

Chapter 3: Waste Reduction and Recycling

Introduction

As is the case with all industrial activities, the everyday operations in the HoReCa businesses generate waste. A comprehensive EU report on best environmental practices in the tourism sector (including hospitality, restaurant and catering) from 2013, indicated that hotels in the UK generated 1 kilogram of unsorted waste per guest per night. This contributed to generating 66 tonnes of waste per hotel on an annual basis. The research conducted in Germany and Austria at a similar time showed the total waste generation was 1.98 kilograms per guest-night (European Commission, 2013). Faced by these and similar statistics, national governments with support of European legislation, have demonstrated their commitment to addressing the substantial issue of waste. It has become more clear, that the impact of the amounts of waste generated, accompanied by poor waste management strategies in some of the HoReCa facilities has serious implications for “hygiene and health, environmental quality, resource and economic sustainability” in Europe.

(European Commission, 2013)



Introduction

Therefore, a strong emphasis on adopting effective waste management strategies in the HoReCa can be observed. **Recycling of waste, understood as recovery actions leading to reprocessing waste materials into products that can be reused, whether for original or other purposes** (European Commission, 2019), is considered as a role-model action. **However, considering the overall amount of waste generated, recycling is not enough anymore. Referencing the key principles of circular economy, HoReCa facilities need to direct their focus first to available reuse and waste reduction strategies.**





The waste generated in the HoReCa sectors involves a wide range of waste streams such as housekeeping, catering, reception and public areas. There are also various types of waste generated, starting from organic, cardboard, glass or paper to metals, plastic and even some hazardous waste such as chemicals or electronic equipment. HoReCa businesses in Europe face a lot of challenges while sorting and recycling their waste.

The challenges are related for example to the constantly increasing costs of waste disposal, poor waste management infrastructure, space taken by the waste fractions in valuable back-of-the-house areas or noise generated by waste compaction and collection.

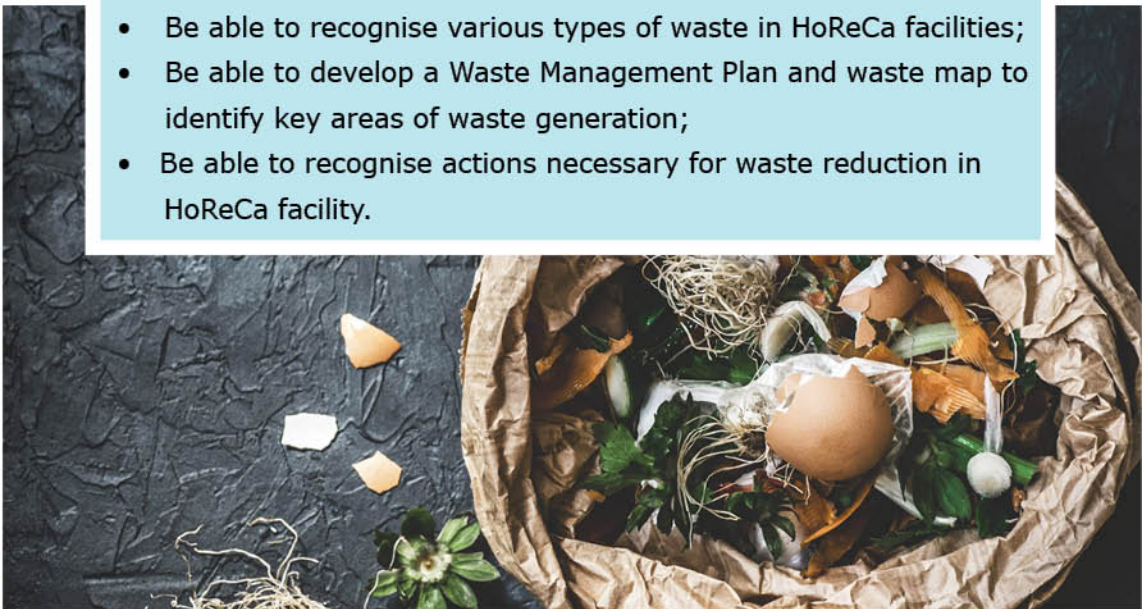
Introduction

Catering and restaurant service providers face additional problems related to the major type of waste generated there - organic food waste. The problem of food-related waste in professional kitchens in the HoReCa sectors was already explored in chapter one of this curriculum. Strategies and tools that can help tackle this problem and a monitoring approach was presented. This chapter will focus most of all on identifying key areas contributing to waste generation in the HoReCa facilities and demonstrating adequate waste reduction and recycling strategies to address this challenge.

