, causes for food wastage (Ibid.).

2.2.2. Prevention Measures and Actions

Whatever the causes and sources for food waste, the intention of different entities among which the hospitality sector and restaurants specifically are included, is to avoid and prevent this from happening (Tuppen, 2014).

Among the strategies and actions that could, and in some cases, have already been, set up to reduce food waste in the hospitality sector are: Increase of staff awareness of the issue through rewarding specific actions, and focus of restaurants on their waste amounts and their origins (Ibid.). Other strategies include menu engineering, activity-based costing, food waste tracking, reduction of plate size, customers fining, donation of food leftovers, bio-treatment alternatives such as anaerobic
digestion and composting, delivery checking to verify for contaminants, damaged packaging, expiry date; locally sourcing products, FIFO approach in inventory, storage practices to allow air to reach fruits and vegetables, avoidance of over trimming during preparation, and minimization of starters portions (Pirani & Arafat, 2014). Other options as means of preventing food waste is the targeting of social norms; for example, sometimes as a customer, asking for a doggy bag is not socially accepted, but, the restaurants may offer them instead of waiting to be asked for one (Ibid.).

Betz et al. (2015) listed measures for food waste reduction, classifying them according to where they are generated, i.e. storage and purchase, preparation and cooking, serving at counter and, consumers. Among the measures to prevent or reduce food waste in storage or purchase are: Optimization of storage management, such as periodic control of date of expiry; other measures include use of food near date of expiry, long-term analysis of meals sold in order to adapt food orders, enhancement of order interval and no stock buying (Betz et al., 2015). Among the preparation and cooking measures one can point towards strategies against overproduction, reuse of leftovers, control of preparation losses and training of employees, and fast cooling down of food to prevent growth of microorganisms (Ibid.). And, among measures to prevent food waste directed to consumers are the sensitization of customers to the field of food waste and its causes with for example posters, communication to consumers to increase their tolerance for sustainability measures, research regarding reasons for plate waste through surveys; and donation of food to local charities (Ibid.).

Legislation also plays a key role in the achievement of a successful food waste management. Practices derived from laws and regulation include the introduction of requirements such as food waste reporting and standardization for food waste calculation, standardization of expiration date labels for food, and recommendations oriented at the recollection of food waste from households and food service sector separately (Pirani & Arafat, 2014).

Pirani & Arafat (2014) state actions oriented to waste management in the hospitality sector as means of identifying and further reducing and managing the food waste, among other kinds of wastes, that are being generated. Such actions include the selection of a waste carrier, the conduction of a waste audit, the implementation of a solid waste management program based on the waste hierarchy, the employment of green purchasing, the training of staff and encourage their participation and feedback in the program, and the involvement of customers in the program. Figure 2 presents in a graphic way, the waste hierarchy and actions that could enable the achievement of each of the options. The Waste Hierarchy presented by the EU Waste Framework Directive is further discussed in the Theoretical Chapter of this research.
Food waste management as a direct action taken towards the eradication of hunger needs, besides the aforementioned points, as the FAO (2017a) puts it, needs that all sectors of society make efforts to reduce their waste and losses, which would then have an impact on the livelihood of millions of people, as well as a deep change of mentality.

2.3. Food Waste Management in Latin America

The governments of Latin America and the Caribbean face the problem of waste management and its impacts. Topics such as an adequate waste disposal, the harsh reality of the informal workers in the dumpsters, and the reduction and recycling of the waste, are in the governmental agendas to be dealt with (Tello et al., 2011). Among the institutions that are involved in the solid waste management in the region one can find the Ministry of Environment and the Ministry of Health, as well as the municipalities which are the responsible institutions of financing, managing and operating the solid waste management services, such as recollection, transport, and final disposal (Ibid.). Among the contributors and specific types of waste, food waste should be addressed by governments in all parts of the world and placed in a position of relevance, given the fact that in the United States, for example, up to 40% of the food goes uneaten, and almost all of it ends up in landfills across the country (Gunders, 2012). In Latin America, where hunger affects 8% of its population, and where with the food lost only at the retail level 30 million people could be fed, food waste management becomes key, not only for its impact on the landfills of the region, and the management of waste generation, but for its impact in the livelihood of the people (FAO, 2017a).
Efforts in Latin American have been made to address this issue among which one can point to Mexico’s Food Bank Association that in 2013 rescued 56,000 tons of food (Ibid.). Moreover, the Mexican government established a law for Mexico City to avoid food waste in which sanctions are enforced to those that throw or destroy food that is apt for human consumption; and which promotes the creation and strengthening of food banks (Redondo, 2017). In Brazil, an inter-ministerial work group was created in the end of 2016 with the objective of developing a strategy for the government and civil society to reduce the losses and wasting of food (Karam, 2017); despite the country having a food bank network, it is still lacking regulations that enable the donations of food (Ibid.). Among other initiatives that are being developed in the region, Colombia has a policy bill known as: Law anti-waste against hunger in Colombia1, which prohibits the destruction of food that is suitable for human consumption and forces supermarkets to donate their products to food banks through tax incentives (BCN, 2016). Peru, also has a policy bill which aims for the creation of a national system for the reduction of food waste and food loss, and the use of thrown food and agricultural residues in the creation of bio-fertilizers and biogas; along with the prohibition of the destruction of unsold products which are to be donated for beneficence organizations (Ibid.). And in Argentina, the policy bill known as “anti-waste2”, looks to modify the special regime for food donation and prohibits food waste from supermarkets and food sales establishments (Ibid.).

2.4. Guatemalan Food Waste Management Policy

Given the world’s interest in the reduction, and ideally, entire prevention of food waste, along with the commitment adopted by Latin American countries under the Plan for Food Security, Nutrition, and Hunger Eradication by 2025, and reflected on the efforts and initiatives planned and taken presented before (Ibid.); it is only reasonable to expect action from every country.

Guatemala gave a first step to addressing the issue of waste and its proper management, which should encompass the different types of waste, by approving, as recently as 2015, under the governmental agreement 281-2015, the national policy for the integral management of residues and solid waste. This policy points out toward how an inadequate solid waste management is one of the principal causes of environmental contamination and natural resources; and acknowledges how dealing with this issue requires profound changes in production processes and consumption patterns (MARN, 2015). The objective of the policy is as follows: “Implementation and strengthening the integral management of residues and solid waste with the actors and sectors involved through social participation to favor a sustainable development in Guatemala” (Ibid.).

To achieve this, the policy establishes the adoption of 4 programs, focused on waste management, which are:

- Program for Institutional Strengthening
- Investment Program
- Technical and Administrative Strengthening Program
- Education, Communication, and Social Participation Program.

The policy favors the adoption and compliance of international norms and standards in the waste ambit (MARN, 2015), such as the EU Waste Framework Directive. Additionally, it points towards the importance and relevance of information systems about waste; which support the present research

---

1 Translated from Spanish. Original name: “Ley anti desperdicios contra el hambre en Colombia”
2 Translated from Spanish. Original name: “Anti-desperdicio”.
in terms of its objective of acquiring a holistic understanding of the position of different actors, in a specific sector, about a particular kind of waste.

Despite the existence of this waste management policy and its apparent completeness, a specific policy that addresses food waste, or a National or Municipal program directed at the minimization and/or prevention of food waste is still lacking. This fact, highlights the importance of research done with the objective of providing information along the different aspects of food waste such as its generation, its management, the different stakeholders involved in the matter and their position towards it.

However, even though a Food Waste Management Policy per se does not exist in the country actions promoted by different NGO’s, such as the Global Foodbanking Network, have been taken in the country to address the issue. In addition, projects that involved the use of appropriate machinery along the production chain of carrots in the department of Sololá; and the production of flour from orange peels in the department of Retalhuleu, not only to be used as food but also with the positive consequence of reducing solid waste, are examples of the efforts made in the country (FAO, 2015).
3. Theory
This section provides the theoretical support, which includes Sustainable Development and the Sustainable Development Goals, Triple Bottom Line, Positional Analysis, Environmental Justice and Climate Governance, Food Waste, Food Waste Management and the EU Waste Legislation and Framework Directive; used for the execution of the analysis of the results presented in section 6.

3.1. Sustainable Development and the Sustainable Development Goals

Sustainable Development is a concept that has a vast range of definitions, and in some cases, has been regarded as an ambiguous and vague term (Connelly, 2013). The multiplicity of definitions derives from a lack of agreement on what the term means, but also from what it is required to achieve it (Redclift & Woodgate, in Baker 2015).

Among its many definitions, the one provided by the Brundtland Commission is perhaps the most often cited (Emas, 2015). The definition provided by the Commission states that Sustainable Development is development “that meet the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987). Despite the fact that ambiguity persists even in this definition, given that the needs it refers to may include a wide variety of activities and differ from one generation to another (Egmond & De Vries, 2011); this formulation has served as general guideline when dealing with the relationship between environment and development (Baker, 2015). If development is associated with society going through different stages of economic growth, as it has been traditionally (Ibid.), this would mean that the formulation from the Brundtland Report has served as general guideline when dealing with the interconnection of environment, society, and economy; which are generally known as the three dimensions of Sustainable Development (ICLEI, 1996).

Following this guideline, and the inclusion of the three dimensions, this report regards Sustainable Development, as stated in Baker (2015): “The processes and pathways to reconcile the ecological, economic and social dimensions of life”, and adjoins to that statement, the necessity of this being achieved by both the present and future generations. Additionally, it is important to note that the perspective adopted in this report makes the following distinction between Sustainable Development and Sustainability. Being that Sustainable Development is regarded as the “processes and pathways” it considers the concept as the means to achieve Sustainability, in consequence, Sustainability being the overall long-term goal: The balance between the three dimensions (Sartori, Latrônico & Campos, 2014).

In an effort to globally move towards the achievement of Sustainability, the United Nations launched in January of 2015 the Sustainable Development Goals or SDG’s (Friedrich, 2016). The SDG’s, building on the 8 Millennium Development Goals which focused on the reduction of poverty in developing countries (Griggs et. al., 2013), aim to end poverty, combat inequality and address climate change and its effects (United Nations, 2016). Overall, the composition of the SDG’s strives to generate a balance between the three dimensions of Sustainable Development with its 17 goals and 169 targets (Friedrich, 2016).

The seventeen SDG’s as stated by United Nations (2015) are listed below:

- Goal 1: No Poverty – End poverty in all its forms everywhere
• Goal 2: Zero Hunger – End hunger, achieve food security and improved nutrition and promote sustainable agriculture
• Goal 3: Good Health and Well-being – Ensure healthy lives and promote well-being for all at all ages
• Goal 4: Quality Education – Ensure inclusive and equitable education and promote lifelong learning opportunities for all
• Goal 5: Gender Equality – Achieve gender equality and empower all women and girls
• Goal 6: Clean Water and Sanitation – Ensure availability and sustainable management of water and sanitation for all
• Goal 7: Affordable and Clean Energy – Ensure access to affordable, reliable, sustainable, and modern energy for all
• Goal 8: Decent Work and Economic Growth – Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all
• Goal 9: Industry, Innovation, and Infrastructure – Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation
• Goal 10: Reduced Inequalities – Reduce inequalities within and among countries
• Goal 11: Sustainable Cities and Communities – Make cities and human settlements inclusive, safe, resilient, and sustainable
• Goal 12: Responsible consumption and production – Ensure sustainable consumption and production patterns
• Goal 13: Climate Action – Take urgent action to combat climate change and its impacts
• Goal 14: Life Below Water – Conserve and sustainably use the oceans, seas, and marine resources for sustainable development
• Goal 15: Life on Land – Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
• Goal 16: Peace, Justice, and Strong Institutions – Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable, and inclusive institutions at all levels
• Goal 17: Partnerships for the Goals – Strengthen the means of implementation and revitalize the global partnership for sustainable development

This report used the SDG’s as framework when categorizing and classifying the answers of the actors interviewed, focusing particularly in Goals 2, 3, 8, 12 and 13. Despite, the SDG’s serving as beacon and ultimate goal to be achieved in the pursuit of sustainability, in order for businesses, such as restaurants, and actors in said environment, to know if the steps they are taking or intend to take are sustainable or in line with pursuing a sustainable growth, the Triple Bottom Line accounting framework presents itself as overarching framework of measurement (Slaper & Hall, 2011).

3.2. The Triple Bottom Line
In the mid-90’s John Elkington in an effort to measure sustainability devised a framework to measure businesses performance and coined the term Triple Bottom Line and the linked term “people, planet and profit” (Elkington & Zeitz, 2014; Slaper & Hall, 2011). The approach adopted by Elkington differed from conventional ones by adding the social and the environmental dimensions to the commonly used measures of profit (Slaper & Hall, 2011). Being this an approach that combined the three dimensions of Sustainable Development in order to measure business performance, the concept gained traction in the Sustainable Development field, to the extent that the Triple Bottom Line is
referred to as a framework that “captures the essence of sustainability” (Slaper & Hall, 2011). The framework, however, only provides the dimensions that should be measured to determine the performance of a corporation sustainability-wise, and does not provide defined instructions on how to evaluate or measure each of these dimensions (Ibid.). This is due to the fact that natural capital, for the environmental dimension, and social capital are particularly complex in terms of valuation and measurement, and thus the adopted valuation method will be stirred by context specific characteristics in each particular case (Elkington, 1998). In this sense, the Triple Bottom Line framework provides flexibility and adaptability to its users, which when dealing with complex issues constitute valuable characteristics.

Elkington (1998) acknowledged the fact that the metrics for each of the dimensions were still evolving, and for that reason and as means of contributing to broaden the scope and move past conventional approaches provided a set of example questions that companies could ask themselves. For the Economic Bottom Line, suggested questions regarding the rate of innovation of the company to be competitive in the long term and human capital retention strategies. For the Environmental Bottom Line, advised for questions focused on the impact of the business current and future activities. And for the Social Bottom Line, recommended interrogations on the extent to which concepts such as environmental justice and equity within and across generations likely to alter the definition and measurement of social capital.

In combination with the SDG’s, the Triple Bottom Line provides a further categorization framework for the answers gathered during the interviews for this report and assists as general basis for the construction of the interrogates posed in said interviews. Given the need of a broad scope of examination and the influence and importance of non-monetary aspects in the Triple Bottom Line framework, a complementary analytical framework, developed from a Positional Analysis ideology, may serve as facilitator for a more in-depth understanding of the issues at hand.

3.3. Positional Analysis

Positional Analysis strives towards shedding light on the different dimensions of a decision situation (Söderbaum, 1982). This approach considers the decision-making process at various levels such as the individual, local, regional, national, and global. (Söderbaum, 2015). Positional Analysis then, in an effort to move past neoclassical economic theory regards both, individuals and organizations, as being guided by their ideological orientation; additionally, understands a decision making as the matching process between the ideological orientation and the expected impacts of the alternative (Ibid.). Furthermore, Positional Analysis finds its complementary correspondence in the Triple Bottom Line framework, by extending the accounting principles in monetary terms to include social, environmental and other non-monetary indicators (Ibid.).

The use of an ideology contributes to the understanding of the world by providing a framework through which individuals act (Mackenzie, cited in Söderbaum, 2016). In order to follow a Positional Analysis Ideology, two ways of thinking must be adopted: Positional Thinking and Systems Thinking. Positional Thinking refers, in the decision-making process, as the understanding that it is a never-ending process, and that each position may constitute a new starting point; allowing the process to flow and be analyzed in different points in time (Söderbaum, 2016). Changes in position or positional changes throughout time can also be analyzed in several different dimensions such as social, ethical, legal, biological, physical, ecological, historical, and dimensions in relation to information and knowledge, among others (Söderbaum, cited in Söderbaum 2016). Systems Thinking, serves the purpose of moving towards a more holistic and interdisciplinary approach for the analysis by
considering the structures that will be affected and how this will happen. It moves past the individual and considers the issue at hand (Söderbaum, 1982).

The implications for the study by employing a Positional Analysis Ideology are that the dimensions of the study and its scope are broadened, systems thinking and positional thinking are incorporated, and individuals and organizations are no longer viewed as Economic Man and Profit-maximizing firm, but as Political Economic Person and Political Economic Organization, respectively (Söderbaum, 2016).

3.4. Environmental Justice and Climate Governance

Environmental Justice, as stated by the Environmental Protection Agency in the United States refers to “Fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies” (EPA, 2017b). The definition stresses the importance of “meaningful involvement” which means, that people should be able to participate and have a saying in decisions that may affect their lives (Ibid.); which will be achieved when, among other things, everyone has “equal access to the decision-making process to have a healthy environment in which to live, learn and work” (Laurent, 2011). From a Positional Analysis ideology, it is gathered that an actors’ motivation to act in a particular way, is subject to his or her perception on the matter. That actors’ ideological orientation plays a relevant role in the decision-making process of any situation. As a result, understanding the actors’ perception in order to incorporate it to the considerations in the decision-making process is a fundamental step for the achievement of environmental justice and further enabling an “integrated governance system” (CEMR, 2013).

The possibility of promoting an integrated governance system is highly relevant when dealing with subjects such as climate change and sustainable development given its current highly fragmented governance architecture (Hickman, 2015, p.27). An integrated governance, allows for more focused and decentralized activities which will have a bigger impact, but through an organized system (Keohane & Victor, 2011). Additionally, a skillful policy making, which is basically a decision-making, will have to consider the existence of several institutions (and actors) cogoverning an issue area, i.e. participating in a set of activities and as a result influencing the outcome of the issue integrating in the best possible way the different positions (Gehring & Oberthür, 2006, p.212). Enabling the different actors to recognize the impact of their decisions and how valuable their perceptions are for the achievement of environmental justice and an integrated governance system in the food waste management in restaurants could contribute to more conscious actions on their behalf.

3.5. Food Waste

Food waste is a concept whose definition may vary depending on the country and research through which it is being analyzed (Liu, 2014). In 1981 in the research Food loss prevention in perishable crops from FAO, food was defined as “wholesome edible material intended for human consumption”. From that research and considering the causes for loss of food presented there, Parfitt, Barthel & Macnaughton (2010, p.1) defined food waste as “wholesome edible material intended for human consumption, arising at any point of the food supply chain that is instead discarded, lost, degraded or consumed by pests”. The way in which, food lost and food wasted, is referred to, is generally related to the point in the food supply chain where it is lost (Gustavsson, et al., 2013, p.2). The two concepts used are: food loss and food waste. Food loss refers to decrease of quantity or quality of food at early stages of the supply chain, whereas, food waste refers to the discarding of food suitable for consumption at later stages of the supply chain and it is often related to human behavior (Ibid).
definition of food waste used in this report is the one provided by Parfitt, Barthel & Macnaughton with the consideration of the term food waste being used at later stages of the food supply chain, such as in restaurants.

3.6. Food Waste Management

As stated at the introduction of this report, food waste constitutes a global problem of significant proportions, when it is recognized that 1.3 billion tons of food designated for human consumption is either lost and/or wasted yearly (Grosse, 2016) (FAO, 2014a). Due to the relevance of the issue, the Sustainable Development Goals, specifically in Goal 12: Responsible Consumption and Production, one finds halving per capita global food waste at the retail and consumer level and reduce food losses along production and supply chain including post-harvest losses; as one of its main targets (UN, 2016).

The concept of Food Waste Management, derives from the application of waste management to the specific case of food, and as such, its techniques and concepts are shared. Waste management has a preferred order of applications for its techniques known as waste hierarchy, this hierarchy is found in the EU Waste Framework Directive further developed in the next section. The order of said techniques in the hierarchy go as follows: 1. Strict avoidance, 2. Reduction at source, 3. Product reuse, 4. Recycling/Compost, 5. Energy recovery and, 6. Disposal (Huhtinen, 2009, p.17). The first 3 of the techniques related to the concept of waste prevention which aims at the reduction of waste amounts and hazardousness of waste (Ibid.). The use of these techniques and application of concepts has as ultimate goal the delivery of the benefits of waste management for each specific type of waste.

Among the benefits of food waste management one can find a wide range of them, and those are along the three dimensions of the Triple Bottom Line. It is environmentally beneficial, because among other things, keeps food out of landfills, where it would rot and produce greenhouse gases, saving both space and resources used in the process, but also reduces water consumption and prevents forest devastation (Bell, 2012; Marthinsen et al., 2012). In addition, if food waste is used for composting purposes, it can improve the soil’s fertility and its capacity to retain nutrients (Regional District of Nanaimo, 2013). Its economic benefits can be counted in both large and small scale, such as the reduction of disposal costs for restaurants and processors; and lowering household food bills (Bell, 2012). And finally, among its social benefits, one can find the responsibility factor of not wasting edible material given the hunger experienced around the world. Furthermore, when rescued food is redirected to those in need to eliminate hunger in communities, it acquires an even larger and valuable social impact (Ibid.).


The EU waste legislation intends to efficientize waste management and transform the view on waste from a burden, or an unavoidable result of human activities to that of a usable resource (Ponce del Castillo, 2014). Given this proactive approach, it represents a valuable benchmark for Latin American countries in regards to its waste policies, legislation, and general waste management activities. The Waste Framework directive serves as umbrella for the EU regulations regarding waste and waste management. It was implemented in 2008 and presented as among its main objectives the avoidance of waste generation and the reduction of health and environmental impacts of waste, as well as the intention of moving Europe towards the creation of a ‘Circular Economy’ (Ibid.). Furthermore, the Framework directive finds its basis in three principles: Prevention, Polluter-pays principle, and Extended producer responsibility. And, as stated before, it applies as priority the following hierarchy, when dealing with waste management techniques (European Commission, 2016):
• Product focus (Non-Waste): Prevention
• Waste focus:
  o Reduction
  o Preparing for re-use
  o Recycling
  o Recovery
  o Disposal

Finally, the Directive points toward a preparation for re-use and recycle on waste materials originated in households and household like sources; as well as pointing out towards the importance of the adoption of waste management plans and waste prevention programs (Ibid.).

Among the essential strategies to move towards a ‘Circular Economy’ mentioned in the main objectives of the directive, the EU Commission refers to food waste prevention and its commitment to meet the SDG’s target of halving per capita food waste at the consumer and retail level (European Commission, 2017). The activities to be executed by the Commission to reach this objective range from the creation of a methodology and a new platform to foster cooperation among actors, to taking measures to clarify EU legislation regarding food waste and improvement labelling, with special emphasis on the “best before” mark (Ibid.).
4. Methods

This section presents the steps taken for the execution of the study, including the research design and methods employed for this matter. Additionally, it presents the justification as of why the approach and methods were selected. It also includes the measures taken to ensure the quality of the study and the ethical considerations during its conduction.

4.1. Research Design

The following subsection has the intention of showing the reader the whole design process and steps taken for the conduction of the research, including the approach, the units of analysis, the data collection strategy, together with the procedure of the analysis itself.

4.1.1. Approach

Food waste management in the hospitality sector has shown less research being conducted than in other areas, for example, household food waste or food waste at the retailer level (Pirani & Arafat, 2014). Furthermore, Latin American countries lack a clear unified strategy for addressing food waste, despite the existence of a plan for food security, nutrition, and hunger eradication (FAO, 2017) thus, research on areas of interest for the food waste issue, such as restaurant food waste management are valuable.

A first approach to the research on any issue could be the gaining of insight on the different actors’ opinion towards a topic, due to the influence they have on the general outcome of an initiative that they may affect or be affected by (Freeman, 1984). In line with this possible approach towards research, the purpose of this thesis stated the desire of discovering what is the perception of different actors towards food waste and food waste management in restaurants in Guatemala City. Given that qualitative research constitutes an array of strategies “aimed at discovering how human beings understand, experience, interpret, and produce the social world (Sandelowski in Hammersley, 2013, p.1), providing useful tools for the discovery and understanding of the perspectives and worldviews of people involved (Merriam cited in Diefenbach, 2009) and whose outcome is richly descriptive (Merriam, 2009), this research strategy was selected for this report. Conducting a qualitative research is, as expressed by Gubrium and Holstein in Travers (2001, p.14): “A set of ways of talking about the world”.

4.1.2. Units of Analysis — Selection of Actors

The unit of analysis is defined by Dolma (2010) as “the entity that is being analyzed in a scientific research. Yin cited in Kohlbacher (2006), pointed towards how the units of analysis is especially important for case studies. For this research, the selection of the units of analysis was executed in a series of steps, that went from country selection to the specific actors that constituted the units of analysis. The country, and afterwards the Department of choice, represented the population from which the units of analysis were selected.

The selection of country was a subjective choice due to personal interest in developing a research concerning waste management in my home country. However, the department selection, in this case Guatemala City, was chosen due to its current challenges facing waste management, as pointed out in the background chapter of this report, and the contribution that specific research on this general topic might represent. The selection of the actors gathers its insights from a positional analysis approach where different actors’ perceptions are considered, and where “looking at all sides is important” (Söderbaum, 1982). For that reason, actors involved in different types of restaurants as well as actors in the local government were selected. It is important to note that in a case study
research, the actors selected to conform the unit of analysis are considered with the interest of filling a theoretical gap and not with statistical purposes (Glaser & Strauss, 1967). The criteria for selecting the cases was based on the inclusion of different opinions, which implied different types of restaurants based on their service which will be further explained in this section; additionally, that they developed their activities within the Department of Guatemala City. Specifically, for the actors to be interviewed, the selection criteria, was based on their decision-making power over the activities at the restaurant, or a certain degree of influence for the case of the Guatemala City Municipality. This led to the selection of either Managers or owners for the restaurants, and a Director of a relevant department at the Municipality.

Additionally, due to the exploratory focus of the research and the intention to fill a theoretical gap, the restaurant selection was executed with the objective of having restaurants with different types of service. So, in addition to the municipality worker, which represents the local government actor, one of the restaurants was of a formal service type, the other one was an only-delivery service type, while the third one was a semi-formal/fast food service type.

The unit of analysis are the perceptions and actions in regard to food waste and food waste management in restaurants from different actors, being these actors the entities referred to before.

4.1.3. Case Study and Data Collection

Merriam (2009, p.37) defined a case study as “an in-depth description and analysis of a bounded system”. Meanwhile, Yin (2008) defined it as “an empirical inquiry about a contemporary phenomenon set within its real-world context – especially when the boundaries between phenomenon and content are not clearly evident”. Creswell cited in Beverland & Lindgreen (2010), provides a definition, which appears as a combination of the ones presented previously: “A bounded system [bounded by time and place] or a case (or multiple cases) over time through detailed, in-depth data collection involving multiple sources of information rich in context”. Additionally, case study methods are designed to “illuminate a decision or set of decisions: why they were taken, how they were implemented and with what result” (Yin in Shaban, 2009, p.1). Due to the exploratory features of the study, an in-depth data collection that involved multiple sources of information such as a case study, served this purpose (Beverland & Lindgreen 2010), being food waste the phenomenon under study, with the objective of understanding the perceptions and actions of actors involved in the topic in a specific setting such as Guatemala City Restaurants.

Furthermore, characteristics of a case study methodology such as it being particularistic, descriptive and heuristic (Merriam, 2009), represented attributes that aligned with achieving the purpose of this thesis. The particularistic characteristic specified the focus on a particular phenomenon. The descriptive characteristic pointed towards a rich, and thick description of the phenomenon as result of the study (Ibid.). Meanwhile the heuristic characteristic allows a helpful asset for the readers’ understanding of the phenomenon” (Ibid.).

From the five principal methods used in qualitative studies, interviewing was selected as main method for the collection of data (Ibid.). Interviews were the primary source of information, and supported by literature review as secondary source. The value of conducting interviews rests upon the fact that they “can reveal ideas and deliver insights that no other method can provide” (Diefenbach, 2009, p.8). The interviews conducted were semi-structured interviews with a majority of open ended questions, with the intention of allowing the different interviewees to express his or her ideas as freely as possible and in their own terms (Cohen & Crabtree, 2006). Moreover, the interviewees were given the opportunity to comment on the interpretation given to their answers, which contributed to the
obtainment of rich and original data (Travers, 2001). The use of semi-structured interviews is generally preceded by the conduction of observations or unstructured interviewing that lead to the development of relevant semi-structured questions for the interview guide (Cohen & Crabtree, 2006).

For this study, a preliminary and unstructured interview was conducted with a Guatemalan hospitality expert, to “develop a keen understanding of the topic” and with this elaborate the interview guide (Ibid.). In addition, the construction of the interview guide, specifically the questions included in it were influenced by a Positional Analysis approach, the Triple Bottom Line framework and general concepts of Sustainable Development, food waste and food waste management further explained and expanded in the theoretical chapter of this study. The Positional Analysis approach in combination with the Triple Bottom Line framework, directed the questions by regarding individuals and organizations, no longer as Economic Man and Profit Maximizing Firm, but as Political Economic Person and Political Economic Organization, respectively. And delving deeper in to other aspects such as the social and environmental implications of food waste and its management in the hospitality, specifically restaurants, sector. The interview guide used for this report can be found in Appendix A.

In total, 4 semi-structured interviews were conducted, which lasted between 30-40 minutes. The interviewees included 3 restaurant owners/managers and 1 municipality worker. Said interviews were conducted in Spanish to enable interviewees to express in their native language, and encourage their participation, as speaking in their own language might have made them more comfortable and focused on their responses, rather than on the language they were speaking in. The interviewees that agreed to have their interview recorded, were so by use of a sound recorder device, and in addition to this, notes were being taken to gather additional information, such as body language and other cues that might otherwise be lost. The recorded interviews were afterwards transcribed and translated to English and can be found in Appendix B.

4.1.4. Conduction of the Analysis

Merriam (2009, p.37) stated: “The product of a qualitative inquiry is richly descriptive”; and this supported by a positional analysis ideology contributed to the aim of the study in terms of the creation of a holistic understanding of the issue (Söderbaum 1982), throughout the conduction of the analysis and afterwards in the reaching of conclusions.

Yin in Kohlbacher (2006) establishes that data analysis is composed of the examination, categorization, tabulation, and/or testing of evidence to address the initial intentions of a study. In addition, Hartley in Kohlbacher (2006) points towards how data collection and analysis of said data is an iterative process. For this study, the search for patterns and relationships from the primary source of information, the semi-structure interviews, place the research in an inductive approach setting (Bernard, 2011). The search for patterns, relationships and categorization mentioned before was achieved through the use of a categorization strategy, with the intention of facilitate the better understanding and analysis of the responses retrieved from the interviews. This categorization strategy started with a coding approach known as open coding, which looks for specific concepts and categories in the data (Biddix, 2009), and later on with axial coding, which uses specific predefined concepts and match the responses of interviewees to them (Ibid.). Afterwards the responses and concepts identified that matched were transferred into a data table.

Furthermore, the categorization strategy, in the stage of axial coding consisted in the classification of the responses using the Triple Bottom Line framework, which allowed a division of the answers into economic, social and environmental factors that then could be compared and contrasted with the benefits and challenges found in literature when managing food waste in general, and in particular
for the case of the hospitality sector. Additionally, this categorization strategy also involved the Sustainable Development Goals and how, according to the answers received in each of the questions from the interviews, one or more of the SDG’s related to them. Finally, bearing in mind the position and strong approach Europe has shown towards food waste management, the responses and actions taken obtained from the interviewees were further categorized using the European Commission Waste Framework Directive and classified in the following categories: Prevention, preparation for re-use, recycling, recovery and/or disposal (European Commission, 2016). The general outline of the table devised for the categorization and classification of the responses, when applicable, for facilitating the analysis is presented below:

**Table 1: Outline for Classification of Interviewee responses per Framework and Categories**

<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Question</th>
<th>Framework/Categories</th>
<th>Environmental</th>
<th>Social</th>
<th>Economic</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Triple Bottom Line</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sustainable Development Goals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Framework/Categories</td>
<td>SDG #2</td>
<td>SDG #3</td>
<td>SDG #8</td>
<td>SDG #12</td>
<td>SDG #13</td>
<td>Other</td>
</tr>
<tr>
<td><strong>EU Waste Framework Directive</strong></td>
<td>Prevention</td>
<td>Preparing for Re-Use</td>
<td>Recycling</td>
<td>Recovery</td>
<td>Disposal</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Finally, the responses obtained by the interviewees were presented to them for their final comments and review, in order to enhance validity (Ibid.) and assure to a greater extent that what they meant was fully understood. Below, follows a table which includes relevant information regarding the interviewee, the interviewee’s organization, and the interview per se.

**Table 2: Interview and Interviewee’s Complementary Information**

<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Function</th>
<th>Organization</th>
<th>Date of Interview</th>
<th>Format of Interview</th>
<th>Date of Transcript Submission</th>
<th>Validation Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jorge Monzón</td>
<td>Restaurant Manager</td>
<td>Ki’ Ki</td>
<td>23-03-17</td>
<td>In Person</td>
<td>25-03-17</td>
<td>27-03-17</td>
</tr>
<tr>
<td>Andrés Batres</td>
<td>CEO</td>
<td>Yokomo</td>
<td>26-03-17</td>
<td>In Person</td>
<td>28-03-17</td>
<td>30-04-17</td>
</tr>
<tr>
<td>Herbert Menzel</td>
<td>CEO</td>
<td>Burger Stop</td>
<td>31-03-17</td>
<td>In Person</td>
<td>01-04-17</td>
<td>03-04-17</td>
</tr>
<tr>
<td>María Avendaño</td>
<td>Director of Environment</td>
<td>Guatemala City Municipality</td>
<td>27-04-17</td>
<td>In Person</td>
<td>01-05-17</td>
<td>01-05-17</td>
</tr>
</tbody>
</table>
4.2. Quality Assurance Measures

Case study research poses great benefits from an exploratory standpoint due to the flexibility of the method (Beverland & Lindgreen, 2010). Nevertheless, to ensure the quality of the research, several steps were taken; specifically, for the construction of validity and ensuring reliability. One way to construct validity is by for further checking and reviewing additional information (Diefenbach, 2009). For this matter, different sources of information were used: 4 different interviews were conducted, which included 3 restaurant owners or managers, as well as a municipal worker, and the review of pertinent literature. In addition, throughout the report, specifically in the results and analysis sections the reader is provided with a clear chain of evidence supported by excerpts from the interviews; additionally, the interviewees were given the opportunity of going through the transcript of their respective interview and modify or clarify responses that they considered needed to be adjusted (Ibid.) (Beverland & Lockshin, 2003). In the case of ensuring reliability, the interviews were conducted to a previously defined and specific group in a professional way, following a structured guideline, that can be found in appendix A, which given the semi-structured interviewees technique used was adapted to each interviewee but always maintaining its central focus (Beverland & Lindgreen, 2010) (Beverland & Lockshin, 2003).

4.3. Ethical Considerations

The ethical considerations for the present study were based on the principle that the research “does not cause harm, allow harm to be inflicted, or otherwise damaged the interests of any involved parties” (University of West London, 2008). To achieve this, every actor involved in the present study was communicated in a clear way the reason, objective and activities that they were going to be involved in if they agreed to participate in the study (Ibid.). Furthermore, the interviews conducted respected the privacy and confidentiality of the participants, allowing anonymity if they requested so. As stated before, for constructing validity and means of reliability, but also for ethical considerations, interviewees were given the opportunity to review their responses and statements and were given full autonomy to alter, modify or change what they deemed necessary (Ibid.).

The whole research study followed professional standards in regard to honesty along the project, including proper acknowledgement of contributions to the work and documentation of the process (Ibid.).

4.4. Delimitations

Since food waste management in the hospitality sector has shown less research available (Parfitt, Barthel & Macnaughton, 2010), and even smaller amount of studies regarding this sector in Guatemala City, a qualitative approach provided a valid option to be adopted, and one that has been in place when dealing with a new phenomenon or one that has little research done on it. Additionally, the qualitative research’s aim is to “develop concepts that can help us understand social phenomena” and it gives emphasis to “experiences and views of the participants” (Al-Busaidi, 2008), characteristic that coincides with this research’s aim. The justification for the use of a Case Study methodology and Semi-Structure interviews, is in line with the selection of a qualitative research; as well as to further enhance the exploratory features of this study. It is worthwhile to mention that in a case study research, the actors selected are considered with the interest of filling a theoretical gap and not with statistical purposes (Glaser & Strauss, 1967); additionally, the purpose of the study is to research about a limited number of restaurants in Guatemala City; and the conclusions and results derived from this, may or may not apply to all restaurants in the City, but it is not my claim that it does.
The empirical delimitations of the study include the selection of actors related to food waste management in restaurants in Guatemala City, given the fact that a study focused on the perception of said actors towards food waste could not be found. Along the study, emphasis was placed on the actors’ position regarding food waste, as well as the actions, decisions, and alternatives that they could have had, observed, favor, or taken to address the issue. As means of complementary support however, literature related not only to the management of waste from hospitality sector, but also from others, was employed to compare and contrast the position of the interviewed actors.

The choice of theories employed finds its support on the fact that a holistic understanding of the issue was being looked for, so a broader range of aspects was to be considered, and theoretical approaches such as Positional Analysis, the Triple Bottom Line, Environmental Justice, and Climate Governance offered this feature and constituted a relevant framework. In addition, sustainable development constituted a corner stone of this thesis for which the Sustainable Development Goals, and elements that related to them such as Food Waste, Food Waste Management, and the EU Waste Framework Directive, offered an applicable foundation.
5. Results
This section presents the results gathered from 4 interviews conducted to actors involved in the ambit of restaurants or management of waste. They are arranged in the chronological order in which they were conducted. The verbatim content of each of the interviews can be found in Appendix A; while in this section, the information gathered has been classified and grouped in 4 different sections for each restaurant which represent the actors’ perspective in the following aspects: A) Restaurant description, B) food waste and its impacts, C) restaurant food waste generation and food waste management initiatives and, D) incentives, opportunities, and obstacles for food waste management.

5.1. Ki’ Ki
Ki’ Ki constitutes the formal service type of restaurant selected, being Jorge Monzón, the restaurant’s manager and co-owner, the actor which provided the information to be presented in this subsection, obtained through a semi-structured interview.

5.1.1. Restaurant description
Ki’ Ki is a small restaurant located in a shopping center in a peripherical area of Guatemala City Center. The restaurant has 5 employees, 4 of which work in the kitchen, while the other serve the customers. The restaurant manager, an architect with experience in business administration and sales, interviewed for the present research, shares the ownership of the restaurant with a partner, and has been acting as manager for the past 10 months taking joint decisions in aspects such as logistics, marketing, and operations. The restaurant specializes in Guatemalan traditional food, also referred to as “antojitos chapines”. The restaurant has a fixed menu with 10-12 options that are offered and a variable option, changing daily, which is the lunch dish. The restaurant serves around 30-40 plates daily from the menu, and around 25-40, depending on the season, of the lunch meals. Most of the food that is served, is prepared when ordered; and the rest is pre-prepared during the mornings. The restaurant has identified two rush hours, based on client influx, that go from 11am to 2pm, the first one; and from 5.30pm to 7pm, the second one. For the procurement of the ingredients for the different meals, two sources are used: Supermarket, where dressings, pasta and other similar ingredients are bought; and a normal market where fruits and vegetables are acquired. The frequency of ingredient acquisition is twice per week (Pers. Com., Monzón, 2017).

5.1.2. Food waste and its impacts
For Ki’ Ki’s manager, Jorge, food waste does not represent a problem as such, but he describes it as an unconsciousness towards the waste each person produces; and that it shows a lack of regard for the value of the food one is eating. Referring to food waste from restaurants, he recognizes how people show a lack of conscience when ordering food and the decision they face afterwards of whether eating it or not. Also, referring to food waste from restaurants in the preparation process, he acknowledges that in some cases it should not be necessarily considered as waste since you might be able to re-use and reprocess some of the food remnants. The impacts derived from food waste are, as seen by Jorge, mainly on the environmental aspect and are the result of the combination of the following facts: 1. How waste in general is not classified in Guatemala, from businesses or households, 2. How it all ends up in the landfill of Guatemala City, 3. The current state of said landfill, and 4. The negative consequences of food waste on landfills. He also sees food waste as having a social impact related to how some people make a living out of what other people throw away, noting how “what for a lot of people is useless”, becomes a main asset for others. In addition, he views food waste having an economic impact for both the party that is throwing away the food, and for whomever needs to collect...
it and treat it afterwards. Thus, food waste has an economic impact that affects individuals, companies, and the country (Pers. Com., Monzón, 2017).

5.1.3. Restaurant food waste generation and food waste management initiatives

Ki’ Ki’s manager recognizes that the subject, in terms of restaurant food waste, should be divided in two: Food waste from fast food chains, and food waste from normal or traditional restaurants, which include restaurants that serve homemade type of food, and how he categorizes Ki’ Ki. He believes that given some of the quality standards and sales goals set by fast food chains, their food waste generation is greater than that from traditional restaurants. Jorge states that the reason traditional restaurants, like Ki’ Ki might generate less food waste is due to the ability to estimate how much you could use during the day and the ability to reprocess and re-use some food remnants in other dishes. He attributes food waste generation to a behavior characterized by carelessness, but also, he believes that food waste from customers of the restaurant comes from their shame or embarrassment of asking for a “doggy-bag” to take the rest of their food home. He states that food waste generation is greater on what clients leave on their plates, than what its being wasted in the kitchen. Nevertheless, he mentions how portion sizes and a consumerism behavior also have repercussions on the amount of food that is being wasted. He goes on and points towards how little food, restaurants referring to them as food producers, are wasting or throwing away. Ki’ Ki has never actually measured food waste generated in the restaurant, specifically in the preparation and storage stages, but its manager estimates that this should be under 2% of all the food that is bought (Pers. Com., Monzón, 2017).