Objectives

After completing this chapter, you will:

- Be able to identify key areas of waste generation in HoReCa facilities;
- Be able to recognise various types of waste in HoReCa facilities;
- Be able to develop a Waste Management Plan and waste map to identify key areas of waste generation;
- Be able to recognise actions necessary for waste reduction in HoReCa facility.



Unit 3.1 - Key areas and types of waste in the HoReCa facilities

According to the official data collected by European Commission, the composition of waste generated in hospitality and catering units is similar to regular household waste.

In general, the HoReCa waste comprises of two main components: dry waste (nonbiodegradable) and wet waste (biodegradable). Organic waste, glass, paper, cardboard, plastic and metal are named among the main fractions of waste generated in the HoReCa facilities on regular basis. The waste composition in accommodation and catering companies varies seasonally. In addition, due to hotels and restaurants often being localised in correlation to main tourist routes, the waste is often generated in sensitive areas, containing for example high natural resources. To present a complete and complex picture of the HoReCa waste generation in Europe, it is important to mention the link between restaurants and hotels with packaging waste. The overall HoReCa sector is considered as one of the key contributors to the packaging waste including plastic and metal packages in the continent. This being mainly due to single-use and individually wrapped items so popular in accommodation units and restaurants. We will explore this topic further in the next chapter.



Unit 3.1 - Key areas and types of waste in the HoReCa facilities

Waste in the HoReCa sector is also related to energy and water consumption in hospitality and catering facilities (European Commission, 2013). The **“Best Environmental Management Practice in Tourism Sector”** report by European Commission, allows to identify five areas of hotel and restaurant operations which are the main streams of waste production in the HoReCa facilities (European Commission, 2013):

- General management (back-of-the-house and maintenance)
- Procurement
- Housekeeping
- Catering and kitchen
- Reception and public areas



Unit 3.1 - Key areas and types of waste in the HoReCa facilities

Depending on the specification of the accommodation or catering unit, other areas may contribute to the overall waste generation schemes as well. To effectively address the issue of waste generation in the HoReCa sectors, next to recognising the main areas contributing to waste production, it is also crucial to identify the main types of waste generated.

The general statistics presented at the beginning of this unit allow to differentiate accommodation and catering waste into two categories: wet (biodegradable) and dry (nonbiodegradable).



Unit 3.1 - Key areas and types of waste in the HoReCa facilities

Unit 3.1.1 - Biodegradable waste

Biodegradable waste includes first and foremost food and drink waste and is related mostly to the catering and kitchen as well as serving areas of the HoReCa businesses. The overall data on food waste in Europe indicates that one third of food that has been produced is being wasted. Unequal distribution of food is only one of the serious consequences of such dealings. Social and health problems, and environmental consequences are some of the other resulting issues. Food waste is associated with an annual emission of over 4 million tonnes of greenhouse gases. Almost 200 million cubic meters of fresh water and 28 million tonnes of fertilizers are used to grow or produce food that is not being consumed at the end of the process. The Food and Agriculture Organisation of United Nations, indicates “a culture of abundance and behaviour patterns” as the sources of such distinctive waste-related numbers, and describes preparation and consumption stages as being mostly responsible for food waste generation (FAO, 2011).



Unit 3.1 - Key areas and types of waste in the HoReCa facilities

Unit 3.1.1 - Biodegradable waste



The hospitality and food service industry in Europe plays a significant role in the amount of food waste generated in the continent. A report on waste prevention in hospitality and restaurant facilities in Nordic countries, conducted in 2012, showed that over 27% of overall waste generated in Nordic economy originated from hotels and food service units. The study showed that about 70% of this loss could be avoided and about 50% of the food waste was generated outside the kitchen – in the service and consumer areas (Nordic Council of Ministers, 2012). The reflection of these trends and numbers can be found also in other European regions and countries.