Wasting of food has been approached by the restaurant in the following ways: Ki’ Ki has the practice of giving whatever food they have as leftover to the kitchen personnel. Jorge believes that involving the personnel is key for reducing food waste, and not only in the restaurant but they might also replicate this behavior at home. In addition, they have changed the food quantity they buy by lowering their food purchasing frequency from once a week to twice a week, which resulted in a lower inventory level preventing waste that was generated from the deterioration of food and vegetables in storage (Pers. Com., Monzón, 2017).

Jorge states that some actions towards preventing food waste, bring with them the use of additional items that could be harmful to the environment, such as Styrofoam or plastic containers to give to customers to enable them to take their food home. From food waste management initiatives, Ki’ Ki’s manager believes that reducing portion sizes is not an actual solution, since in his opinion, people will leave food on their plate no matter their portion size (Pers. Com., Monzón, 2017).

5.1.4. Incentives, opportunities, and obstacles for food waste management

Ki’ Ki’s manager states that in his personal case he already has all the incentives he needs for addressing food waste and managing it, in what he describes as being able to enjoy a green world. However, he believes that for other people to engage actively in food waste management, an economic incentive would be the logical approach being that people “tend to monetize things” and how people “want an economic incentive”; nevertheless, he does not think this kind of incentive should be the one that should be promoted, but a social kind of motivation, in which people realize that taking care of the environment goes beyond economic benefits. Jorge also visualizes how programs oriented towards people and communities with topics regarding environmental awareness could help the next generations to have a better world; programs in which everyone should be
involved from businesses to NGO’s, and that could start in elementary schools around the country (Pers. Com., Monzón, 2017).

Ki’ Ki’s manager does not envisage a clear benefit for restaurants from addressing the food waste issue; but he does see it as an opportunity to contribute with society and his country by acting responsibly while conducting his activities, in this case, the restaurant’s activities. In Ki’ Ki, they understand how every action, no matter how little matters and by doing this something can be achieved. However, Guatemalan idiosyncrasy, the negativity of its people, and their focus in issues whose consequences are perceived as more immediate, are seen as main barrier to address and emplace food waste management strategies (Pers. Com., Monzón, 2017).

5.2. YOKOMO Sushi

Yokomo constitutes the only-delivery service type of restaurant selected, and it was Andrés Batres, the restaurant’s CEO and co-owner, who, through a semi-structured interview, provided the information presented in this subsection.

5.2.1. Restaurant description

Yokomo is a delivery-only premium sushi restaurant which blends traditional sushi with Latin-American flavors, temperature shocks, and in general, more flavor combinations. The restaurant provides its service to zones 9, 10, 13 and 14 of Guatemala City and it has 15 employees, which includes the three partners who own it. The three partners are the head chef, Jose Roberto Lou, and Andrés Batres. The restaurant is divided in two main divisions: Delivery and Kitchen. The area of Delivery involves the reception of the orders and their distribution, while the area of Kitchen involves the procurement of raw materials and the production of the final product. Andrés, an Industrial Engineer, previously working at Kymberly-Clark, is the CEO of the company, leading both divisions, and also involved in marketing and social networks of the restaurant; and the person who was interviewed for this research (Pers. Com., Batres, 2017).

The restaurant targets people from B+, A, A+ socioeconomic level, who, as stated by Andrés: “appreciate a good flavor fusion between Japanese and Latin American flavors”. The restaurant has a fixed menu, which has evolved through time, by either the Chef’s proposals or by requests from clients. Currently, the restaurant is serving around 60 rolls per day, which represent from 20-30 plates on average each day. The preparation of the dishes is executed the moment an order is placed, being the sauces the only element that is pre-prepared, together with the shrimps that are processed before and store frozen, as well as the fish. The raw materials for food preparation in the restaurant is purchased from several suppliers; one of them being a big supermarket chain. The others, especially for the sea food are local suppliers and which some deliver directly to the restaurant (Pers. Com., Batres, 2017).

The busiest time of the day for Yokomo, their rush hour, is during dinner, so they use the mornings for planning, set up, and preparation for the day’s activities, as well as cleaning. A particularity of the restaurant, is that among the benefits for their employees, they provide lunch for them free of charge (Pers. Com., Batres, 2017).

5.2.2. Food waste and its impacts

Andrés, Yokomo’s CEO, considers food waste a very delicate and complex subject, and he declares himself as being against wasting food, a belief that he passes on to his employees at Yokomo. Yokomo recognizes that wasting food has an impact mainly on an economic and social level. This recognition, drives the actions taken at the restaurant where the intention is to control the amount of
food that is being wasted, not only for the financial aspect, but for the moral and ethical subject that wasting food entails for them. He categorizes the social impact of food waste as related to the ethical aspect of wasting, cultural behavior, and lack of awareness towards the issue. Additionally, Andrés believes that wasting food could have a negative impact on the image of the restaurant, and send an incorrect message to both clients and employees. Andrés understands the wasting of food as a sunk cost for the company, together with an inefficient use of resources, which also impact the restaurant’s finances. Yokomo’s CEO, believes that food waste also has an environmental impact, however, the perception is that the environmental impact at the restaurant is low due to the size of the kitchen. Based on their operations and type of restaurant, Andrés thinks that if Yokomo is having a negative impact on the environment, it is related to the delivery of the orders, rather than form the wasting of food (Pers. Com., Batres, 2017).

5.2.3. Food waste generation and food waste management initiatives

For Yokomo’s CEO, there are different moments during production, and various reasons as to why food waste is being generated. He has identified that food can be wasted during preparation of food production, and among the reasons he points towards involuntary mistakes from the employees. Additionally, Andrés states that another food waste generation stage, regarding how Yokomo operates, can occur when each of the employees are serving the lunch for themselves. Despite, the delivery-only type of restaurant that Yokomo is, in which observing the client or dealing directly with their food waste does not happen, its CEO believes that the restaurant’s customers may be high volume producers of food waste. Andrés attributes this to a lack of awareness and consciousness on their customer’s behalf, in addition to a miscalculation or lack of knowledge on how much the correct portion per person is. For Andrés, the correct portion, if for example three people are to share would be 3 rolls; one from each size: big, medium, and small (Pers. Com., Batres, 2017).

For Yokomo’s CEO, the focus of the restaurant at the moment is on increasing its production capacity, rather than on optimization of resources or control mechanisms. Andrés admits that he does not know how much food Yokomo is wasting, but doesn’t see the benefit of measuring it since he has seen the different trash cans around the restaurant, and his perception is that their food waste is low. However, at the restaurant he does promote actions to prevent food waste; he has made his intentions towards wasting food clear among the employees by either severe attention calls to them, and setting several practices in motion. He has promoted the idea that leftovers of both production and lunch are given to the employees, or public workers that they can find in the area. Andrés has also developed a program to deal with sushi rolls that are surplus of another order, where they are given to employees as a reward for doing a good deed, or used as promotional rolls on other orders for clients that bought a significant amount, nevertheless he points out that he is not certain they will be able to maintain this in the future. Andrés points out that the handling of their raw materials varies according to each of them, however their procurement and inventory management with an approach of optimizing resources, is led by the Chef. This is done on a weekly basis and grounded on their historical information, with a maximums and minimums system. At the moment, Yokomo does not control the yield of their raw materials, but the CEO visualizes as a next step, transferring all the recipes into a system to start controlling yield, and loss of the different ingredients they use. In addition to these initiatives, at Yokomo, they also recover the used oil from the kitchen and they sell it back, recovering the price of one new oil container for each 5 that they buy and subsequently recover from use (Pers. Com., Batres, 2017).
5.2.4. Incentives, opportunities, and obstacles for food waste management

For Andrés, Yokomo’s CEO, positive incentives regarding the creation of a sense of awareness towards the food waste issue would represent the most gratifying sensation. He inclines to the creation of a video or a documentary, rather than a program or signs and posters, in which an emotional message is portrayed; and from someone who is avoiding hunger because people is caring about food waste and its management. He also considers that this kind of video could show the causes and negative consequences of food waste to achieve the objective of changing behavior patterns from the viewers. Additionally, he perceives the possibility of creating a platform where people who could supply food that would otherwise go to waste, and people who need food could interact. He thinks, however, that the ideas mentioned previously are more in line with his way of thinking and what appeals to him, since he believes that people in general work better with negative incentives, and how punishment directed at correcting food wasting behaviors could be more effective overall. Andrés visualizes the municipality promoting this kind of regulation or the video aforementioned, given that they are the ones who deal directly with waste and its management. Additionally, he mentions how the recollection waste fare is something that intrigues him, and is not entirely sure if the fixed amount that he is being charged is the right amount (Pers. Com., Batres, 2017).

Regarding opportunities to deal with food waste and managing it he showed an interest towards composting, and how this could even represent a business opportunity if the organic waste generation at Yokomo grows considerably. Furthermore, he sees an opportunity of optimizing his resources at the restaurant and minimizing food loss by setting in motion a stricter control and information system based on the yield and loss of ingredients during production. He believes that people miss to see the potential on waste, food waste, for example and how, on a big scale, it could represent an actual business opportunity (Pers. Com., Batres, 2017).

Andrés sees as obstacles for managing food waste, that the conduct shown by his employees towards the matter is based on fear of being punished rather than on systematic actions that reflect awareness and a change of mentality. He also points towards how cost and especially time, are the main barriers for him and Yokomo to promote a more intensive approach toward food waste and its management.

He pointed out how benefits on controlling and measuring food waste still elude him, but he is clear on how something that is not measured, can’t be controlled and how something that is not controlled, can’t be improved (Pers. Com., Batres, 2017).

5.3. Burger Stop

Burger Stop constitutes the fast food/semi-formal service type of restaurant selected, and Herbert Menzel, the restaurant’s CEO and Co-founder was the actor interviewed and whose perceptions and insights are detailed in the following subsections.

5.3.1. Restaurant description

Burger stop is a restaurant which replicates the idea of a food truck without actually being one. The concept was built on the idea of fast food, specifically high quality burgers; and the space focused on allowing people to see how their meals were being prepared. Additionally, Burger Stop was created with the intention of staying open past midnight to provide an eating alternative for people coming out of the different bars that surrounded the restaurant. Burger Stop is located at an entertainment complex that includes other restaurants, bars, and locals for practicing different sports. Three partners founded the restaurant: An architect, a Chemical Engineer/Chef, and an Industrial Engineer. The
industrial engineer, Hebert Menzel, was in charge of the administrative area, which included sales, human resources, and the finance department; and it was him who contributed to this research as an interviewee. Hebert defines his role as being in charge of everything, basically being the CEO of Burger Stop and the restaurant manager (Pers. Com, Menzel, 2017).

The restaurant has 5 employees, and regarding the food offer, Burger Stop has a fixed menu which additionally adds some seasonal and promotional burgers throughout the year such as a pineapple burger for summer or a Portobello mushroom burger for vegetarians. Herbert states that they have never done a complete renewal of the menu, but only an update of it. And, in the case of beverages their offer was a simple one with only sodas and juices provided by Pepsi. On average the restaurant serves between 40 and 50 meals, and they are prepared when ordered. Despite initially being thought of as a fast food restaurant, the fact that meals are started from nothing result in relatively high waiting times, mainly when there is a queue. Burger Stop’s CEO identifies as the restaurant’s busiest time the hours after midnight when people is coming out of the bars. Due to this fact, Burger Stop worked with two shifts whenever they opened from 10am to 2am (Pers. Com, Menzel, 2017).

Despite preparing the burger only until they are ordered, the preparation of each day includes the preparation of the different dressings and sauces for them. Burger Stop’s raw materials, specifically vegetables, are provided directly to the restaurant by a specific and specialized supplier on both Mondays and Fridays. The rest of Burger Stop’s ingredients for their meals is purchased every two weeks. The reason for this lies on the idea of having fresh vegetables available, together with restocking of the ingredients immediately before and after the weekend to ensure existence on the busiest days and throughout the week. Additionally, Burger Stop promotes different discounts and sales to promote the flow of clients during their lowest selling days, Mondays, and Tuesdays (Pers. Com, Menzel, 2017).

5.3.2. Food waste and its impacts

For Burger Stop’s CEO, food waste is and represents a bad habit. For him, food is extremely important and specially from a moral point of view, throwing away food, when there is a lot of people in need of it, is wrong. He also states that from his point of view, it is a really hard subject, given that he believes a lot of food is being wasted. Also, Herbert thinks food, in general, could be used more efficiently, a practice he believes is being done as best as possible in restaurants. Among the impacts of food wasting, Herbert clearly identifies the economic and social effects; whereas the environmental impact, he states depends mostly on the food, and it is a topic he had never given thought to. Burger Stop’s CEO, believes that the more food you throw away, the more you spend, which impacts directly on the restaurant’s finances. He also mentions, how Burger Stop in its regard for a high-quality standard, whenever a burger doesn’t comply with them, is returned to the kitchen and either it is fixed or change for one that does comply, which also entails a cost for the company.

Herbert thinks that the number of places that are wasting food represent an incoherence based on the amount of people that lack something to eat, and it is here where he visualizes the social impact of food waste. Additionally, he points towards how many people waste food when eating. He states that whenever this happens in a restaurant, when customers don’t finish their meal, it must be thrown away. This, for him, again based on the number of people in need of food represents the moral impact of the action since it shows a lack of awareness from people wasting food (Pers. Com., Menzel, 2017).
5.3.3. Food waste generation and food waste management initiatives

Food waste was not a topic that Burger Stop’s CEO paid close attention to; nevertheless, he did identify different stages where food was being wasted mainly during its storage and preparation. He points out how given the type of food, leftovers are unavoidable. Overall, he sees vegetables as the main source of food loss and waste. He states that when dealing with different vegetables there is variability in size and quality which result in food wasting, since sometimes the whole vegetable is discarded for its appearance, when it could still be used. In addition to this, purchasing vegetables too far in advance represents that they must be stored over a long period of time, and whenever employees perceive some of them are about to rot, they are discarded. This action, is backed by the restaurant’s policy of providing high quality food and placing the health of its customers in high regard, avoiding any ingredient that could threaten that. Herbert sees food being wasted specially in the restaurant’s kitchen even more than from customers, however he mentions that one of the burgers offered in the menu, the “Chuck Norris”, which has 8 meat slices, is one meal that is not frequently finished by the clients, and their leftovers must be thrown away. Additionally, Burger Stop’s CEO stresses how the food wasted by the clients, must always be thrown away and there is no opportunity there for re-use. However, Burger Stop does offer doggy bags, for people to take away their unfinished food (Pers. Com., Menzel, 2017).

At Burger Stop, some initiatives towards reduction of food waste based on the principle of resource efficiency have been taken. With the leftovers from the production of burgers, the objective is to use them for sauce and dressing production, which makes part of the training the restaurant gives to its employees to make the most out of their raw materials. Moreover, Burger Stop reached an agreement with their vegetable supplier to be provided, as often as possible, with vegetables of a standard size. The idea with this strategy was to be able to forecast how many burgers they would be able to produce, given the yield of each of the ingredients. For this, several tests were executed and an average for each vegetable was obtained, which also contributed to the assignment of cost to the ingredients, and therefore reach a final price for the burger. The arrangement with the supplier also dealt upon the quality and ripeness of the vegetables, in addition, the employees were trained to send pictures of the rotten vegetables they were to discard to justify the reason as to why they were throwing it away. Furthermore, the employees, chefs and waiters are also taught about the importance of not throwing away food, in an effort to raise awareness and make them conscious of what they were doing. The message conveyed by Herbert’s partner was: A considerable amount of people has no food to eat, let us take care of what we have and be ready to think of ways to re-use our leftovers. In addition, at Burger Stop, the meals that are returned to the kitchen, because of a mistake in ingredients and can’t be given back to the client, are sold to the employees, if they want it, at a lower cost, being this, as stated by Herbert, a benefit for the employees since it is a high-quality burger that is perfectly edible. Burger Stop also recovers their used fried oil, which is afterwards sold (Pers. Com., Menzel, 2017).

5.3.4. Incentives, opportunities, and obstacles for food waste management

For Burger Stop’s CEO, Herbert, realizing how much money he was losing by wasting food, and the potential for saving, represents the main incentive for engaging with food waste management in a more proactive fashion. He sees as an opportunity, the possibility of making people aware of the problems other people are facing regarding hunger and lack of food. This opportunity, he says, was observed by his partner and it reflects on their effort at Burger Stop to train their employees for an efficient way of handling food, and the different strategies they have implemented. Nevertheless, he
is not entirely sure how their employees behave without supervision, although he sensed the workers were concerned and their socioeconomic profile helped them relate to the fact that wasting food was not a desirable behavior. He also highlighted how some of his employees said to him: “It’s a sin to throw away the food”. Additionally, Herbert sees as an opportunity how companies could have and enforce policies about food waste. He believes a previously established company policy on how to handle waste depending on the type and the different cases in which it might appear, could represent an important action. He also points out at how even food that is about to go bad, could be included in this kind of policy and be offered at a discount or in a sale, to increase the probability of selling. This company policy, would then be presented for employees during their introduction to the company, allowing it to be a type of behavior that they are aware, from the beginning, that the restaurant strives for (Pers. Com., Menzel, 2017).

Burger Stop’s CEO, thinks that companies are the ones who should create and promote their own policies in this matter. He believes that the municipality couldn’t accomplish as much as companies, and he is unsure what or how the municipality could have an impact on the matter. He visualizes that the municipality could act only as an enforcer of the way restaurants dispose of their waste, including food, and promote a classification of it; but nothing besides this. Herbert sees as main obstacle for food waste management, and prevention and minimization of the action, managing what the clients leave uneaten, and their behavior towards their food. He states how the obstacle would be regarding how he can’t go beyond his activities and position as restaurant owner and force his clients to finish their meals. For him, whatever is left from his customers, is only waste and he disposes of it (Pers. Com., Menzel, 2017).

5.4. Municipality of Guatemala City

The Vice-Mayor of Guatemala City, Ricardo Quiñónez, facilitated the arrangement of the interview and appointed Architct María José Avendaño, Director of Environment of the Municipality of Guatemala City, as representative for the institution and whose perceptions conform the following subsections of the thesis.

5.4.1. General description – Directorate for the Environment

The Directorate for the Environment at the Municipality, was created with the objective of both controlling and reducing the contamination in the City, according to its director, Architect Avendaño. She pointed out how the work executed at the Directorate is focused on environmental education to promote the cultural change that is needed to address the issue; and primarily, education oriented towards young people rather than adults, being recycling one of the main subjects in their programs. The Directorate employs different activities for achieving its goal of environmental education, ranging from guided tours through Municipal greenhouses and Ecological Park, to the organization of theatrical plays and competitions. Furthermore, the Directorate has an investigation unit that manages environmental complaints, which could include clandestine landfills, gas emissions, illegal wood burning, and sound, among others. Additionally, the Directorate oversees and manages the different fountains and monuments throughout the City (Pers. Com., Avendaño, 2017).

Architect Avendaño highlighted how, on the subject of recycling, the Directorate is in charge, besides the educational component, on the conduction of pilot projects. For example, together with a university, they handled a project oriented to the recycling of used kitchen oil from diners, restaurants, and hotels. The oil is then transformed into Bio-diesel and later on used in some of the Municipality’s vehicles. The Municipality managed the recollection of the oil, while the university conducted the transformation process. The main objective of the project was, and still is, avoiding an inappropriate
disposal of the oil, which could result in water contamination, specifically oil that reaches rivers (Pers. Com., Avendaño, 2017).

The Director for the Environment of the Municipality pointed towards how the Directorate is involved with trash management in the City with particular focus on preventing contamination and recycling. Among the projects, they have in this direction, is the construction of several recycling centers in the City, mainly on colonies that have expressed and showed interest in recycling, and whose trash production volume justifies it. For other areas, they are working on movable recycling centers. However, Architect Avendaño states how trash management as an intricate and difficult subject has a specific department inside the Municipality that oversees the management of the trash and the City’s landfill (Pers. Com., Avendaño, 2017).