Unit 3.1 - Key areas and types of waste in the HoReCa facilities

Unit 3.1.1 - Biodegradable waste

Responding to those observations, national governments around Europe with support from European Commission, have undertaken various actions to help hoteliers and restaurateurs in tackling this problem and its consequences. **One of the most effective strategies promoted is a zero-waste approach to kitchen and serving operations in the HoReCa businesses. The approach, focusing on preventing food waste generation in the first place, helps to effectively minimise the negative impacts of waste production on both the environment and the business.**

The 'Food Waste Hierarchy' tool was developed as an element of the zero-waste approach, to serve as guidelines for the HoReCa sector on how to fight food waste generation by maximising the use of food and minimising food waste.

In order to strongly emphasise the need for taking actions leading to more prevention of food waste, this model was modified to create the '**Food Recovery Hierarchy**', which focuses on actions that organisations can take to "prevent and direct wasted food".

(United States Environmental Protection Agency, 2019)

Figure 1: The Food Waste and Food Recovery Hierarchy



Source 2: <https://www.epa.gov/sustainable-management-food/food-recovery-hierarchy>

Unit 3.1 - Key areas and types of waste in the HoReCa facilities

Unit 3.1.1 - Biodegradable waste

The six recommended stages for managing food resources by accommodation and catering organisations were identified (United States Environmental Protection Agency, 2019):

- Source reduction** – the highest priority should be to prevent waste. HoReCa organisations can implement this strategy by performing a food waste audit. This is a tool designed to identify and measure amount, type and sources of waste to develop successful strategies of preventing waste generation. The procedures and tools necessary to conduct Food Waste Audit in kitchen and restaurant areas were described in chapter one of this Curriculum. Additionally, accommodation and catering units can implement better waste reduction habits such as ensuring proper storage techniques or improvement of purchasing process. A checklist of various positive habits was developed and is provided as an attachment to this unit in order to support the HoReCa units in their shift towards more sustainable practices (appendix 3.1 of this chapter).
- Feed hungry people** – redirecting unspoiled, healthy food to people in need should be a priority practice of food waste management system in every HoReCa organisation. Through establishing connections with local food recipient organisations such as foodbanks, soup kitchens or shelters; hotels and restaurants can contribute to creating community support networks. Additionally, such practices can help to save money for waste disposal and avail of tax benefits offered in many European countries for companies that donate food.
- Feed animals** – the third stage of the hierarchy is directing food scraps to farmers, zoos or producers that make animal or pet food. This practice may be regulated by national legislation, however contacting local farmer networks should help to make this procedure easy and profitable for both sites

Unit 3.1 - Key areas and types of waste in the HoReCa facilities

Unit 3.1.1 - Biodegradable waste

- **Industrial uses** – food wastage can be directed to obtain biofuels or bioproducts. The HoReCa organisations can perform some of the processes to reuse bioproducts in their own facilities and use it for example as an extra source of energy. Although, it is important to remember that various countries may have different regulations allowing hotel and restaurant units to implement such practices.
- **Composting** – food wastage that cannot be redirected to any of the above processes should be turned into compost to feed and nourish the soil. Organisations may create their own composting programmes or use existing composting services available in their closest environment.
- **Landfill/incineration** – only the food, that cannot be further redirected to organisations supporting people in need, feeding animals, obtaining bioproducts or for composting should be sent to landfill or incineration to generate waste.

The 'Food Recovery Hierarchy' provides managers and owners of HoReCa organisation with clear directions, which they should base their food management strategies on. It presents the most to the least preferable ways of approaching the food waste problem in HoReCa organisations.



Unit 3.1 - Key areas and types of waste in the HoReCa facilities

Unit 3.1.2 - Nonbiodegradable Waste

The main types of nonbiodegradable waste in restaurant and hostility sectors identified by European Commission (European Commission, 2013) and later by American Journal of Climate Change (Ezeah, Fazakerley, & Byrne, 2015) based on their study conducted in four popular tourist destinations in Europe, include:

Table: Popular nonbiodegradable waste in the HoReCa facilities

Type of waste	Components
Household waste	Dirty paper and wrapping used in kitchen/restaurant area, plastic wrapping or bags, composite wrappers
Cardboard and paper	Packaging,
Plastic	Bags, bottles, household goods, individual portion wrappers for different types of products
Metal	Tin cans, jar lids, soda cans, food containers, aluminium packaging, mayonnaise, tomato sauce and mustard tubes
Glass	Bottles, jars, flasks
Cloth	Tablecloths, bedlinen, napkins, clothes, rags
Wood	Wooden packaging, pallets

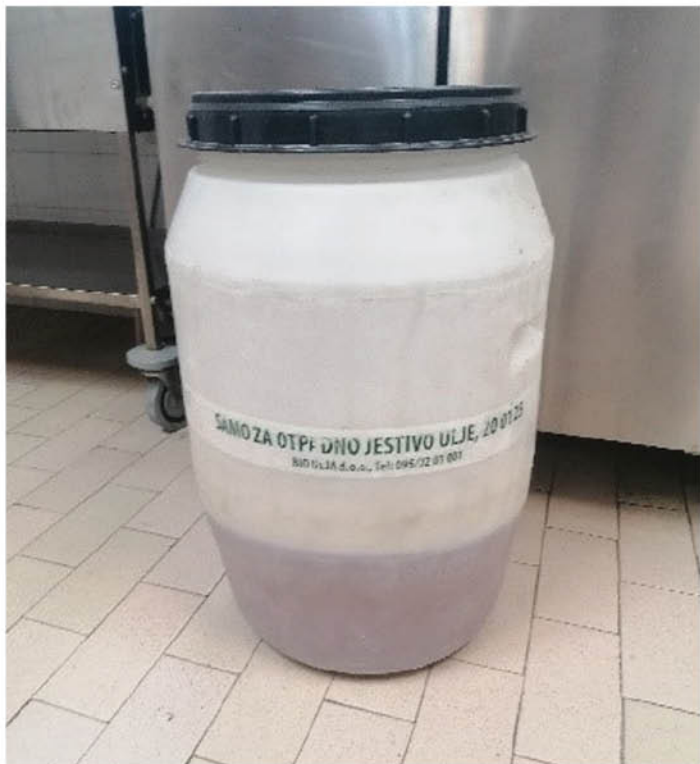
Source: Based on Ezeah, Fazakerley, & Byrne, 2015

Unit 3.1 - Key areas and types of waste in the HoReCa facilities

Unit 3.1.2 - Nonbiodegradable Waste

Nonbiodegradable waste is generated in all departments of the HoReCa organisation. For instance, the housekeeping department has a major impact on the generation of various waste such as towels, robes, linens, bathroom amenities (e.g. shower gels, shampoos, soaps etc.), cleaning chemicals as well as items left behind by guests such as medications, newspapers and batteries. Office and reception departments contribute mainly to the production of paper and cardboard waste, for instance: maps, brochures, printed documents; as well as electronic waste – monitors, computers, printer tonners etc. Public and garden areas strongly contribute to generation of wooden waste e.g. boxes and pots, but also glass and plastic example, bottles and cans left behind by guests. And finally, back-of-house departments generate various types of waste related to supply and maintenance such as packaging waste, laundry waste, paint, metal tools, furniture etc.

*(International Tourism
Partnership, 2014)*



Unit 3.1 - Key areas and types of waste in the HoReCa facilities

Unit 3.1.3 - Water waste

According to data collected by 'Water Sense' – a programme of the Environmental Protection Agency in USA aiming to protect water supplies – water used in the country's food and hospitality related facilities alone accounts for about 15% of the total water used in business and commercial establishments. The research showed that most of the water was used in the kitchen by various processes and equipment related to preparation, serving and cleaning. Other areas of restaurant and hotel operations contributing to generation of water waste included cooling and heating, use in rooms and restrooms, and landscaping (United States Environmental Protection Agency, 2019).



Unit 3.1 - Key areas and types of waste in the HoReCa facilities

Unit 3.1.3 - Water waste



There are two main approaches that should be taken in to account, process of water waste reduction and management (GreenHospitality.ie, 2018):

- 1. Measurement** – *through regular measurement of water waste, business owners or managers can build a comprehensive understanding of water-related practices in their organisation. It is crucial to first understand how much water is being used, followed by what are the sources of this use in the organisation.*
- 2. Minimisation** – *one of the most important sources of water waste is related to poor water-related behaviours of both staff and customers. An effective communication strategy should be developed and implemented on regular basis to encourage development of water oriented internal culture.*

Unit 3.1 - Key areas and types of waste in the HoReCa facilities

Unit 3.1.3 - Water waste



Some good practice examples that might be adapted by the HoReCa businesses to prevent and reduce water waste include (GreenHospitality.ie, 2018):