### 5.4.2. Food waste and its impacts

The Director for the Environment at the Municipality considers that plenty of food is wasted in Guatemala City, and how in restaurants food waste is also high. She considers food waste being a matter of lack of awareness and consciousness. She reflected upon how food waste has an impact on different dimensions, being those the environmental, social, and economic one. For Architect Avendaño, the social impact is the greater one from the three, remarking the contrast that exists in the country where some people have no food to eat, while others let it go to waste. She acknowledges the existence of an economic impact, although she considers that restaurants, being businesses, manage those loses by transferring the cost of food waste along the production chain, to the customers. On the environmental dimension of the impacts, the Director of Environment, pointed to how food that is wasted entails an impact from its agricultural production, and mentioning in particular the impact on the environment derived from livestock production. In addition, Architect Avendaño, stated how food waste increased the volume of waste reaching the landfill, which also poses threats to the environment, together with how not classifying the organic material separately is a lost opportunity given its potential for composting (Pers. Com., Avendaño, 2017).

### 5.4.3. Food waste generation and food waste management initiatives

Architect María José Avendaño pointed in general to a high food wasting in Guatemala City, and mentioned specifically two locations: Restaurants and markets. Regarding the restaurants, she focused on how the amount of food wasted is high. As for the markets, she pointed to a particular activity already being conducted by the Municipality, through the Mayor’s wife, which tackles the issue of food going to waste and the need for food from people in the City at the same time. Said activity consists of an agreement that was reached with a market called ‘Wholesale Market’, CENMA, for its acronym in Spanish, where food that is no longer fresh, or about to go to waste is donated to the Municipality. The food is then used in the diners of the nurseries, kindergartens and Elementary schools sponsored by the Mayor’s wife, in which around 2,000 kids in risk of ending up in the streets, are fed. Architect Avendaño stressed how for the Mayor’s wife, the quality of the food that reaches her schools is important so, although their materials come from discarded food from the markets, it still complies with certain quality standards. In addition, she mentioned how the Market has taken a proactive approach towards the project by instead of waiting for an additional couple of days for the food to start decomposing, they increased their food rotation time and donate it earlier (Pers. Com., Avendaño, 2017).

Architect Avendaño recognized how the Municipality has not actively sought and conducted activities that directly addresses food waste and/or restaurants, besides the aforementioned project
and their project about recycling of used oil from kitchens which directly involves restaurants. She attributes this, to the fact that wasting of food is a matter of awareness from whoever is generating it, which does not constitute a tangible function to be addressed by the Municipality. Nevertheless, she does consider there is a vast field of opportunities to tackle the issue, but they have chosen, for the time being, to direct their efforts to other contamination sources (Pers. Com., Avendaño, 2017).

5.4.4. Incentives, opportunities, and obstacles for food waste management

María José Avendaño believes that positive incentives and the desire of people to change their behavior towards food wasting, would provide better results than laws that intend to regulate food waste and its management. She pointed out, as underlying reasoning, the amount of laws and policies that Guatemala has, and how many of them are not obeyed. Architect Avendaño favors awareness than rules. For her, the key to a successful approach to food waste management rests upon the raising of awareness towards the issue. Awareness on the restaurant sector, and awareness in the private sector in general, and understands as viable the elaboration of an educational program to achieve this goal. (Pers. Com., Avendaño, 2017).

Among other opportunities that the Director for the Environment sees as a possibility to manage food waste are: Composting, and food donation which is already being done promoted to a certain extent by the Municipality. Additionally, mentions as important, the involvement of the department of Public Health or the Health Ministry to safeguard the food that is to be re-used or donated. Architect Avendaño considers the main obstacle to achieve anything regarding food waste and its management, whether on the restaurant sector or otherwise, is the hard work that must be done towards changing behaviors and how actions taken by different sectors should be motivated by awareness and acknowledgment of the importance of the issue (Pers. Com., Avendaño, 2017).

5.5. Summary of Results

The results obtained were further classified using the three research questions that served as beacon throughout the conduction of the thesis. The research questions were the following:

- Research Question #1: How do the different actors involved in Guatemala City Restaurants perceive food waste and food waste management in restaurants and its impacts?
- Research Question #2: Why or why not, do different actors involved in Guatemala City restaurants, consider food waste and food waste management an issue and how is it being handled?
- Research Question #3: What motivates different actors in Guatemala City Restaurants to engage more actively in food waste and its management?

To facilitate their identification, they are numbered from one to three, and the perception of the interviewees regarding each of those questions, is matched in Table 3, which is found below. The objective to be attained through said table, is provide the reader with a general overview of the results, and at the same time, facilitate the cross-case comparison.
Table 3: Comparison of Results through Research Questions

<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Research Question #1</th>
<th>Research Question #2</th>
<th>Research Question #3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jorge Monzón / Ki ’Ki</td>
<td>- Food waste represents a lack of awareness.</td>
<td>- Food waste is more an opportunity than an issue, especially at the customer level.</td>
<td>- Environmental reasons as motivation to engage more actively. Enjoying a green world.</td>
</tr>
<tr>
<td></td>
<td>- Its impacts are primarily on an environmental level, with a relevant social aspect.</td>
<td>- Resources categorized as useless for many, could represent a main asset for others.</td>
<td>- Economic incentives seen as the logical approach to involve more people.</td>
</tr>
<tr>
<td></td>
<td>- To a lesser extent an economic impact.</td>
<td>- Actions regarding food waste management such as food donation to personnel, awareness campaigns for personnel and food procurement strategies.</td>
<td></td>
</tr>
<tr>
<td>Andrés Batres / Yokomo</td>
<td>- Food waste is a very complex and delicate subject.</td>
<td>- He is against food wasting and it represents an amoral and unethical behavior the act of throwing away food.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- The impact of food waste is perceived mainly on a social and economic level.</td>
<td>- The restaurant has taken actions such as food donation to personnel or street workers, food procurement strategies and attention calls to employees as means for food waste management.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Environmental impact of food waste is considered to be relatively low.</td>
<td></td>
<td>- Positive incentives to create a sense of awareness towards food waste.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Negative incentives such as punishment for violating of regulations could work for the general Guatemalan population,</td>
</tr>
<tr>
<td>Herbert Menzel / Burger Stop</td>
<td>- Food waste is and represents a bad habit.</td>
<td>- Wasting of food is an act of incoherence based on the amount of people in dire need of food.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- The economic impact is seen as the primary issue, followed by the social impact of wasting food.</td>
<td>- Actions taken to prevent food waste or addressing the issue include re-use of ingredients, food procurement and raw materials management, and training for employees.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Meanwhile the environmental impact depends on the food.</td>
<td></td>
<td>- Economic incentive, mainly regarding the realization of the amount of money lost through wasting of food.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Also, possibility to raise awareness on hunger and lack of food.</td>
</tr>
<tr>
<td>María Avendaño / Guatemala City Municipality</td>
<td>- Food waste is a lack of awareness and consciousness.</td>
<td>- High amounts of food being wasted in Guatemala City markets and restaurants and waste management representing an intricate and difficult subject.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Food waste has an impact on the economic, social, and environmental level, being the latter particularly prominent.</td>
<td>- Addressing of the issue through food recovery and donation from markets to schools for people in need.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Positive incentives and desire of people to change their behavior towards food wasting would present better results than laws, policies or regulations imposed on the population.</td>
</tr>
</tbody>
</table>

The results presented in Table 3 are further analyzed and discussed in the following section “Analysis & Discussion”, under each of the different subsections which include: Food Waste and its Impacts; Food Waste Generation and Management Initiatives; and Incentives, Opportunities, and Obstacles for Food Waste Management.
6. Analysis & Discussion

The classification of the participants’ answers, after their description, constituted their opinion on food waste and its impacts; the generation of food waste and initiatives to manage it; and the incentives, opportunities, and obstacles they perceived for the implementation of food waste management practices. The Analysis & Discussion section, has been divided in the same three sections as in the Results section, but the answers are further analyzed and classified based on the Triple Bottom Line framework, the Sustainable Development Goals, and the EU Waste Framework Directive, depending on where they are applicable. This, with the intention of allowing a more in-depth consideration of the perception, approach, and motivation that actors involved in Guatemala City restaurants have towards food waste and its management. The TBL framework allows for an understanding on which of its categories is regarded as more important for the actors. Meanwhile, categorizing the opinions and actions of the actors based on the Sustainable Development Goals enable us to single out and further understand what motivates them and what Goal are they addressing either consciously or not. Finally, classifying the actions and suggested initiatives of the actors using the EU Waste Framework Directive helps identify which action and in what stage are the different actors in Guatemala City Restaurants currently focusing on.

The analysis has been divided in two major parts. The first includes three sections that focus on the results, while the fourth part, on the research method used.

6.1. Food Waste and its Impacts

The definition of food waste and the impacts it has, given by the interviewed actors shared some commonalities, but also certain differences were noted.

For Ki’ Ki’s manager food waste was not a problem, but a lack of awareness from whoever was wasting the resource. For Yokomo’s CEO food waste was a delicate and complex subject; and for Burger Stop’s CEO, food waste was the personification of a bad habit. For the Director for the Environment at the Municipality of Guatemala City, the amount of food waste that the City and restaurants generated was important, and she attributed it to a lack of awareness, just as Ki’ Ki’s manager. These characterizations of the subject show a tendency of the perception of food waste towards the social aspect of the issue. However, the impacts that the actors considered food waste has, included aspects on both the economic and environmental ambits, being the environmental aspect the one that showed a more diverse range of opinions.

Regarding the economic aspect, all interviewees pointed out towards how, in their opinion, food waste has a significant financial impact for the producer, or restaurants in this case. Additionally, Ki’ Ki’s manager mentioned how it might also entail an economic impact not only for the businesses, but for the country as the waste management is in their hands. For the actors, the economic impact of food waste for the producer is apparent in the inefficient use of a valuable resource, and how food waste could increase the operating costs of the company. As stated by Burger Stop’s CEO: “the more food you throw away the more you spend”. These perceptions are in line with the research by the FAO (2014b) where it is stated how economic impacts of food waste affect the producer by representing a loss of resources such as energy, water, labor, and raw materials, all of which entail a cost for the company. Additionally, according to Andrés from Yokomo, wasting food could have a negative impact on the image of the restaurant, generating undesired attitudes from both clients and employees. This could also be argued to have an economic impact, by generating rejection from clients towards the restaurant and the employees being careless in their management of food, adding costs to the company. In the aforementioned report by the FAO (2014b), the economic impact for the consumer
is stated as a cost and loss of acquisitive power for a resource that was not fully taken advantage of. It is however worth noting how none of the interviewed actors mentioned food waste as having an economic impact for the consumer. This apparent lack of recognition towards the economic impact on the consumer could be attributed to the influence of the actors’ position and responsibilities, them being interviewed as restaurant owners and/or managers. Overall, the perceptions of the actors towards the economic impact of food waste could be linked to Goal 12 of the SDG’s, more specifically to responsible production given the inefficient use their resources, starting by food itself, but also related to energy and labor, which all represent a cost for the company, employed for its production.

The social impact of food waste was the most relevant aspect of the issue according to the perception of the different actors. It was so, that two of them even included a social component in the general description they provided about food waste. Characterizing it as an unconsciousness on the person generating waste, a lack of regard for the true value of food and a bad habit. The actors related the social impact of food waste to the moral and ethical aspects that this action represents. Particularly, it was brought up by all the actors, how wasting food was an incoherent and inappropriate behavior, due to the fact that people around the world, or specifically in the country, need the resource. Consumer and cultural behavior was pointed out as a main driver of the social impact of food waste. All the actors showed particular regard and interest, as well as awareness, towards the amount of people that suffer from hunger, and it was mentioned how what for a lot of people might be useless, could represent a significant resource for others. The perception of the actors in this aspect, finds many similarities with statements found throughout the literature in this matter. The actors understanding on the relevance of food waste towards achieving food security would represent according to Chrobog (2014) a major step towards grasping the social impact of food waste. For Chrobog (2014, p.13), this step is accomplished when it is understood that around one third of the global food production is wasted and over 800 million people suffer from chronic hunger, which perhaps is not completely grasped by the interviewees, but the general idea exists. Additionally, the actors referring to food waste as unethical, mirrors Peeler (2015) where it is stated how any behavior that results in wasting of resources should be considered unethical. Moreover, the lack of consideration for people and lack of regard for food’s true value mentioned by the actors, is also found in Bloom’s (2012) research. Regarding the social impact of food waste, the SDG’s that appear as related to the actors’ perception are Goal 2 – Zero Hunger, Goal 3 – Good Health and Well-being, and Goal 12 – Responsible Production and Consumption. Working towards the achievement of Goals 2 and 3, was implied by the actors when they mentioned the amount of people suffering from hunger, and how food that is being wasted could aid in that matter. Regarding Goal 12, it was consumer behavior, which points towards responsible consumption which played a role for the respondents; rather than the responsible production part which was more related to the perception on the economic impact as mentioned before.

The perception and description received from the different actors regarding the environmental impact of food waste ranged from a topic that hadn’t been given much thought to a detailed explanation of waste management in Guatemala. For two of the respondents, the environmental impact of food waste was unclear. For Herbert, at Burger Stop, the environmental impact of food waste depended on the food. Meanwhile, for Andrés, at Yokomo, food waste has an environmental impact but couldn’t clearly specify which one. Instead he pointed towards how the restaurant’s operations on the delivery and transportation of his products were the ones generating the environmental impact. It is worth observing how the uncertainty regarding the environmental impacts of food waste for some of the actors, could be related to the fact those impacts have not been yet analyzed in depth in any study as
pointed out by FAO (2013b). However, for Jorge at Ki’ Ki, the impact of food waste was mostly at the environmental field, where he mentioned specifically the impact that food waste on landfills has on the environment, together with how in Guatemala waste is not classified and all ends up in a landfill. This statement by Jorge, echoes what is mentioned by EPA (2017a), on the impact of methane gas generated by food waste rotting in landfills, and the positive gas emission contribution that its removal from said areas could have stated in the research by Chrobog (2014). This fact, was also raised by Architect Avendaño from the municipality, stating how food waste contributed to an increased waste volume that reached the landfill in the City. It also remarks, the reality of a deficient service in Guatemala City, as pointed out by the research from United Nations (2009). The embedded wasting of other resources utilized for food production, and which are wasted when food is wasted, such as water and land was only mentioned by the Director of Environment at the Municipality. The perception of the actors towards the environmental impact was inclined towards climate change and its impacts, in terms of implying the effects of carbon dioxide from transport, and methane produced in landfills from rotting of food on the environment. This leads to relate their perception to Goal 13 – Climate Action, which states the need to combat climate change and its impacts. Additionally, given the comment on the general management of waste in Guatemala and the issues from the City landfill, and that being a crucial part of the public services in a city, Goal 11 – Sustainable Cities and Communities, could also be linked to the actors’ perception.

6.2. Food waste generation and food waste management initiatives

The respondents mentioned different stages where they perceived food waste occurred, together with various reasons for its generation. At Ki ‘Ki the type of restaurant was considered influential for the level of food waste generation. At Yokomo, moments during preparation were seen as possible foci of food waste; while at Burger Stop, storage and handling of vegetables were presented as a pertinent source of food waste. These could all be considered or related to the economic dimension of food waste generation, given their business-like characteristics such as the type of service provided by the company, or as part of the production process. This also relates the perception of the actors, specifically the economic dimension, to the SDG 12 and its focus on responsible production.

All respondents mentioned as relevant the food being wasted by customers either directly or indirectly, to the extent that 2 out of the 3 restaurant managers interviewed, stated how consumer food waste was, in their opinion, greater than that from their own preparation and production of meals. Despite none of the respondents had ever measured how much food waste they generated, two of them considered their food waste as being relatively low based on empirical observation. The same two respondents considered that food waste in fast food service restaurants could represent the opposite scenario where, in their opinion, more food is wasted during preparation in the kitchen, than that from customers. This statement was reinforced by how Burger Stop, which at one moment considered themselves as a fast food restaurant, believed that their preparation and storage food waste was greater than leftovers from customers. The reasons, pointed as possible contributors for food waste from customers, were lack of awareness from the customers, in addition to a lack of knowledge about portion sizes and consciousness about how much they are capable of eating. Furthermore, a cultural behavior in which asking for a “doggy bag” is a reason of shame or embarrassment also contributed, in one of the respondent’s mind, to an increase in the food being wasted. This source of food waste is more inclined towards the social dimension, being customers and their behaviors, which contribute to the generation of waste. This once more relates to SDG #12, however, in this case it is to the responsible consumption it mentions rather than to the responsible production.
Among the practices that were adopted by the restaurant managers to minimize food waste one can find donation of leftovers for personnel or public workers, promotions in which surplus from food preparation are given to customers, changes in food procurement strategies which included agreements with the suppliers in terms of quality of ingredients and delivery frequency, involvement, and awareness campaigns with the employees. Re-use of food leftovers for preparation of other meals or dressings, as well as tests directed to forecast the yield of the different ingredients, were other initiatives that were brought up. Classifying these activities using the EU Framework Directive, shows how Prevention is sought through the changes in the procurement strategies and raising awareness with their employees. It could also be argued how food donation could be oriented towards the Prevention measure in the hierarchy. The tests they executed for forecasting, shows an approach towards Reduction of waste. And, Preparing for Re-Use is clearly seen in the how they are utilizing food leftovers for dressings and salads. Among the recovery practices, one could point out towards the recollection of used oil from the fryer and which is afterwards sold, however, this could also represent a recycling measure, derived from food preparation, although not directly addressing food waste. Regarding Disposal, the last level of the hierarchy proposed by the EU Framework Directive, all the respondents stated that they throw away all their waste with little, if any, kind of classification. There is no measurement or regulation, that they know of that requires them to do this any differently. So, at the last level of the hierarchy, there is not any kind of action or strategy to address or minimize the impact of only disposing waste, including food waste, which ends up in the City’s landfill. In addition, none of the respondents gave clear examples of actions taken in order to optimize storage management, which is one of several possible prevention actions mentioned in the literature, specifically, in the research by Betz et al. (2015).

The sources of food waste that were mentioned by the respondents, all of them are mentioned in previous studies related to the subject. Particularly, in the research conducted by Pirani & Arafat (2014) frequency of delivery of ingredients to restaurants, style of food service, and inappropriate storage of stock are mentioned. Additionally, customer plate leftover waste pointed by Papargyropoulou et al. (2016), was stated by all respondents.

Moreover, despite not all the sources of food waste mentioned in the literature are referred directly by the interviewees, the actions, and initiatives they have taken to address the issue, imply their recognition of them, and are found as prevention measures of food waste in the literature. Such is the case of training, rewarding, and recognition for employees, and increase of staff awareness mentioned in Tuppen (2014). Losses originated in storage, preparation or serving are mentioned in Engström and Carlsson-Kanyama (2004) and Betz et al. (2015). Or, actions such as food procurement strategies, which could include frequency of delivery of ingredients to the restaurants, and the feeling of shame from customers, mentioned by the interviewees, are both pointed in Pirani & Arafat (2014), as means of preventing food waste and in the case of the latter, by targeting social norms.

The actions taken by the respondents show genuine interest towards the food waste and its management. Moreover, restaurant managers resorting to donating their surplus of food, to avoid it going to waste, shows awareness and a high regard for the topic. The Municipality of Guatemala City, also showed an important approach towards food waste management by transforming food donations from the markets into meals for young people at education centers This prevention measure of food donation, is also mentioned in the research by Pirani & Arafat (2014). And, it strengthens the belief on how their motivation for action, is not only on an economic dimension, but also on a social one.
6.3. Incentives, opportunities, and obstacles for food waste management

The actors were asked what would be an incentive that would make them engage more actively in food waste and its management. Their answers, were classified using the Triple Bottom Line Framework. Jorge at Ki’ Ki, leaned towards an incentive that could be classified within the environmental dimension, since he mentioned that all the incentives he needed was to be able to enjoy a “green world”. However, he pointed out how, traditionally, people seek for an economic incentive, although he would rather promote a different type of incentive focusing on the benefits of taking care of the environment. Andrés from Burger Stop, inclined towards the social dimension, and suggested an incentive that promoted a sense of awareness towards the issue of food waste in which an emotional message could be portrayed. He mentioned the creation of a video or documentary in which people battling hunger could feed themselves, because people stopped wasting food. María José at the Municipality, also inclined for an incentive that promoted a sense of awareness. Herbert at Burger Stop, stated clearly how realizing the cost and potential savings from food waste management would be the main incentive for him to engage in such activities, which places his statement on the economic dimension of the Triple Bottom Line Framework. The actors interviewed appear to agree on the fact that an economic incentive directed to address the wasting of food would result in a higher level of success with more people, although not necessarily with them. Nevertheless, their position on who should promote those incentives vary; presenting the municipality, business themselves, and a joint effort of several institutions as possible sponsors.

Among the opportunities that food waste offer on the economic dimension, the respondents mentioned composting as a side business alternative, optimization of restaurant resources, and controls and information systems based on yield and loss of ingredients during production. A technique such as composting, in which the food waste is used, and avoids its disposal to landfills, could also be categorized in the environmental dimension of the opportunities mentioned by the actors. On the social dimension, among the opportunities for food waste management, the actors envisioned the creation of policies to instruct and guide employee behavior when handling food and food waste, in addition to contributing to society and the country by acting responsibly. Legislation, which Pirani & Arafat (2014) regard as a key in the achievement of a successful food waste management, is not mentioned by any of the respondents as possible approach or opportunity, despite having mentioned that there is no law, to the best of their knowledge, that addresses the issue.

Finally, the obstacles perceived by the actors, can all be classified in the social dimension of the Triple Bottom Line Framework, given that they refer to behavior of both employees and customers, cultural behavior, mentality and idiosyncrasy of Guatemalans, as well as limited capacity to influence customer practices as a restaurant owner or manager, as main barriers to address the issue and implement prevention and minimization measures. The fact that raising awareness was not a tangible function that could be executed by the Municipality was also pointed out. Time and cost are also mentioned as obstacles for food waste management, which could be further classified as economic factors.

The limited capacity of restaurants to influence customers could be disputed since it could be addressed with an approach of sensitization of customers to the field of food waste and its causes with for example posters, communication to consumers to increase their tolerance for sustainability measures, research regarding reasons for plate waste through surveys; and donation of food to local charities, all listed as options in the research by Betz et al. (2015). In this same line, the lack of control over restaurants argued by the Municipality, could also be debated.
6.4. Criticism of the Research Method

The research method, along with its characteristics, in particular the sample and the technique for data gathering, the semi-structured interviews, may have influenced both the results and conclusions reached on the perceptions and actions from the actors involved in Guatemala City restaurants concerning food waste and its management (Grzyb, 2016). The sample selected included 3 restaurants and a municipality of the City. However, each of the restaurants offered a different type of service, which could lead to the conclusion that the restaurants, in spite of belonging to the same ambit, represent a different group inside said ambit, respectively. This, could be argued led to a sample that was too broad, and the repercussions on how a homogenous group might have offered other results can be inferred by the statements made by the respondents on how fast food restaurants waste more food than those who offer a traditional service. As a consequence, focusing only on fast food restaurants could have given different results on the perceptions, actions and alternatives seen by the hypothetic interviewees. Additionally, although restaurants that offered different type of services were selected on purpose with the intention of widening the scope of the research, it is critical to acknowledge how in the end, the specific actors that are interviewed and their role in the restaurants will affect the results and answers obtained, particularly in the case of the Municipality where the interviewee was the Director for the Environment whose functions and background undoubtedly influence her answers. Moreover, it is relevant to note how the findings and results in this research, it being a case study, with a sample that is not representative of the entire population of Guatemala City restaurants, may only be valid for the restaurants and actors in the sample.

In the case of the researcher, me being born and raised in Guatemala, knowing the culture first hand and with the different motivations that led me to the conduction of this research, a bias could have been introduced to the research (Chenail, 2011). This bias is related to the belief that the different actors whether involved in restaurants or any other kind of business or activity, have no regard for food waste and its management whatsoever. Furthermore, if any action was, is or would be taken towards addressing the issue, it will only be motivated by an economic driver. This bias could have influenced the questions asked during the interviews, especially, given the use of the semi-structured interviews where if a topic was of interest and the intention was to delve deeper in it, examples and statements from the researcher could be pointed in that direction, and have an effect on the interviewee’s answer (Atkinson, 1998). Although, the construction of an interview guide and previous preparation intended to avoid these kind of situation, I believe it is worth mentioning, for the reader to bear in mind. Another aspect, regarding the researcher, that could have influenced the interviews, was the presentation prior to the beginning of the interviews, where terms such as Sustainable Development and Food Waste were mentioned to introduce the actor to both myself and the topic of the interview (Chenail, 2011). Finally, the answers of one of the interviewees, Jorge, from Ki’ Ki could have been influenced even further, given that he is my father which could have resulted in an effort on his behalf on presenting statements and information that were in line with what he believed was expected and related to what I’m studying.

Finally, being a new topic that had been seldom discussed in Guatemala, and as mentioned by the interviewees, a topic that was not on their top of mind, in addition to the open-ended type of questions on the interviews, some of the answers offered could have been mere speculations. Particularly, on the obstacles and opportunities the actors saw for food waste and food waste management; nevertheless, being the aim of the research to gather insights on the perception of different actors towards this topic, said speculations are part of their perception and are considered valuable for the research (Atkinson, 1998).
7. Conclusion

Food waste, as found in several researches has negative implications on an environmental, economic, and social level. It is also seen as part of the compound of actions needed to address the food security issue that the world’s population faces. These realities have positioned food waste and its management on the global agenda. Nevertheless, Guatemala, part of Latin America which accounts for 6% of the global food loss (FAO, 2014a), still lacks concrete strategies to address the issue. And, the insights of diverse actors in the country with direct relation to the management and handling of significant amounts of food remain unidentified. This research intended to shed some light on said issue focusing on actors in or related to restaurants located in the Department of Guatemala City. The research sought to do so by delving deeper into the perceptions of the actors towards food waste and food waste management; in addition to how they handle it now, and what could promote a more active engagement in the issue.

In order to classify and categorize the perceptions of the interviewed actors, the concept of Sustainable Development, the Sustainable Development Goals, the Triple Bottom Line, and the EU Waste Framework Directive were used as overarching frameworks. To broaden the scope of the research, an approach based on Positional Analysis, where organizations and persons are considered beyond the economic approach, was utilized. Furthermore, understanding how the meaningful involvement of all people, in decisions and topics that might have an impact on them in any way, through Environmental Justice, guided the selection of different actors.

The research showed how different actors used several ways to refer to food waste, and understood its impacts in diverse manners. However, impacts on an environmental, economic, and social dimension were acknowledged by the interviewees; being the impacts at the social level the most relevant ones. Additionally, they all recognized at an economic dimension, how food waste represents a cost for restaurants. It appears as if the environmental dimension of food waste and all that it entails, is the least important for the actors, and where their knowledge of the impacts it has is more limited.

As with the impacts, actors had diverse perceptions on where and how food waste is generated, and several stages along the production chain of food production in the restaurants where mentioned. However, all of them mentioned customers as important food waste generator, and the majority regarded them as main contributor. The actors agreed on how the type of service a restaurant offers, marks an increase, or decrease on the food waste generated. Their regard towards food waste generation and their interest in addressing it seems legitimate, as shown by the broad range of actions taken by them to do so. These actions range from food surplus donation, all the way to negotiations and strategies arranged with their ingredients suppliers. Prevention measures, classified with the hierarchy from the EU Waste Framework Directive, appear as predilect option for the actors to approach, prevent and minimize food waste generation.

The actors seem to favor economic incentives to address and motivate food waste management, given its apparent appeal to a greater number of people. Nevertheless, they see other options and incentives as viable, such as the creation of policies by the restaurants, awareness campaigns, and side-business opportunities by composting. Finally, all the actors identified as main obstacle the behavior presented by the consumers, and their limited ability to go beyond their responsibilities to change food waste generating behaviors from them. The Sustainable Development Goal that relates on a more direct way, in terms of the perception of the actors on why and how to address food waste, is Goal #12: Responsible Production and Consumption.
The research offered an initial step on which to build to develop strategies at a municipal, national, and even regional level regarding food waste management in restaurants. It showed the opportunity to conduct more focused researched depending on the type of restaurants, particularly fast food chains. In addition, further investigations on the behavior of customers and people in general towards food and what motivates them, as well as ways to promote and enable changes in it, appear as an option for a valuable contribution to the issue.

These are just a few possibilities that arose for future research to be conducted, in a topic that might well be the first big step to tackle the challenges that humanity is facing and will continue to confront to warrant food security.
Acknowledgments

The execution and completion of this thesis would not have been possible without the guidance, assistance and support of several people and organizations.

First of all, I thank God for being my Light, and providing me with countless opportunities.

To “Fundación GuateFuturo” for providing me the resources necessary to conduct my postgraduate studies in Sweden.

To my supervisor, Peter Söderbaum, for being extremely supportive, providing valuable guidance and support along the way from day 1.

To all the respondents for allowing me access to their organizations and giving me their time for the conduction of the interviews. To Restaurant Ki’ Ki, YOKOMO, Burger Stop and the Municipality of Guatemala City.

To my family, for always being there for me, for having my back, for believing in me, for being my motor and motivation. And, to them, I wish my work serves as inspiration to go after their dreams.

To all my friends, the ones I left back home whose unconditional support was always provided, and the ones I made along the way, those who became my family abroad and to whom I will be forever grateful.

Finally, to my Country, Guatemala, for being a source of constant inspiration and motivation to move forward and reach for the stars. And, to that little piece of home I carry everywhere I go.
References


Enciclopedia Guatemala, (2013). *División Política Administrativa de Guatemala*. Available at: [http://www.enciclopediaguatemala.org.gt/index.php?title=Divisi%C3%B3n_Pol%C3%ADtica_Administrativa_de_Guatemala](http://www.enciclopediaguatemala.org.gt/index.php?title=Divisi%C3%B3n_Pol%C3%ADtica_Administrativa_de_Guatemala) [2017-03-24]


48


Appendixes

Appendix A: Interview guideline for semi-structured interviews

The interviews were conducted in Spanish. This is an exact translation of the interview guideline used.

*Provide interviewee with general presentation of the work to be done.*

Good day, my name is Juan Luis Monzón and I’m a student from the Master in Sustainable Development at Uppsala University in Sweden. I’d like to thank you for your time and the opportunity you have given me to interview you. Currently I’m working in my thesis which focuses on Food Waste in Restaurants, specifically in the Department of Guatemala City. In general I want to learn about how actors, such as yourself, involved in the restaurant sector perceive food waste, their opinions, and any actions taken regarding this topic.

- Would you like to remain as an anonymous contributor?
- Would it be okay for you if I record this interview?

I will provide you, within a week, a transcript of this interview for you to go through it and clarify any points you deem important or change in any way you want the answers you have given me.

- Do you have any concerns or questions before we begin?

*Guideline questions*

1. Could you briefly give me a general description of your background and your role in the company?
2. Could you briefly describe for me the type of restaurant?
   a. How many employees work for the restaurant?
   b. Do you have a specific target group of clients?
   c. How do you decide on the menu? Does the menu change every day or is it fixed?
   d. Approximately how many dishes you serve per meal or per day?
   e. Do you prepare the meals the moment you get an order, or do you have them pre-cooked, or how do you handle your servings for the day?
3. Could you briefly describe to me how does a regular day here at the restaurant looks like?
   a. What do you prepare in the mornings, or what happens on a normal day around here? Do you have more work in the afternoons, at night, midday, other time?
4. What do you think about food waste in general?
5. Do you think food waste is a problem?
6. What do you think of food waste here in the restaurant?
7. What do you think are the impacts of food waste, if any? (Wait for answer, afterwards ask for impacts in the specific areas of the TBL)
   a. Does it have a social impact? What do you think that is?
   b. Does it have an environmental impact? What do you think that is?
   c. Does it have an economic impact? What do you think that is?
8. Do you know how much food waste is being generated in the restaurant? Have you tried to measure it? Have you thought about measuring it?
9. Where do you think is food wasted the most in the restaurant? (Wait for answer, afterwards provide some options)
a. Customers in their dishes  
b. Kitchen preparation  
c. Food not used, gone bad and thrown away in kitchen  
d. Leftovers from day’s preparation

10. Are there any policies, laws regulations you must comply for food waste management or disposal? They can be from the municipality, or the commercial center where the restaurant is located.

11. What options do you think you have for managing food waste? Have you set any of this into practice?  
a. Do you donate any unused/unserved food?  
b. How do you handle food that is about to go bad? Or any unserved food?

12. Do you think that some actions that you have taken are addressing the food waste issue by minimizing it or preventing it, although this may not have been the original purpose of the actions you decided to take? Provide some indirect examples in the form of questions such as:  
a. How do you plan for the week/month buying of food for preparation?  
b. How do you dispose of your waste? Any classification? Do you get charge extra for more volume of waste or a specific kind of waste?

13. What opportunities do you think you may find when taking some actions in regards to food waste and food waste management? What benefits do you think there are in taking this actions?

14. What obstacles do you think you may find when taking some actions in regards to food waste and food waste management?

15. Do you think your employees are concerned with food waste and food waste management?

16. Do you think any kind of programs could or should be implemented to raise awareness on the issue?  
a. How do you think should promote this kind of program? Each restaurant, a national organization, the municipality?

17. What could make you engage more in food waste management?

18. What would be the main reasons for you to address in a more active way the food waste issue and the food waste management here in the restaurants? What could be an incentive or the incentives?

19. Do you think food waste and food waste management is related to Sustainable Development?

20. Have you heard about the Sustainable Development Goals launched by the United Nations? (if yes: Do you think one way of achieving some of them could be by managing food waste?)

Closing statement

Those were all the questions that I had. I want to thank you very much for your time and participation in the interview, and your valuable contribution to this research.
Appendix B: Transcript of interviews

Transcription – Restaurant Manager: Ki Ki, March 23 2017:

Interviewer: Juan Luis Monzón - JLM

Interviewee: Jorge Monzón, Ki Ki Restaurant Manager – P1

JLM: Ok, then after we finish this interview I will transcribe it and within a week I’ll provide you with the transcript so you can go over your answers and make any modification that you consider or to give me your approval to use that information in the research. Do you have any questions?

P1: No.

JLM: The first question would be if you could give me a general description of your background and your role here in the restaurant.

P1: Okay, I’m an architect and I have had experience in business administration and personnel administration and activities related to commerce, suppliers, and clients. Also, I have experience in customer service and regional sales and here in Guatemala at a National Level. Directly here at the restaurant, I’m the restaurant manager, I’ve been in front of the restaurant for around 10 months and the administration is handled along an associate with whom we take joint decisions for the benefit of the restaurant, in the areas of logistics, and operations, or marketing for the restaurant to improve and in the future, we are looking to have several restaurants or creating a restaurant chain in Guatemala City.

JLM: Ok, thanks. Could you briefly describe the type of restaurant? How many people work here? If you have a specific type of client?

P1: Okay, the restaurant is in a peripheral area of Guatemala City Center, and it is located in a shopping mall. It is a small restaurant, around 35 square meters of area of the restaurant. There are 5 people working in the restaurant, 4 in the kitchen and 1 that tends to the customers. The main product that we have are “antojitos chapines” or typical food of Guatemala.

JLM: Ok. How do you decide the menu? Is it fixed? Does it change each day?

P1: There is a basic menu that we must have. When I say “must have” means that we are required to have in existence at all times, of what it is found in the menu, which is the typical Guatemalan food, around 10 or 12 dishes that are fixed and daily we have a varied menu that is for lunch and it is decided every week, for the preparation of the following week.

JLM: Approximately how many dishes do you serve per meal or daily? Do you have an estimate?

P1: In what is the lunch meal, it is around 25 or 40 plates, depending on the season. With the “antojitos” that we have at all times that varies according to the day of time. During the morning or mid-morning, it is around 10-12 plates and in the afternoon, it is around 25-30 plates that are served, this is from any product that we have in the menu.

JLM: Are the dishes prepared in the moment or are they pre-prepared? Or is it that every time you get an order, you go to the kitchen and the dish is prepared? Or how do you handle what is served daily?

P1: Because of the type of food, there are some that have ingredients that must be pre-prepared or ready in production, so when a client orders it can be served. But in general, everything is prepared
at the time of serving or when it is ordered. This is not a fast food restaurant, so it has a certain serving
time for each dish to be served.

JLM: Can you briefly describe how is a normal day here in the morning? How do the restaurant gets
ready in the mornings, what do you do? Do you have more work in the afternoon or during midday?

P1: Ok, usually we open at 7am. One of the employees starts in the kitchen, prepares one of the
regular drinks and then starts with the production with another employee for the lunch meals. Some
of the dishes or the rest, as I was saying are prepared in about a 60% and in the mornings; the greater
amount of clients come from 11am to 2pm and then from 5.30 pm to 7.30 pm are the two rush hours
that we have. And in the rest of the day, the affluence of people lowers a bit, but…that’s how it goes.

JLM: And for the procurement of the food for the preparation of the dishes? Where do you do it? Is
it a normal supermarket, is it a farmers market, a combination of both?

P1: We have a combination. We do it twice a week the shopping. Our products have several
ingredients that are, that must be fresh such as vegetables and for that it is necessary to do it like this.
We do a combination, as I was saying, two points: One is in a supermarket where we get supplies
such as mayonnaise, sauces, pastas and the rest is bought in a big market, that are all the vegetables
and ingredients of that type that must be fresh

JLM: Alright, what is your idea about food waste in general?

P1: In general, here in the restaurant or in general?

JLM: In general at a national or global level

P1: I would divide that subject in two. One is the subject of fast food chains and the other about
homemade type of food, which would include this restaurant as well or a normal restaurant. And,
rapidly I state that in the fast food chain they must comply with certain quality standards and for that
reason for me the waste is greater if they produce a lot and do not reach their sales goal. And in the
homemade type of food or the traditional, like ours, there is less waste because you may actually be
able to estimate how much you will use during the day, so your waste could be around 10% of your
production and not necessarily considered as waste because you might be able to re-use some things,
depending on the production you have. A salad, a meat or something like that you can reprocess it
and use it in some other dishes.

JLM: Do you consider food waste a problem? Would you call it a problem or would you use another
adjective for the subject?

P1: I do not see it as a problem but as a recklessness [Unconsciousness] of people about the waste
dey do. I mean, you don’t give a value to food that you are eating, simply there is food that’s leftover
on a plate, you leave it and let it go to the trash. So, I feel that it is a lack of conscience from the
person at the time they order something to eat, and eating it or not. In some places one is used to ask
for the famous “doggy-bag” but in others because of shame, or embarrassment, or whatever you don’t
do it. You just simply leave it and you know that is going to the trash, no one is going to eat it.

JLM: Ok, and here in the restaurant what is your opinion on food waste?

P1: Like I was telling you, there is not much that we as producers, or restaurants are wasting or that
must be thrown away after a day; let us talk about one day time span, because our clients a lot of
times they do ask for the “doggy-bag”. What they don’t manage to eat because the dish is too big or
they are full or whatever, so they do ask for the “doggy-bag” but us as restaurant, it is little what actually becomes waste and that must be thrown away.

JLM: What do you consider are the impacts of food waste? Do you consider there are some impacts due to food being wasted?

P1: Can you re-state the question? Impacts in what sense?

JLM: Okay, I mean the impacts of food waste at a social, environmental, or economic level, if food waste has any impact on them? If it influences in any way in any of those topics that I just mentioned?

P1: Ok. Mainly on the environmental level, definitely because everything here in Guatemala there is no waste classification, from anywhere, not from households or businesses, so everything goes to a general dump, and there is a problem there and it does have an impact on the environment. With the social aspect, it becomes another impact because there is a lot of people that live from what people is throwing away, so what for a lot of people is useless, for them it becomes their main income source or main source of food. And in the economic aspect, both for the one that is throwing away and for the one that must treat it afterwards there is an economic aspect in the country or in the business.

JLM: And here in the restaurant do you know how much food waste you are generating? Or have you tried to measure it or calculate it? Have you thought about measuring it?

P1: I am very focused on all the “green” subjects. Yes, I have some ideas to be able to measure it both waste and the use of my products or the also the plates for people to take away the food. So far it hasn’t been done, I don’t have a number on how much it is being wasted as of now, but in general is very little. Really if I put it as a loss for waste it won’t even reach a 2%.

JLM: And from the ideas that you just told me, could you share some of them?

P1: Mainly it is focused on being able to eliminate the use of Styrofoam and plastic, that represent now the packages for taking away the food and change them for biodegradable materials or less environmentally harmful. Paper, cardboard boxes, even to use, like it is already being done in other areas here, use plantain leaves.

JLM: So, you consider that in combination with food waste there is other type of wasting that it is related to it? So, wasting food leads to you to waste more of other things?

P1: Maybe not as waste, but as another item that also if we see it under an environmental lens, is damaging the environment. The lifetime of Styrofoam or plastic, how can we avoid this and how can we make people also get used to and not ask from you a plastic package to take away the food, not ask for a straw or a plastic glass to take an “atol”. We have some clients that bring their recipients, so how can we combine clients that bring their containers to take their food or that I manage to change the containers to give food. So, there is a waste, to call it somehow, there, not that I have a waste because I use it to cook. No. I use it to be able to provide the service of the restaurant, but in the end it becomes a waste or a piece of trash.

JLM: Where do you consider food is being wasted the most in the restaurant?