- **Double meters in areas contributing to highest water waste e.g. kitchen.** Data collected should be reviewed on regular basis and when consumption exceeded accepted norms, prevention measures should be taken
- **Towel Reuse Programme** – hotel guests should be encouraged to hang up their towels for reuse unless fresh towels are required. It's important to ensure the staff follows through this policy
- **Linen Reuse Programme** – the linen in rooms doesn't need to be changed on everyday basis during the guest stay. Guests should be encouraged to inform the staff when they want, the linen to be changed

Unit 3.1 - Key areas and types of waste in the HoReCa facilities

Unit 3.1.3 - Water waste

- **Reduction of water pressure**—in guests' toilets, public spaces and across the property
- **Sensors in taps, urinals, bathrooms**; replacing two tap sinks with mixed sinks (95% of running water in two taps sinks, never touches user's hands!).
- **Installing dual flush in toilets**
- **Pool covers** – should be always in place when pool is not used (contributing also to energy waste reduction!)
- **Rainwater harvesting** – water captured during rain showers can be used e.g. for gardening or pool backwash



Unit 3.1 - Key areas and types of waste in the HoReCa facilities

Unit 3.1.3 - Water waste

- **Employee training** – a communication strategy to inform staff on the water-saving practices should be implemented and coordinated by respective managers and team leaders. Monitoring of the practices and providing regular feedback contributes to building an understanding of expected results.
- **Customer and guest communication programme** – engaging with customers to encourage them to contribute to water-saving attempts plays a crucial role. Customers should be informed on actions that are expected from them, underlying potential benefits can support the staff in this process.



Unit 3.2 - Waste management plan and waste audit

To effectively address the problem of waste in their facilities, the HoReCa managers and business owners should consider introducing a waste management plan to their operations. **A waste management plan for hospitality or catering unit should take the form of written, internal policies that look at the entire life cycle of waste within a business. Based on observations, the plan should cover goals for minimising waste and its negative impacts; and present strategies on what needs to be done to achieve these goals.** The waste management plan should look at the problem of waste in organisation considering all areas of its generation, storage, transportation and disposal.

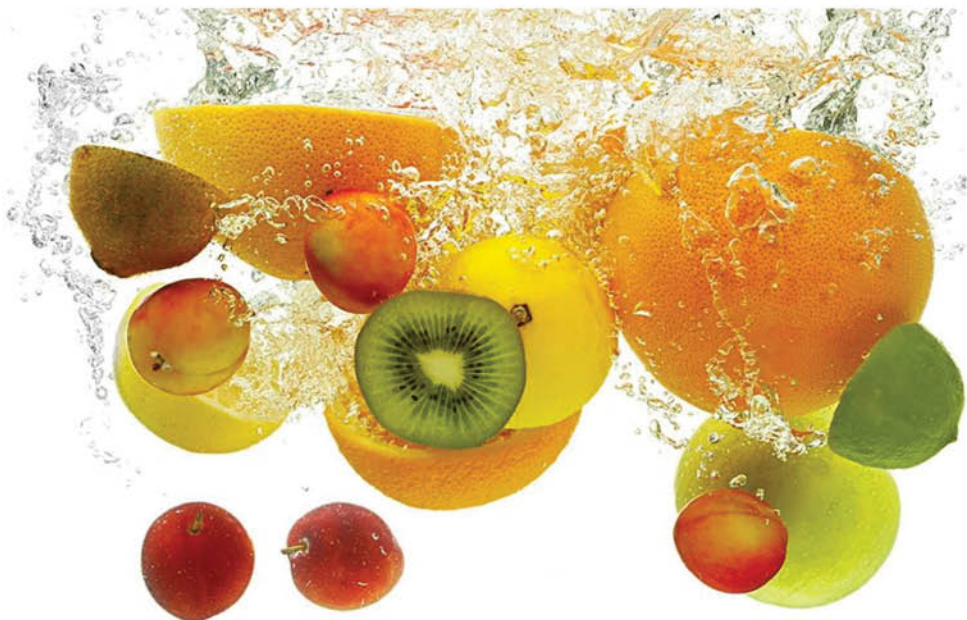
(European Commission, 2012).