P1: In what the clients leave on their plates.

JLM: More than in kitchen preparation?
P1: What happens is that if we see the preparation in the kitchen, the moment you are preparing the food you realize that from a vegetable you are using 98% and the only thing you are losing is the peel and what you really can’t eat from a vegetable. For example, from a potato you take of the peel for the production, from the bell pepper you take seeds and the stem, you don’t eat that. Tomatoes, you only take the base where the stem goes and then it goes in completely. There is very few waste in food, but when the client stops eating, there are sometimes that they leave 60% of the food in the plate, not necessarily, because they don’t like it, but because they don’t eat it because there is no awareness. And we go back to the same point, of if I order a dish and it is too much, saying: Ok, I eat this much and take home the rest to eat it afterwards, but saying if it’s leftover it’s leftover.

JLM: In that sense, if that happens have you considered reducing the size of the dishes? Or do you consider they have the right size and that people will regardless of the size leave it on their dish?

P1: I believe that people will leave it, no matter the size. A lot of the clients are okay with the size, a lot of what we do, we have it standardized: measured and weighted, to have a balanced diet. It is not for the person who is serving to decide how much it should be served, but it is already established. It is really portioned what we are serving. Reducing a cup of rice, that it is basic that you give a cup of rice when you serve rice, if people ask for less when you are serving then you give them less, otherwise, the dishes are standardized for that.

JLM: So, you also considered that not throwing food away or a proper planning of how much you will serve could help to a balanced diet in general, you could fight nutritional problems if people comes and you have a standard measure of what you are giving?

P1: Yes, maybe the crucial aspect or the interesting part about this subject of the measurement of the serving portions that you are giving, is that what I am going to serve you in a dish is balanced with proteins, carbohydrates, salts and minerals, sugars in order to, if you do at least a meal per day, you have it balanced and you avoid eating something with a lot of fat, or sodium, but for it really to become a balanced food.

JLM: Is there any policy, law, regulation that you must comply for the management of food waste or its disposal, from the municipality, the shopping mall, policy from the company as such?

P1: No, there is no regulation that I’m aware of, not from the shopping mall or from the municipality, or at the national level, that there exists a control measure for the waste you are having inside your operation or the waste that comes out of your business. In Guatemala, there is not a single type of classification of waste, some companies from their own initiative have started with them but in general it is not done.

JLM: What options do you consider you have for handling food waste? Do you think you have any options to not throw away food?

P1: I think, as I was saying, in the aspect of us as producers of food, maybe lower even more the possible waste that there might be in the elaboration of the food, but at the client level it is really difficult to lower that percentage.

JLM: Do you have any idea how the restaurant could influence the client, in this regard?

P1: If we see it at a more general level, not specifically the food that is being wasted but the use of packages for them to take the food, then I would see it as something achievable. The use of non-disposable plates, and that each could bring their containers to have served what they are going to
have, because we also have delivery, or that we, through our service give “green” items or biodegradables.

JLM: Do you donate any of the unused food or food that is left over in the kitchen?

P1: Usually, what is being done in some cases is that before the food reaches a point where it is lost, it can be given as a gift for the kitchen personnel the foods.

JLM: How do you handle in general the fruits and vegetables that in general you have in storage that is about to go bad? Do you have a control of it?

P1: Well, the advantage of our inventory in fruits and vegetables is: 1. It is a low inventory and for that then the need of buying food twice a week, so that the inventory is not that big and the waste generated for a deterioration of the fruits and vegetables increases. At some point, we did bought food once a week and we did saw a greater food loss occurring, and for that reason it was decided, to buy food twice a week and it was observed a significant reduction in the waste. In some cases, it is unavoidable, if we talk about a tomato that is the most delicate item in the handling as such, if it is damaged or beaten, from the box or a bag, then there is nothing you can do. But in general, there is low waste from what it is in the inventory.

JLM: Do you consider that some of the actions that you have taken, they have had an impact on the minimization of food waste or food waste prevention, even if this wasn’t the main goal of the action? Any action in the kitchen or the logistics of how you acquired your vegetables?

P1: I would say yes, in the quantities that are being bought, well, since the dishes is not that we do them measured to a great extent 100%, it is a better control in the procurement and the amount that we buy. That has helped to lower the waste, regarding the inventory as such.

JLM: In the subject of waste: Do you do any classification? You already told me that there is not in general a classification, but do you do one from your own initiative?

P1: Here we do some classification. One is the re-use of the bags in which the shopping is done, they are bags that are sort of re-usable from nylon, we do use them again, the cardboard is placed separately from the biodegradables and from boxes for eggs, they are also re-used because they are returned to the person that sells the eggs.

JLM: And how is the waste recollection? Do you pay for volume or do you have a fixed quota?

P1: Here as a shopping center is a fixed quota and it doesn’t matter what you throw out, and they do not ask you that it must be classified, everything goes together.

JLM: What opportunities do you think you could find when you are taking actions to address the food waste or the management of food waste? What benefits do you think there are in taking actions towards preventing or minimizing food waste?

P1: Maybe as a restaurant I do not think there is much of a benefit, but I see it that in the end it is a contribution to society and to my country, the fact that the less waste a generate through my activities and in this case as a restaurant owner, is what I will be giving in general. But that is my point of view.

JLM: And what obstacles do you think exist or you see in the future, for restaurants that want to minimize or prevent the food waste?
P1: I think it is the idiosyncrasy that we have, us Guatemalans, in not paying attention to topics that can be seen as lesser but the impact in medium and long term is high. So, I think that the main barrier that we could find is the negativity of people in wanting to contribute to a better world, but I don’t think it is impossible and from grain to grain I think something will be achieved. Something good.

JLM: Do you think that the employees from the restaurant are concerned with food waste or with food waste management?

P1: I’ve been involving them. They were not really like that, but we have been involving them and in general I do it so that in their homes they think about this. Not only here inside the restaurant but also outside. That they can take this to their homes and there that they can have a control over their food.

JLM: So you consider that actions that can be taken or raising awareness, make them aware of the impact of wasting food can be transferred beyond the restaurant?

P1: Yes, totally, totally. I mean, you are like a light at the end of the tunnel and through the actions that are being taken here in the restaurant, people see them and people start copying them. Motivate them, as for them to know that this should be done.

JLM: Do you consider that should or could be implemented some kind of programs to raise awareness of people regarding this topic? Do you think it would be worth it?

P1: I think we are still on time, so yes, that in general programs are made were you are told a little bit more about topics of taking care of the environment, that in our country it is still low, so we can help the next generations to have a better world or at least to be able to keep living in this world. That every day it is being deteriorated even more because of the actions we are and have been making up to this day. So, a program is crucial, it could be by communities, some communities in the rural areas here in the occident of the country have already started. They are being successful and I think it is already being replicated in several areas of the country. So there are possibilities and I do believe in that program or in an aspect that can be done for that.

JLM: And do you think this program should be promoted by the restaurant, by an organization, by a NGO, the municipality, the government?

P1: I think everyone should be involved. Us as businessmen and commerce, the government, communities, schools, NGO’s, because the more entities are involved the greater the impact and the more amount of people or more population will be reached with this information. Start in the public schools, from elementary school and small children that are the ones were one should start educating and I do think that everyone should be involved.

JLM: And what incentives do you see or they could be? First so that the restaurant gets more involved in the management of food waste?

P1: Incentives, personally, well I already have them. I am a nature lover, and what a better incentive than to see a green world and to be able to keep enjoying of so many activities in our country. What incentive can I give to someone else, or in general, so that the people do it: It is really hard, because we always tend to monetize things and we want an economic incentive and in this case it shouldn’t be an economic motivation that one should have. It is a social motivation, a motivation for the future that does not have a tangible value to take care of the environment. You can’t say if I do not cut down a tree, that is going to generate for me an income. I feel that the environment is not tangible, and the damage that it is being done to it.
JLM: Ok. Do you consider, now there has been a consistent talk about sustainable development, a topic, a theme, that has been heard often nowadays. Do you think this is related to wasting of food and food waste management?

P1: I would think yes, based on what I’ve heard about Sustainable Development, it does not only involve the environment but other activities, related to business. It involves human resources, it involves logistics, transportation, finance, so it is linked to the activities that we do.

JLM: And have you heard about the Sustainable Development Goals, that were launched by the UN?

P1: No.

JLM: Alright, those were all the questions that I had, I really appreciate all your time and participation in the interview, and your valuable contribution to this research. I don’t know if you have any final remarks or something that was not clear or you want to clarify?

P1: No, thank you very much, good luck and I hope that with initiatives like yours to take into account this subject, the interest of people start growing. You are the generation that has to keep this world green and well go ahead, all the best.

JLM: Thank you.

---

Transcription – Restaurant Owner: YOKOMO, March 26 2017:

Interviewer: Juan Luis Monzón - JLM

Interviewee: Andrés Batres, YOKOMO Restaurant Owner – P2

JLM: Do you have any questions before we begin?

P2: Nothing.

JLM: Ok, if you could give me a general description of the restaurant or how did you begun?

P2: We are a Sushi delivery restaurant. The project begins, when while I was working at a multinational company, Kymberly-Clark, I meet the person who then becomes my partner, Jose Roberto Lou. We wanted to open a a popular sushi, massive in other departments of the country and places where you couldn’t find any other type of food besides fast food. We started with the project and did a focus group, sort of friends and family kind of thing where we got together and tried to make a couple of recipes of sushi and they told us: No, this is more of the same, what’s already here in Guatemala, so we are looking for a sushi with more seafood, with more taste, temperature shocks and Latin-American flavors, so we started looking for someone who could teach us how to make that kind of sushi, so we found the Chef, and he joins with us two and from that moment on we started producing this type of sushi that is a Premium Delivery kind of sushi, to call it somehow. It has more sauces, more flavor combinations, abundant amount of soy, sauce and seafood and the protein isn’t something that we use lightly, and from that YOKOMO is born.

JLM: Excellent, congratulations. What is your role in the company, here in the restaurant?

P2: I am the CEO, I’m in charge. I have the company divided in two areas. The delivery area and the kitchen area. The area of delivery involves the orders and the delivery and the kitchen involves
receiving raw material and producing the final product; so I’m in charge of both. I’m also in charge of marketing and social networks.

JLM: All right, great. How many employees do you have here?

P2: For now we are already 15 people working here, including me, my partner and the Chef.

JLM: Do you have a specific target group of clients?

P2: You mean what is my niche? So, I think my niche, the group I think we are directed at is a socioeconomic segment B+, A, A+, people that know about sushi, people that appreciate a good flavor fusion between Japanese and Latin American flavors. I think also that the sushi that we deliver has a lot of Americanized bias, so I think it is a sushi that comes from the area of California, and trickles down to Mexico, and Latin America and here it clashes with for example, we have a roll that is called “El Plátano” which has fried plantain chips that is something very local and that has that traditional touch from the Japanese sushi.

JLM: How did you decided on the menu? Does it change or is it fixed?

P2: For now the menu has been fixed since we started, we have only been adding new dishes, new proposals from the chef or from the clients that have asked for. For example we had clients that asked for a Sashimi platter that we didn’t have, so we added it; we also have clients that are asking for salads, a Tataki or Sashimi salad, that will soon have them available and we also noticed that a lot of people that order sushi in Guatemala, orders sushi from Sushi Itto, which is a big sushi chain from Mexico, and some of their most popular entrees are the kushiages, so the chef did our version of kushiage. We have one of mozzarella cheese and one of plantain and cheese. So, that is how our menu has evolved.

JLM: Approximately, how many dishes do you serve per day? Do you have an estimate?

P2: An interesting question. [Asks his associate] do you think we are serving 30 dishes per day on average. [Associate answers: I think so yes]. Between 20-30 per day on average. That’s around 2 rolls per order, so that would be 60 rolls on average per day.

JLM: Ok. The meals are they prepared when you get the order or do you have something pre-prepared?

P2: The sauces are already pre-prepared. The shrimps are processed before. The process of the shrimps is pealing them, open them, removing the head, cleaning them, and have them stretched to have them ready for the “rush” we call it, they are dipped in bread and then frozen and when we are in the “rush” we just fried them. The fishes are unfrozen only, but everything else is done on the same day and on the moment.

JLM: Ok. Could you describe for me a normal day here? How are your mornings, your afternoons?

P2: Oh. A normal day? We don’t have normal days, but an average day is coming here in the morning and open business. Do a cleaning, we do the sauces, we unfreeze the seafood, we order the tables so we have everything ready for lunch and dinner. Our most busy time is during dinner. We also clean the fryer daily, we remove all the waste, when the fryer is cold in the mornings we remove all the solid waste that it has. The oil, if it is too burnt or too used we set it apart, a company comes to get the used oil, because it is not necessarily burnt, because as I understand the oil, for every litter of oil, I don’t know how many gallons of water can be contaminated. And besides, we use it as
compensation, for every 5 containers that we buy, at least we recover the value of one, so it is at least like a sale of pay 5 get 6. What else? During the lunch meal, we deliver food around all the city center and then in the afternoon we let the team have lunch here in the kitchen and then we start with the preparation to go out in the afternoon. We full the motorcycle tanks, we re-stock sauces if necessary, to have the ready for “rush” time and portioned, mainly the sauces.

JLM: Good, in general what do you think about food waste?

P2: Ohh! It is a very delicate subject. Personally, I suffer a lot with food waste, I always ask all of my personnel to be very considerate, if there is something left from the lunch of the day before that same afternoon either give it to the delivery guys that come in the night shift or have it for breakfast the next day. But, yes, I’m against food being wasted. It is a delicate subject because on the other side you have to control so that people don’t make mistakes on purpose in the kitchen with the intention of eating it afterwards; so, it is a complex situation, because you have forces on both sides pulling on you towards what is just and fair, but in general here in YOKOMO we waste little, very, very little. Everyone serves themselves with their own hand or the kitchen workers already know who eats more or less, so that there is no waste at the end of the lunch time [YOKOMO provides the lunch for their employees] it is pretty rare that we have errors in the kitchen that is where the rolls would end up. But, when a roll is left, what we do is that, if someone of the employees did a good deed we give them that as a gift, or if a client asked for a considerate amount of product, then we tell him or her that we will send, free of charge, an additional roll. This because it is a perfectly good quality product, simply it is an error such as for example: A roll that had soy paper without gluten and it was made with algae instead, so the roll is complete. Or, sometimes us, the associates, eat it, or we share it with each of the people working here. But, yes, in general the food waste is very reduced. We do try to control, so that there is no, not only for the loss and cost, but for the moral subject, I don’t know, or ethic subject that I, I am the one behind that idea of that here there is people that doesn’t have food and that sometimes they are in need of something to eat. So, because of that, in general if something is left, we give it to the police officers of the area, or…so that is my philosophy right now. I don’t know if this will be something that I will be able to keep on doing as we start growing, because it can actually go out of control the waste.

JLM: Ok, so for you, food waste is a problem?

P2: Yes, yes it is a problem. It is a problem, definitely it is a problem.

JLM: You’ve already told me a little bit about food waste here in the restaurant, but more specifically, where you have more chances of wasting food is in the kitchen?

P2: Yes, yes. The waste in the kitchen. Now, what I would like to know is, do you refer to waste as every kind of waste?

JLM: Ok. In this case I refer to food waste as food that can be eaten or consumed by people and that goes to waste. For example, if we are talking about a potato and the potato is peeled, the peel does not count as food wasting for this research.

P2: Ok. Yes, so I understand the difference.

JLM: What do you consider are the impacts of food waste or of wasting food?

P2: Impacts in what sense?
JLM: In general, you could refer in broad terms to a social impact, an environmental impact and an economic impact. If it has impacts in the three areas or…?

P2: I think it has impacts on those three. Definitely. The social impact I think relates to the ethics part of the person, and of the culture that I want to create in the company, to make them aware of the issue. I think that the fact of wasting food, sends a wrong message sometimes to other people that are not inside the operation. So, it is like if we were saying: Oh, if they have so much, it is enough so that they can even throw it away. So, it can send a wrong message to the people, which is not necessarily true. In the economic aspect, well, of course it is a sunken cost that you do not recover, so always the ideal is to optimize the resources. Here at YOKOMO we give the lunch to the employees, free of charge to every single one of the personnel, so we do ask from them that they are aware of this and care for this, because not all the companies they get this benefit so we do ask from them to be conscious and measure the number of persons they will be and that they serve themselves equally so that no one eats more or less than the others. And even less that there is any wasting. I’m thinking, really our waste is really low, but in the other impact, in the environmental area, maybe the waste, the environmental waste I see it really low. Our kitchen is small for it to create an impact that is significantly big. Maybe among the things that I see, maybe we contaminate with our motorbikes, in the area of transport and delivery of the food, but our motorbikes are new so their pipes is perfect. Their catalyst is in order, everything works fine. We have a smoke extractor in the kitchen with a grease trap, so really, the waste that we are having or generating an environmental impact with it, I don’t know how big it could be. I have never measure it really, so I think I should start from there, but in general, I don’t think the impact is significant from what I see from the outside.

JLM: Ok. Do you know how much food you are wasting here in the restaurant? Have you ever tried to measure it? Has it gotten your attention, I mean, measuring it? Is this the first time you are faced with the suggestion?

P2: No, I don’t know how much food we are wasting and I have never tried to measure it. At the moment, since I have seen so little while I’ve been here in the operation, I control, definitely, the trash bins. So, you can practically see them. We have trash bins all over the restaurant, around the kitchen, we have 5 trash bins in what we call the “pass”, the area where we pack the food for delivery; and inside the kitchen. And I do believe that it is really low, in order for me to see the benefit and feel the need of measuring it at this moment and to control it. I think that for the moment the business is focusing on capacity, to increase its production capacity, more than in maybe optimize the waste or on the topic of cost optimization. For us that would be a second stage or phase.

JLM: Ok. This is a tricky question, due to the restaurant’s type, being it only delivery, but do you consider that where you might waste more food is on your client’s side?

P2: Yes, absolutely.

JLM: Or do you think that what you are sending them, they are finishing it? I know it is hard to know, but based on the size of what you serve, your portions, do you consider they have the right size? Or are they too big, too small?

P2: I think there is in both ways. Sometimes we are amazed, when a single person orders more than two rolls, but I think that an average of 1 roll per person, and in general, you eat sushi with more people, so, when you see 3 rolls, 3 persons, you say: Well they will share amongst each other, a big roll, a medium roll and a small roll. I think that, that is the correct portion, the ideal one. I do think that our target client, if they don’t want to eat it, it is a consumer that does waste high volumes of
food. I mean, there is no awareness, or they lack the initiative of saying: I won’t eat half the roll, let me give it to someone else. But I do think, that in the times where I have been with my clients, there are some pieces that could be edible for someone else.

JLM: Ok. Your food in general, not the rolls, but for example your vegetables, your raw materials, let’s say, do you waste it? How is your management with your raw materials?

P2: For the time being, I don’t have any kind of control. The only thing that I control is what goes out, not per portion but in rolls. Our next phase now with the chef is go to the point where we transfer all the recipes to the system to start controlling the loss, how much we are taking from each of the products, but at the time being, I do not measure or control my raw materials, besides the time when they come in. For example, we get a bag of rice, so we pour it in the rice container, and it is not controlled how many cups or grams, or etc., is going away or being wasted. No, we don’t have a number.

JLM: How is it that you buy your raw materials? Do you do it in a normal supermarket, do you go to “La Terminal” or the “CENMA” [local markets]?

P2: I have a combination of everything. I visit markets such as “CENMA” and “La Terminal”. A friend told me once: Andrés, what you should do right now is create history, so that you can go to “La Terminal” and make a significant saving when you are buying volume; but if you’re going repeatedly to “La Terminal”, what you are spending in time and gasoline, perhaps is not being compensated, if you go to “Paiz” or Wal-mart”. So, when I understood this, we stopped going a little to “La Terminal”, we are going more to “Paiz”. It is very few, the vegetables that we use, but we have a little of everything. We have suppliers that deliver to us directly, we have suppliers that we have to go to them, we have frozen products that represent a lot of what we handle and the product that is hardest to handle and one of the freshest products is the shrimp. In general, and from what our suppliers tell us, sometimes it comes from the fishing of one day before, here we process it and freeze it, so we have different kind of suppliers and ways of handling our raw materials.

JLM: Is there any policy from the company, or any law or regulation that you are following that you must comply, specifically related to food waste that you know of?

P2: I have no idea. Here all the waste are simply measured in two ways: one is the empirical, only by looking. And 2, I think that because of the fact that I’m an industrial engineer, you just by a logic sense you try to optimize; knowing that what you don’t measure, you can’t control and what you don’t control you can’t improve. But, it is not a priority for us right now in my business.

JLM: What options do you think you have for handling food waste? Not necessarily right know, but in the future perhaps? Do you think you have an option or an idea?

P2: No, definitely it is a very difficult situation. It is a jeopardy, I would call it; because you could really start by doing charity, in the sense that what is left from a client, you set it apart and start giving it away, presenting that “food potential” to call it somehow, as a gift. But, I think this could cause a negative effect because, the people might start saying: There they give away food, we just have to wait until certain time; and then it might make the people to become victims and leeches of the business. I think that if McDonalds that has a lot of years of experience in the subject, handles or their policy is that if there is a remnant of food, it goes to the trash or they destroy it; then I think there is a reason why they do it this way. I imagine that it is cheaper, from a legal point of view, to avoid any legal problem, but not necessarily, it is cheaper socially speaking. This because it could create well an impact and it is sad to waste food. I think it is a resource, and it could be the food of someone.
JLM: Ok. Some of the actions that you have taken so far, not focused in the beginning on managing food waste or that this was the main goal, but any decision that you have taken and that in the end resulted in you not wasting food?

P2: Yes. Attention calls to the kitchen. I think those have been the ones that have had the biggest impact. I think that, at some point we bought a bottle of cream and we had to throw it away, and well, I raised my voice and I told the personnel in the kitchen that I didn’t want to see that again. That really, the cream was an expensive product, and that I rather had it eaten by the team, than throw it away and let it go to waste. So, I think from that point on, the message was clear. Even the centerpieces of the vertebral columns of the salmons, of the salmon fillet, are saved for my dogs, mashed, and mixed in their food, and they feel this as a goody that you are bringing to them. No, but I think that the awareness has definitely been increasing with time.

JLM: How do you plan for the procurement of your raw materials? Is it weekly, monthly, twice per week?

P2: At this moment, we have a planning that is done by the kitchen, with the leadership of the chef. It is a weekly planning and we have a maximums and minimums system, in base of our history, or the historical information that we have. We have erred sometimes with these maximums and minimums, but the proposal and procurement is being done weekly.

JLM: Ok. For the disposal of the waste in general, not only the organic waste but all of it, do you make any kind of division or classification or does everything goes together?

P2: No, everything goes together. Well, the oil is the only thing that is separated because it is recovered, but everything else goes to the trash, shrimp peels, shrimp heads, vegetables, plastic containers, bags, cans, everything goes together, yes.

JLM: Ok. Do you get charged for the trash recollection? Is it by volume or, how is it?

P2: Yes, well I have not really understood how the system works but I pay 40Q’s per month. I think that this was the quota that the local used to pay, but when the restaurant acquired the local, well, we said that we would assume the cost of the trash recollection.

JLM: Ok. What opportunities do you see, in regards to managing food waste? Or benefits that you see from it?

P2: I’ve always wanted, I saw once in a T.V. offer, I think it was, that there was a machine that did a type of fertilizer with the waste of vegetables, it was like a Styrofoam freezer, that had inside a motor that was in continuous movement, and that it destroyed the organic waste and that in the end it resulted in a muddy paste, dark colored, but really rich in nutrients for the garden; so I always kept that curiosity and the desire of knowing where I could by a machine such as this and that it’s not unreachable based on my liquidity but on the contrary, but instead of throwing it away; in the end all of that could be organic fertilizer for your garden, or for your harvest, or etc. So really, that would be the path that I would take, that there is a big opportunity, because here the wastes are really low, but when you go to a market or something like this, these types of wastes could be taken advantage of. They are not being collected because one has not seen the potential of them, but I think there are some industries that do it, to produce methane gas, if I’m not mistaken, which is used to produce energy, but besides that, I think that in a household, it could be done something about it with a machine such as the one I told you, I think it could be something interesting.
JLM: Ok, and obstacles that you see for actions directed towards food waste management? Something that prevents you from doing this?

P2: Right now, time. And also maybe costs. I think the development for a machine such as the one I told you, requires resources, so I think it could be a side business, a second business opportunity, but definitely it should be done with the association of an industry or a company that already has the liquidity and the potential to launch it and raise that awareness, etc.

JLM: Do you think that the employees here at the restaurant are aware of the food waste issue and they take more care of this?

P2: Yes, from the moment of the calls of attention, pretty strong ones, yes. But I’m worried that it is not in their culture. It is not in their top of mind. It is really biased and I think sometimes they do it more because they are afraid rather than because of they care for it.

JLM: Do you think a kind of programs, could or should be implemented for creating this kind of awareness?

P2: Hmm. I don’t know if I’m really of the opinion that those programs have a positive impact. What I have experienced in my life is that you get a lot of talks of that kind, but I don’t know how much of that actually becomes effective. I would think that it would be best to have some kind of videos or creating a more active campaign such as a documentary that leaves you with certain idea of what this causes and its consequences in the environment and on the disposal. But actually programs, of showing a couple of signs and saying let us be aware, I don’t know if I’m supportive of this. I don’t know if this is something that has caused an impact on me, so I don’t know if they have a positive impact on the people. It should be measured in order to determine this.

JLM: And do you consider that this programs should be promoted, these ideas that you have, like the videos, do you think it should be an initiative from the restaurant, the government, a NGO, the municipality?

P2: I think the municipality should do an effort in this direction, because in the end it is the municipality the one that is in charge of the handling of waste in the cities. So, it is not passing on the responsibility to the state, but, I think that the recollection of the waste, could be the same raising of awareness. This by making videos or an aggressive marketing campaign. I don’t know if what we are paying for the collection of waste is the right amount, I think it is low. I don’t know if this adds value to the interview, but of what I have heard, the waste is controlled globally by the Russians and this is a big mafia, underground kind of thing, and they use it to monetize themselves and go unnoticed. I don’t know if this is real, but someone told me about it and it makes sense to me, because most of the time people don’t see waste as an opportunity, and its potential, but at a big scale it could definitely offer you something, give you something.

JLM: What could make you get more involved in the managing of food waste? Would it be that if the municipality establishes a law or…?

P2: No, I’m a person that does not work well with negative incentives. It is not something that moves me, on the contrary I think it is the positive incentives the ones that bring the most gratifying sensation to me. But, I think that in general the human being works more in the line of punishment. I think is something the government can’t go in and force you to get involved in. I think that again, with what I’m saying, maybe making a video where a kid comes out eating a piece of chicken that you did not eat and tells you: Thank you because I had lunch today because of you, or something like that.
Something a little bit more emotional, and show that there are people that simply need that food; and it is just looking for, something like the Uber platform did, find a demand and supply, and where those two needs are connected. Someone who wants to get rid of that food, and someone that needs to consume it.

JLM: Ok, so those would be the incentives you see? More on the side of positive incentives?

P2: Yes, me personally. But I think that people in general don’t work this way, I do think it should be some kind of punishment, but a really effective punishment, because I see people that waste a lot of food, but no one says anything, no one tries to raise awareness, no one demands anything from them.

JLM: Ok, last couple of questions: Have you heard about Sustainable Development?

P2: No. Well, a little bit yes, I mean it is a subject that globally is in vogue. Maybe I don’t know about the words per se, but yes about the combination of being, or not causing a lot of environmental impact or being aware that we only have one planet, and being aware that there are some people that have very few resources and knowing that if we improve and we contribute to our community, this benefits us all. I think it is a topic that has been discussed about repeatedly at the present time.

JLM: Do you think this subject is related to food waste management and food waste?

P2: I think very little. I think food waste is something that no one pays attention to. I don’t know if to call it taboo would be right, but I don’t think is something that is discussed in a normal conversation. Like I was telling you, I think that the needs that every human being has, their path and the experiences that every person has are the ones that shape you. I think that at some point I have experienced hunger and periods of time that I had nothing to eat, and I think that a sandwich that someone wouldn’t want to eat, would have been a blessing, so I think that is what makes me have that way of thinking, but I don’t know if everyone has experienced this type of thing.

JLM: And, have you heard about the Sustainable Development Goals launched by the UN?

P2: From that absolutely nothing. Zero.

JLM: Ok. Well those were all the questions that I had. I really appreciate your time, your participation in this research. Any final remarks?

P2: Well, that I hope that the study that you are making does not only end up in a thesis, but that it really creates some kind of impact, more than only a book that goes on a shelf. I invite you to, that if this is something you are passionate about, that you make something out of it. And that here you have the door open to come in and implement and make any kind of test that you want to create. Or, at least if your conclusions are of any use for me, so that you send them to me, because I think you are making a real work. The fact that before we started you told me you didn’t wanted to create a bias in me, tells me that the project is being as real as possible and that tells me that the conclusions, you will make the effort for them to be as real and veracious as possible. So, I think, I invite you that if you have any kind of proposal that you want to try out to reduce that kind of impact, well you have the doors open here at YOKOMO sushi, you only need to call me and we open the door for you. All the best, and what a pleasure to see you after all these years, engineer.

JLM: Thank you very much for your words, and support and I would definitely share with you the results and conclusions of this work. A pleasure to see you and talk to you again.

Transcription – Restaurant Owner/Founder: Burger Stop, March 31 2017:
Interviewer: Juan Luis Monzón - JLM

Interviewee: Herbert Menzel, Burger Stop Restaurant Owner/Founder – P3

JLM: Do you have any questions before we begin?

P3: No.

JLM: Could you give me a brief description of your background and your role within the restaurant?

P3: Ok, yes of course. Look, I am an Industrial Engineer from Universidad del Valle, and I started with the restaurant when I was 23 years old, and the idea came, well at the beginning the idea was not a restaurant, but a cocktail place, and the idea was to open it in Cayalá. Cayalá only had the first stage, so Cayalá was just starting up, and the people in charge of Cayalá, liked the idea. Because the idea was a sort of food truck, and food trucks weren’t really a thing at the time here in Guatemala. Actually, there weren’t any food trucks; but it wasn’t really a food truck, it was more a platform. And since we were 3 partners, 1 architect, me the industrial engineer, and my friend that was studying to become a Chef and also Chemical Engineering. So, the architect was the one who made the design of the bus or the food truck and the idea was to sell cocktails and shots, a little bit more of liquor too, but Cayalá said no. At the moment Cayalá wanted nothing with liquor, so they said no, but they told us that they liked the concept, so they told us: how about you come up with the idea of something different, bring something using this concept. So, we thought about, since the second phase of Cayalá wasn’t there yet, there was nothing and no one that were selling burgers, so we said: Ok, let’s sell burgers. So, we started and we built this, like in the end the food truck was a platform, it didn’t really move. It had 4 wheels but they didn’t move, it was only towed. So, we started from zero. We drew a square and said, alright what are the elements that we need: the grill, the stainless-steel tables, the refrigerators and freezers, the box and based on that, we made the layout of what we needed for the platform and from there the design was built. So, the idea was for it to be a place where people could saw how their meals where prepared. This was a tendency that existed, where people enjoyed watching the preparation of their food, so it had to be a really clean place, very amenable to the view also, and we had to be careful with the smells because of the grill, and we had fried meals also so we had to made an extraction bell, so we adapted that to the bus. So, we added a couple of things that in the end allowed us to create the whole concept. The concept started in the year 20…, look the restaurant just recently reached the 4 year mark, it started in the year 2013, exactly on February 2013, and we were looking to create a concept for fast food, burgers, that were of good quality and a concept that would also allowed us to stay longer past midnight and during the night, since there were many bars in the surroundings; oh, yes because in the end we had been given a spot and we already had everything in place, we had everything set up, the restaurant, we did it, and suddenly Cayalá told us: No more, the concept is a no go, because of the smoke, because it will generate a lot of smells, etc. So, people won’t like it, so not here in Cayalá, no. They told us not anymore and we had everything set up, I mean, the kitchen, everything, the bus was already built, we had people hired, we had the whole menu; and they told us: No. So, at that moment we were facing an avalanche, but what we did or what they told us was: you know what, it could be set up in Cardales. We liked Cardales because in the surroundings there were a lot of bars and the bars closed late and it was an opportunity to take advantage of all the people that was going out of the bars and close really late, I mean there were times when I close at 3 am or 4 am, or 2 am we closed and that’s how the whole concept started. Her with the design, the architect, my friend that was studying to become a chef with the food, and in my case I was in charge of the finance-administrative area and sales as such, human resources. My role, was let’s say, practically I was in charge of everything so I was the CEO. They helped me in a couple
of things, but I even, I made the decisions, consulted, we had board meetings, but at the beginning I
had the role of manager. Is that okay?

JLM: Yes, exceedingly good. How many employees do you have in the restaurant?
P3: Look, employees, right now, well we have had as much as 1, 2, 3, 4, 5. We have 5 employees.
Well around 5 or 6 employees. It depends.

JLM: Ok, regarding the menu: is it fixed, does it change?
P3: Yeah, well look, we have a fixed menu, but we also have seasonal burgers, so for example for
summer the pineapple burger came out. I don’t know…we launched a burger of Portobello
mushrooms for the vegetarians. We launched a burger with a piece of steak literally, not mashed meat
but the chunk of meat “arrachera”; but we do have a fixed menu, fixed burgers. We have the classic
mushroom, that has champignons and caramelized onion. We have the Mexican that has “pico de
gallo” and chipotle, and avocado, that was my favorite. The Texas that is with barbeque and bacon,
its name is Texas barbeque. Those, the classic mushroom. It is a limited menu, well we have two with
chicken meat. One with chicken, barbeque sauce, bacon and avocado, also quite good; and also we
offered whole bread. So we adapt our menu, but we always have some fixed dishes. We didn’t do a
complete renewal of the menu where we change everything, I mean, we just add some. And with the
drinks it is pretty simple, we have only a camera with sodas, juices and drinks that Pepsi provides us.

JLM: Do you have an idea of how many dishes, or meals per day you serve?
P3: I can calculate it. Let me see, in average around 50. Between 40 and 50 meals.

JLM: And these meals were they cooked in the moment or…?
P3: Yes, they are cooked when they are ordered. I mean, the client pays, and right there we make the
fried food and the meat. We start from scratch, so it takes a little bit of time, because it isn’t something
that is ready. So, sometimes the waiting time was high, especially when we have a queue, when people
is coming out of the bars. It was crazy when people came out of “tres marías”, it was crazy.

JLM: Ok. So your busiest time was at night, after midnight?
P3: Yes, I mean yes, when the bars were open yes. It was impressive. I’m telling you, those days I
could serve up to 70 menus, on really busy days when people was coming out of the bars.

JLM: So, could you describe me a normal day at the restaurant?
P3: You mean, mine or the restaurant’s?

JLM: The restaurant.

P3: We open, or it starts at 11am, to get everything ready. So, the vegetables are bought and we have
a vegetable provider that deliver them, so they know when they have to bring them, between…well
yeah no, we start at 10am, so the vegetable delivery person gets there and leave them there, and the
workers start to prepare things, for example tomato, “pico de gallo”, the dressings. Because the
dressings, we take a lot of care of the dressings because the people…or at least the study that we did
revealed that people in Guatemala enjoy or like a lot the dressings or the sauces, so we focused on
that. The dressings are standardized, with the correct amount of ingredients they should have, so they
get there early to prepare the things that normally, or on a normal day according to the day of the
week that it was, we are going to sell. So, yeah, not every day is alike. For example, on Mondays the
flow of clients is low, Tuesdays as well, so what we do there is that we have sales and promotions to generate flow of clients. So we open at that time, we have lunch time, and then the flow of clients decreases in the afternoon, and we have two shifts. Or well, we had two shifts when we closed late. Because if you have someone from 10am up to 2am, they won’t make it, so we had two shifts. They changed at night and from there on we closed at 2am or 3 am.

JLM: So now questions related to food waste. What do you think about food waste or wasting food?

P3: For me, I mean, it’s something really hard, because I believe a lot of food is being wasted. I think that, in general, we could use it more efficiently, although if we talk more about restaurants, I think we try to use it as efficiently as possible. I mean, we, if we have some leftovers, for example, we have some leftovers from the tomato slices that we make, it’s just a little bit, but we use that little amount to make the “pico de gallo”, so, because a really small slice you can’t put it in the burger. So, what we do is that we use that to make the “pico de gallo” for example.

JLM: Alright so for you, you would say that food waste is a problem or would you describe it or define it differently?

P3: I feel like it is a bad habit, that is how I would describe it.

JLM: So now, focusing on the restaurant what do you think about food waste? For you this is a big crisis if you are wasting food or you don’t pay that much attention to it? Are you focused on another million things, so you don’t really pay attention to that?

P3: Yes. Well, now that you mention it, it is not a topic that I paid close attention to. To be honest, we do train our workers to make the most out of the ingredients, but since it is a type of food where you get a lot of ‘leftovers’ sometimes, because, if I give you the example of the avocado. The avocado sometimes it is not good, so, and it is something difficult to control, because I can tell you, from a tomato you get around 8 slices for the burgers, for 8 burgers, but it depends on the tomato. So, we try to buy standardized food. That’s something I like about the vegetable supplier, that they most of the time, tries to give you the same size, the lettuce, so in average, we ran some tests, and when did those, we started to put a cost or a price to things. That is also something important, the cost of the food and for that you need to get the average of slices you get from a tomato, from the lettuce, the cheese, well that’s easy and the meat too, and the bread. But, when you are dealing with vegetables, I think is where we have more waste or lose more food.

JLM: Ok, and impacts of that waste of food that you can think of? Impacts of the economic, environmental, social kind.

P3: Yes, initially the financial issue. In the end if the people, or if you waste food, you must spend more because the product gets thrown away. Also, the standard of quality is really important so if a burger doesn’t have what it must, then it is returned and we have to complete it. So, the economic impact. And also to a certain extent I feel like it is something bad, that a lot of people don’t have food, and there are a lot of places where food is wasted. And another thing, a lot of people waste food when they eat, because it may be that in the restaurant we have waste, but if I eat a burger, or ¾ of a burger, and I couldn’t eat it anymore. We have a burger that is called the “Chuck Norris” which has 8 meat slices, and with that, sometimes there is people that can’t finish it and we have to throw away what they don’t eat. So, there’s that, there’s also the moral impact, so those two.

JLM: Do you think that wasting food has an impact on the environment?
P3: Yes, depending on the food, I imagine. But, no, or I have never really thought about it.

JLM: Have you ever tried to measure the amount of food that you throw away?

P3: No, I never have, but I think it would be super interesting to do it, because, well, in order to quantify it. But no, never have.

JLM: And in your opinion, and with your experience, where do you think more food was being wasted? In the restaurant or do you think the clients waste more food?

P3: I think more food is being wasted…that’s a really good question, well, yeah maybe in the restaurant, because, in general the clients, do finish their burger because it has a good size, but there are kids that do not finish it or something, but I think it is more on the restaurant side, especially with the vegetables, because it is there where, maybe we buy food for a long period of time and we get vegetables that are about to go bad, so we throw them away, so there is where I think we lose more food.

JLM: And with the procurement of your ingredients, how do you calculate how often and how much to buy? Do you have any inventory control?

P3: Every two weeks. They deliver to us the vegetables because they need to be fresh, so we try to get them like that. They deliver to us every Monday, and Friday. And why is that? Because on Monday you get for the whole week and remember that busy days for me were the weekends, so on Friday we stock up for the weekend and Monday because I finish what I have.

JLM: Ok. And was there any law, policy, or regulation from the mall, or a National law that you should comply regarding food waste, or waste in general?

P3: No. The mall only goes and picks up the trash, but there is nothing specific with food waste. No, not with food waste. I mean, we should be extremely careful with the smoke. That was a delicate subject. The thing that the mall was mainly concerned about and demand from us, because imagine, we have fried meals and we have a grill, so the smell was something that could affect the mall in some way; but not from food waste, no.

JLM: And do you get charge by volume or a fixed amount, when they come for the waste?

P3: Fixed amount.

JLM: Ok, and from options that you see for the food waste, or actions that you have taken and in the end helped you not to throw away food, even if that wasn’t the main objective expected from the decision.

P3: Yeah, look one of the things that helped me the most was, I think maybe running some tests and determine what was the average of, or determine what was, or determine the average of the ingredients that we were to use. How much of something I needed for the burger, and how many burgers I could make, or let’s say how many slices of tomatoes I could get from one, and that how many burgers covered. So we ran several tests, and in those tests we managed to identify the averages, especially to control our inventory, the averages from an avocado, I mean, for example, avocado is always half of it, always. There was a time when the avocado was, or we were wasting or losing to much avocado, so we decided that they should send us a picture, to actually showed us if the avocado was actually a bad one, or stuff like that, so the person in charge already had that historical background to know why it was being thrown away.
JLM: And with the management of food that you don’t use or is not good, or that is about to go bad?