Unit 3.2 - Waste management plan and waste audit

To gather data and the information necessary for the development of an effective waste management plan, a waste audit should be introduced. Conducting a general waste audit in the HoReCa facility should be a regular practice. The aim of waste audit is to investigate and identify the sources, composition, weight, volume and destinations of the waste generated (Green Hotelier, 2009). For this reason, the audit should cover main operation areas such as kitchen or housekeeping, also side areas such as administrative unit, warehousing and public spaces of the HoReCa business. Sometimes, for practical reasons, it is impossible to perform the audit in all sections of the HoReCa facility at the same time. If it is reasonable, it is recommended to divide audit activities in time, however steps should be taken to ensure that the results will not be impacted.

(Owen, Widdowson, & Shields, 2013)



Unit 3.2 - Waste management plan and waste audit

There are various methodologies, recommendations and guidelines available for the HoReCa organisations to lead them to conducting waste audit. Businesses may run it on their own or choose one of the growing numbers of professional services offered on the market. The methodology presented below is based on designing a waste map – an effective tool providing overview of waste and activities leading to its generation (Owen, Widdowson, & Shields, 2013). **The key steps of waste audit procedure for the HoReCa facility include: building an audit team, developing waste map and activity charts, establishing goals and creating work plan, and finally green procurement and stock management strategies.**

Unit 3.2 - Waste management plan and waste audit

Unit 3.2.1 - Building an audit team

Selecting a general leader of the audit activity and sub-leaders, who will be responsible for coordinating the audit in different sections of the HoReCa organisation should be a first step in the process. The audit team should be comprised of staff from all key areas of the hotel or restaurant, e.g. management, procurement, housekeeping or kitchen; and should collaborate through the entire duration of the activity. Involving personnel from different areas of hotel or restaurant operations can provide logistical insight to the existing waste management systems. Moreover, sub-leaders can support the waste audit process by collecting necessary data and implementing audit activities within their section.



Unit 3.2 - Waste management plan and waste audit

Unit 3.2.1 - Building an audit team



All necessary audit activities should be discussed, planned and agreed by the audit team, and sub-leaders should be informed of the exact procedures and tasks that should be implemented in their operational units. For example, while performing a general audit in a hotel, a food waste audit in kitchen and serving areas or an audit of housekeeping should be implemented. These actions can support the team to obtain the most concrete and detailed data. However, the leader of the waste audit should always monitor, and coordinate performed activities in all areas of operation.

(International Tourism Partnership, 2014)

Unit 3.2 - Waste management plan and waste audit

Unit 3.2.1 - Building an audit team

Timing

Deciding on the timing and duration of the audit should be the first tasks for the audit team. **Depending on the size of the facility, the audit should last from two days to two weeks. It should be conducted during the time of regular activity and should be repeated minimum twice a year.** Important questions that should be considered while performing waste audit in the HoReCa organisation are for example hotel occupancy rate, nonroutine activities such as renovation works, special events or conferences etc. The management team may decide to keep the timing of the audit a secret from bottom-line employees, customers and guests in order to ensure that the waste amounts recorded will be a true representative sample of regular practices.



Unit 3.2 - Waste management plan and waste audit

Unit 3.2.1 - Building an audit team

Rules and Regulations

Guarantying proper safety measures, and educating staff involved in the implementation of the audit on health and safety matters, should be a key priority for the audit team. **Providing necessary equipment such as gloves, garbage bags, weighing scale and containers and clearly communicating rules on how the audit will be run and waste amounts recorded is necessary to ensure a successful completion of the activity. The clear rules of garbage disposal should be agreed.** It might be necessary to temporarily introduce different coloured bags or stickers to identify the source of waste in common waste disposal areas. Moreover, audit team in hospitality units, should remember that waste collected from guest rooms may contain their personal and private information and measures should be taken in order to prevent any leaks of confidential information.

(International Tourism Partnership, 2014)



Unit 3.2 - Waste management plan and waste audit

Unit 3.2.1 - Building an audit team

Additionally, a communication plan should be developed to inform staff responsible for implementation of the waste audit on the inventory procedures and measures. And finally, audit documentation, any monitoring sheets and reporting templates necessary should be developed and distributed among key staff members.