P3: We throw it away, no questions asked. We don’t even, nothing. We don’t have a trash bin, where we say, here we are going to put the food. Nothing, it is thrown away to the trash.

JLM: And in general, with waste, do you do any kind of recycling or you classify your waste?

P3: No, we never have. What I do is that I have a friend that buys from me the burnt oil from the fried meals, and he takes it away. I don’t know what he uses it for, but he buys it from me.

JLM: What opportunities do you see, or what benefits do you think there are for a restaurant to try and avoid wasting food? Do you think there are any benefits from not throwing food away?

P3: Yes, definitely. I mean, food is something that I will tell you, is extremely important and especially in the moral aspect, where there are a lot of people that have nothing to eat and throwing away food is something that it should be made being aware of what you are doing. We worked a lot with that with our employees, with the chefs and the waiters, because we tried to raise awareness and make them conscious about what they were doing and throwing away. We gave them a lot of training, that was part of what my friend who was my partner gave them about food waste. So, he tried to raise awareness, and he went on the side of the feelings, telling them: “look, all these people have nothing to eat and we waste food, so let’s take advantage of the food, let’s take care of it, let’s see what can we do if we have some leftovers we can re-use it”. For example, sometimes someone ordered their burger without onion, and we put onion on the burger and the client was not able to eat, even if you took it away, so, we asked ourselves what to do with the food. And that was some of the things that we had arguments about with them, because we were like, ok, what do we do with this food, because it is there, so in the end, to not throw it away, the idea was that the cook could buy it at a lower price, so the cost was maybe 15 quetzales or 10, I don’t know but the idea was not to throw it away. So, in the end it is a benefit for the employee, being able to eat their burger, it is a mistake, but you wouldn’t throw it away, since it was perfectly edible.

JLM: And do you think that after those trainings or talks, the employees were more aware, or a little bit more ashamed of throwing away food?

P3: Well, in the end, I’m not entirely sure. When we are there yes, but, I think a lot of things can happen, but I think the employees were actually concerned and they did want to make a change. Especially because of the profile of our employees, since we look for people in need, but really hard workers and aware. So, they do see that we, or even they said “it is a sin to throw away the food”. So, I do think it helped a lot.

JLM: And obstacles that you see or that you have seen for managing food waste? Or to take action, regarding food wasting? Something that you see as a driver of not being able to prevent throwing away food?

P3: I think, well, what we have to throw away always is what the clients leave uneaten. In the end, we just throw it away, so I don’t have the power of deciding over them. In the end, if the client leaves something we put it in the trash, it is a waste that is on the clients side. Because there are people, a lot of people that do not finish their meals and they just leave it. Or, that they order a lot and they are not able to finish it, so they just leave it there, and in the end, that is also a waste, and it goes completely to the trash. So, in the obstacle, could be that I can’t go beyond or past my activities and tell the client: Eat it or finish it.
JLM: And do you have doggy bags or something to give them to take away their food if they ask for it?

P3: Yes, we have doggy bags. And also, a phone where they could call us and order their food, so we could have them ready for them when they get there. After sometime we created the delivery option, not from us, but we outsource.

JLM: And well, also about the programs or activities that you think can or could be implemented, how do you see them? Do you feel like programs could work, or videos?

P3: I think you could have company policies about food waste. I think that is really important, because if it is written, and the policy is established about what I have to do, I think that is something good, something that helps you a lot. When you give the training, and right from the beginning you make clear to the employees that there is a waste policy and that they must follow, and that they should act in a certain way, depending on each case. So, for example, I’m going to make something up: the tomato was about to go bad, or some sauce or dressing was about to go bad…that was another thing, when a dressing was about to go bad we just throw it away, to the trash. I mean with food it is an extremely delicate subject, because you can’t play with people’s health, so if there is any risk of harming them, we don’t use it. So, about the policies, if the dressing is about to go bad or not bad but it has been longer in storage, perhaps a discount on the burger that had it or something like that.

JLM: And about the policies, do you think they should be on the side of the company or maybe the municipality, or the government or a NGO? Or in order to raise awareness about or against wasting food, who should promote it?

P3: Look, I think it is the companies the ones that should create their own policies. There are two things, what I told you about, the moral aspect and the economic aspect as well, because in the end, it is important to use all resources efficiently, but, from the municipality, I’m not really sure how much they can do or accomplish. Maybe, that they could force us to have or maybe they could have an area do dispose or throw away all the food, and other for other kinds of waste, but I don’t really know how much they can manage or achieve with that. Because, when you go to a restaurant, you don’t even see the kitchen, I mean in Burger Stop because you actually see it, but in other restaurants you don’t even know what’s going on.

JLM: Something that would make you get more involved with food waste management?

P3: Realize that I was losing a lot of money on that.

JLM: That would be your main reason? What could be an incentive for you?

P3: I think that it can be a saving or, yeah, basically that.

JLM: Last couple of questions: Sustainable development and food waste management? Do you think there is a relationship there?

P3: Yes, I do see a relation, because, if you don’t waste that much food, yeah maybe yes.

JLM: And, have you heard about the Sustainable Development Goals, launched by the UN?

P3: No.

JLM: Thank you very much for your time and your collaboration with the research. Do you have any final remarks?
P3: No, not really.

Transcription – Municipality Officer: Guatemala City Municipality, April 27 2017:

Interviewer: Juan Luis Monzón - JLM

Interviewee: María José Avendaño, Environmental Director for Guatemala City Municipality – P4

JLM: Good afternoon, I really appreciate having the opportunity to interview you and, thank you for your time. My name is Juan Luis Monzón and I’m a student from the Master in Sustainable Development at Uppsala University in Sweden. I also graduated as Industrial Engineer at Universidad del Valle de Guatemala, and as Administration Science Engineer from the same university. At the moment, I’m working on my thesis which focuses on how different actors in Guatemala City perceive or feel about food waste. I want to learn about their opinions, and any actions taken regarding this topic.

P4: We have no control over the restaurants, there’s no option. What we have been working with, I tell you, is in the topic regarding the oil used in the kitchens. Because the used oil, one liter of oil contaminates 1,000 liters of water. So, because what the majority of people do is, after they finished frying, they throw that oil in the sewer system. So, us as municipality, we have a lot of trouble with the municipal markets, because of the diners. Because the ladies there, threw away their used oil in the sewage and very often it was necessary to send people to clean the sewer system, and it was a disgusting, black thing, with an awful stench that came out of there. Also, there has been a problem with “chicharroneras” [Diners that sell a dish made from pork meat], that were close to the markets, since they threw away the oil from the “chicharrones” which is a massive amount on the streets sewers. So, in the end we came up with a project which is called “Recicla-Aceite”. The OAS sponsored us with the pilot project, and right now we are looking with them another sponsorship for us to be able to establish our own factory. Currently we are working with Universidad del Valle de Guatemala, and we make the recollection of this used kitchen oil in the municipal markets, in some “chicharroneras” on the surroundings of the markets, and some oils and restaurants, like China Queen, or a Hotel in Reforma, or the Intercontinental which also wants to jump into the project. This would be the biggest hotel we would have, where they are giving to us their used oil instead of throwing it away. This oil is transferred to the facilities of Universidad del Valle de Guatemala and it is transformed into biodiesel. This biodiesel is being used in trucks and tanker trucks from the Directorate for the Environment, which are the trucks that carry plants to the areas where we are gardening, or where there is being a cleaning activity. Also, the tanker trucks that irrigate during the nights. And also, it has been monitored, through the university, the contamination level of the gases from these vehicles. In the end, we’ve used that oil, and it has stopped reaching our rivers; since that is where it was ending up, given that none of these places had a treatment plant for it. And, on the topic of combustion, the vehicles, it is obvious, depending on the year of the car, from the oldest to the new ones that we have been using, the newest one has reached a decrease of 70% of the carbon dioxide it emitted. So, it is impressive the amount, when you think that we are not pouring a pure oil, but a mixed one, combining a 75% of regular diesel, and a 25% of biodiesel. This gave us the optimum level, where the break point changed. If we do it a 60-40, it stops the contamination in almost the same amount, so the where we found a greater decrease of carbon dioxide and a better performance for us from this biodiesel. All of this has been done through Universidad del Valle, and through the Association of Renewable Fuels of Guatemala, also “Fundación Solar” and the electric company provided some of the money, and that is why they were also involved as part of the pilot plan. Right now we are working only Universidad del Valle and Municipality of Guatemala City, with the
objective of obtaining another financing from the OAS, in order to develop the project. That is on the topic of restaurants. On topics regarding the markets [farmer’s markets, municipal markets], to be honest, through the Directorate for Markets and through the administration of CENMA [local market] which is the one that contributes the most; they before throwing away the food, they donate a lot to nurseries and kindergartens from Doña Patricia [Mayor’s wife]. Doña Patricia has around 2,000 kids with risk of ending up on the streets, so with nurseries, kindergartens and elementary schools where breakfast, snack, lunch and another snack is provided for them. Because they are from 8am until 4pm in those centers. So, there is always trouble of getting donations and other things of the sort, so to be honest, the markets have been really proactive in their collaboration with her, so the food if you go, every time you go there, you are like: I want to stay here eating. These young kids have a high educational level and also of infrastructure. The centers are being done in Zona 2, they have a huge dining room with an industrial kitchen; two levels. She does care a lot about what is reaching the kids, so no decomposed product, but the people from the markets say, before waiting for another couple of days, it is better to donate the food and we reach that point. At the restaurant level, we have not gone into that, to be honest. There is so much to do, so we haven’t reach that level because besides it is something about awareness, it is not a real, tangible function for the Municipality of Guatemala City. However, we have found at the moment, directing our efforts towards those means of contamination, in my case, which is the Directorate for the Environment, but there is definitely a lot to be done, we are well aware of this, but this is how we have started with a project and we expect to move forward and keep progressing.

JLM: Ok, yes exactly, well my initial question was what are the functions of this Directorate on the municipality? What is your focus?

P4: The Directorate for the Environment was created to really control and try to reduce and minimize the contamination of the City. Its focus is on all the environmental topics. We are really focused on the topic of education, because we believe that the environmental topic, is a cultural change, is a topic related to a change of attitude, definitely. And it is a lot harder to try to make an attitude change with adults, than with young people. Especially since right now, thank God, it is a popular topic, so they get more involved. And it is harsher if to an adult, their kid tells them: Don’t throw the trash on the street, rather than having the municipality telling them not to do so. If the municipality tells them, the common answer is: That’s why I pay my “Boleto de Ornato” [Ticket paid to the municipality for cleaning, gardening and decoration purposes of the city]. But, they believe that by paying 10 Quetzales per year, that gives them the right to throw away trash on the street whenever they feel like it. So, we focus a lot on education regarding the environment. We have an environment educational center that works with around 44,000 young people per year. We have a series of trainings, we have theatrical plays, for example the Sweeper [Barrendero] a play from Cantinflas, and it is adapted for the City and it is performed at small settlements, small public schools. We have the play called “Los tonelitos” [Small Cans]; which is for smaller children, where we try to educate them about material classification, recycling, to not throw away food on the streets, to take care of all this. We also have guided tours, both on the Municipal greenhouses and on the Ecological Park “La Asunción”, where we give them all the environmental thematic that either the school or public school chooses. And, like that we have competitions, activities on the Fairs. Every year we have three main events: For the world day for the environmental education, which is at the end of January, but we do it on February to be able to coincide with schools and public schools, we make a rally. Last year it was done at the Zoo, this year it was at “El Cerrito del Carmen”, and where we have 15 stations with topics about environmental education and history and that is where we move forward and involve, this event is for adolescents. For the day of the Marimba, we organize a Marimba concert, where we invite schools
that play Marimba. It’s not like we hire someone to play Marimba, but we invite them to play “Al Bosque Sonoro”, and it is done for raising awareness about the Hormigo Tree, because the Marimbas are made from this type of tree. So, we also have a recycling project, it has been on the newspapers, it is a competition, last year it was about City’s monuments, so the kids had to made their models, all with recycled material and they had to learn the history of the monument. We also manage fountains and monuments, so we try to combine the different topics that we manage here at the Directorate. The 22 zones of the City participated, each one had 2 or 3 schools. First, in each school the best 3 models were selected, and then a semi-final by zones was made, and afterwards the final at the municipal city. We have all the things regarding parks and green areas, are also managed by the Directorate for the Environment, park maintenance, new parks, reforestation, we have three greenhouses, recycling topic mainly on the educational aspect and pilot projects. The Municipality we recycle on the whole building, and we have a program where every Wednesday, the Municipal workers bring from their homes, materials that they consider is recyclable and from that material at the end of the year we give it to a recycling company and they provide school materials for the schools of Doña Patricia. So, it is like the material that was my trash, is serving a purpose, being a mean for aiding on the education for adolescents and kids that otherwise would be on the streets. So, that is what we’ve been trying to change the mentality. Also, we have fountains and monuments, currently we are working at “La Plaza España”, all the park restauration and the restauration of its monuments. And, we have a very strong unit about environmental complaints, where the neighbors may, through the 1551 at the Call Center, or here directly, they can complain about contamination that they’ve seen on their areas, such as clandestine landfills, gas emissions, wood burning, sound. Sound is the biggest topic we get complaints about, and I say like, well I would prefer to work on other topics, but if that’s what affects the neighbor, then we have to work on it as well. Here we give the Sound permits, and we have a big issue making them come here to ask for it, especially bars, discos and, Christian churches. In broad strokes. Oh, yes we also have an investigation unit that is actually only one person, but we work in combination with other people, such as yourself for example that are conducting their theses or final projects. We have had students from San Carlos, Landívar, and we will have one from Del Valle, and we also had one from Universidad Rural, an Agroforestry Engineer. So, with them we execute environmental investigations about rivers, water quality, infiltration, about which projects initiate to improve, and from that we developed the environmental management plan for the river “Canalitos”. In that investigation, the 50 clandestine landfills on the surrounding areas were identified, and were mapped against the water births locations and where we showed to the people that they were throwing their trash, on the same places where they were getting their water. So, to create all that awareness and recover those locations, plant trees, and make people see and create that awareness so people start paying for their trash recollection. So, that is on broad strokes what we do here at the directorate.

JLM: Thank you very much. On the topic regarding the trash recollection, what is your role?

P4: Well, the trash or trash management, has a particular department that deals with it. It is not within the Directorate for the Environment. We have certain influence, because we are the Directorate for the Environment, and we get involved in all the topic to try to prevent the contamination, and with the intention to recycle. However, there is a department that is specialized and which controls the Municipal Landfill, and that manages all the recollection system in the City. I don’t know if you know this, but, the trash recollection is a private activity. It is not done by public workers, it is performed by a group of authorized companies, which were authorized 30 years ago, and that have inherited the permits. It is a very delicate subject, but the very own Mayor says that we have a great advantage. I mean if you think about other countries, there they have very strict schedules about what day, at what time, where, you can’t take it out if it’s not at that time, you can’t go over the paid volume; but not
here. Here you don’t even notice when was your trash picked up, they go three times at least picking up the trash, you don’t even know, and you pay from 40 to 60 Quetzales to the company that provides the service. And even like this, we don’t pay for it. Yesterday, I was on an interview on the Radio and Luis Pellecer asked me, why aren’t there any more trash cans around the City? We all think that we are on the street and we have no place to throw away our trash. And I said, Luis, it is a topic that I, as a principle refuse to put more trash cans in the City because people stops paying their Trash Service. And, I’m not talking about Bethania, or Zone 18 [Marginal areas]. I’m talking about Avenida Las Américas, where you would see coming out of huge houses, the cleaning ladies or the gardener, with a trash bag, to place it on top or below the trash cans because it doesn’t even fit. So, that is why I refuse. I want to have an equilibrium. I mean if you go to Japan, you don’t see any trash on the streets but neither cans on the streets, because they take their trash to their homes, because culturally, it belongs to them and they must pay for their recollection. I know we are talking about to very different cultures, but I think we must have a benchmark or a direction of where to go. Instead of that we started with the “Municentros de Reciclaje”, last month we opened up 6, and they are in zone 2, in the ecological parks, and in colonies where they have already told us: we do recycle. But, in general the topic about the landfill and the trash recollection system is managed by a specific department here at the municipality and that is focused only on that, given the problematic topic that it is.

[Shows me a truck with several division, which will be used for recycling purposes, by going directly to different colonies, so it is a movable recycling center – Municentros Móviles]

JLM: I wanted to ask you about food waste? What is your opinion about the subject? How would you define it?

P4: Wow, I think there is a lot of food waste in the City. That is absolute. On the restaurants, there is a lot of food waste. I think that a lot of people do take what they don’t eat to their homes, that is something we can find on the Guatemalan Culture, although there is another big part that is not being taken. But, it is a topic that should be approached and worked through private companies and initiatives. I think it could be an interesting work that could be done with the Commerce Camera. The restaurant sector is very well organized, but it is really hard, because I do understand, on their side, saying, well, if something that is bad reaches the client and someone gets sick. But, maybe trying to manage and achieve by sectors, these restaurants and try to care for young people and old people. I know it is not about giving everything for free to everyone, because it is better to teach them how to fish and not give them the fish. However, I think there is a big need in the Country, and it could be given to them. But, it is more on the awareness, and consciousness side, I think.

JLM: What impacts do you perceive food waste has? An environmental impact, social impact, or economic one?

P4: On an environmental impact, I do think that if we sorted the waste inside the restaurants, the food would go inside the organic material, which is easier to compost. Instead of going all mixed up to the landfill, and generate more volume on the landfill. So, on the environmental impact, I think it could be made compost from it, part of that food that can’t be re-used. I also think it has an environmental impact, due to the fact that every agricultural work generates an environmental impact. A lot of people don’t mention it, but they say, but what if it is a location with agriculture, I’m not damaging anyone, but actually, yes. Especially the cows, which is a lot greater the impact. I do think that if we didn’t waste so much food, the footprint from those restaurants on their environmental impact would be smaller. On the economic impact, the restaurants will never lose money, definitely, if they do, they
wouldn’t be open; but, I think that it has an even greater social impact. Where you can find people that have no food to eat, and others that are wasting.

JLM: And on obstacles that you see for that food waste management? Something that you see as main barrier? Maybe the culture, on the social aspect, or do you see something else?

P4: I think that it is an important and hard work that must be done culturally with the restaurant sector, but also, Public Health or the Health Ministry should be involved because we can’t risk by just doing it. It is what happens with the ISO; big companies they all want to have their certification, so they all want to achieve only the bare minimum to fulfill the requisite. So, I have many requests from companies wishing to reforest, to decrease their carbon footprint, but they want me to give them the area, the trees, that I dig the holes on the ground for the trees, and they only get there to put the trees on the ground and take their pictures. So, that’s not really awareness, that is trying to cover the sun with a finger. So, where it is not the picture that I’m taking or what I’m going to say, but, that what I’m doing is because I’m convinced about it. And, in a topic as delicate as the food, because it is not like the trees where I do something and it is the Municipality’s problem if they grow or not, but if a person gets sick, that is very delicate. So, I do think the Health Ministry or someone should have some kind of control.

JLM: And about programs, you told me how the Directorate for the Environment is focused on the educational aspect. So, do you see any possibility for an educational program, or for the managing and caring for the food?

P4: It could be done. I think that with the young people that we are currently reaching, it would be more on the better nutrition side, because a lot of people mention that Coca-Colas are bad, or sodas, the schools shouldn’t sell those things, but if the kids are buying it, is because they are used to that and eating it at home. So, I think it would be more focused on a healthier alimentation.

JLM: And, do you see as viable the creation of a law, or policy that could force the restaurants to manage their food or food waste differently? Or would you favor the educational aspect and a combination of efforts with the restaurants, rather than forcing them to comply or sanction them?

P4: Sadly, in Guatemala we have a lot of laws and policies that are not followed or complied with. So, I think it is more on the side of will. I think it is more will and incentives, rather than a law that threatens. I really think we would gain more with incentives, and awareness, because we have thousands of rules and when they are forced upon people. Well, look at the traffic police, everybody hates them, for doing exactly that, enforcing their rules. But it is really the only one that is actually followed. From all the rest, nothing. I do think that awareness is key, awareness for the restaurants, the private sector and the businesses. If not, look right now at Atitlán, all that is happening about waste classification, and not using plastic bags, and the businesses that produce plastic bags are already suing the Mayor there. They don’t see the contamination that is ending up at the Lake, and if you talk with the Plastic producers, they feel offended, and one thinks, I mean diversify, find another way. So, I do think we earn more with consciousness and awareness, than with rules.

JLM: I really appreciate all your time, and your valuable insights. Thank you so much, I know you need to leave now, but I thank you for giving me the time and opportunity to talk with you.

P4: It was a pleasure to meet you.

JLM: Likewise, thank you once more.