Unit 3.2 - Waste management plan and waste audit

Unit 3.2.2- Developing a waste map and activity charts

A waste map is a graphic representation of the facility, that includes information of waste produced in its various areas. The first step to create a waste map is to obtain a site layout – it can be a simple sketch covering all operational areas of the facility or an official plan of its building(s). It is important to consider all functionalities of the building(s) on the map and not only main areas, as often some waste sources may be hidden, and staff or managers do not realise the impact on general waste amounts. While creating the map it is recommended to ensure there is enough space for marking comments and references.

(Owen, Widdowson, & Shields, 2013)

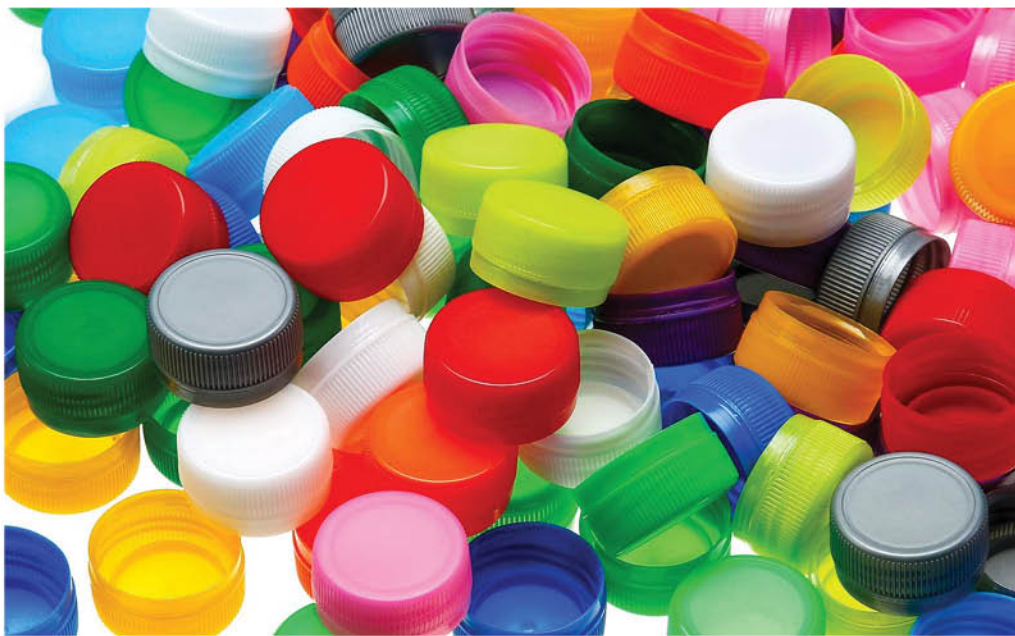


Unit 3.2 - Waste management plan and waste audit

Unit 3.2.2 - Developing a waste map and activity chart

Once the layout is developed, it is the time to introduce information on waste generated and resource used (resource include not only raw materials but also employees time, utility usage, storage etc.). At this stage, the involvement of the audit sub-leaders in different areas of organisation's operation is crucial. The procedure of creating waste map requires a waste audit leader to visit each of the areas identified on the site layout and report all types of waste produced and resources lost and its measured or estimated amounts. This process can and should be supported by audit activities implemented on a scale of all significant areas of the business, for example kitchen, restaurant and housekeeping unit.

(Owen, Widdowson, & Shields, 2013)



Unit 3.2 - Waste management plan and waste audit

Unit 3.2.2 - Developing a waste map and activity chart

If data on the amount and type of waste collected in the unit was not measured by internal audit activities, the audit leader should discuss with key staff members, and collect relevant information on (Owen, Widdowson, & Shields, 2013):

- Number of bins in the area
- Type of bins or waste in the area
- Volume capacity of bins
- How full the bins usually are when collected?
- Typical collection frequency

This data will enable him or her to estimate the weight of waste collected. Additionally, the audit leader should identify the amount of waste segregated for recycling or reuse and record utility use for example water, electricity and gas. Analysing activity areas in certain units of the organisation, the audit leader should also cover the purchasing, storage and other strategies characteristic for the unit, that might contribute to waste production. Asking questions such as “what happens to cleaning detergent containers when emptied?”, “how ordered goods are sorted?” or “what happens if ordered goods are damaged?”. Answers to such questions help to gather detailed information and encourage staff to think about hidden sources of waste. Once all data and information were identified, they should be marked on the map.

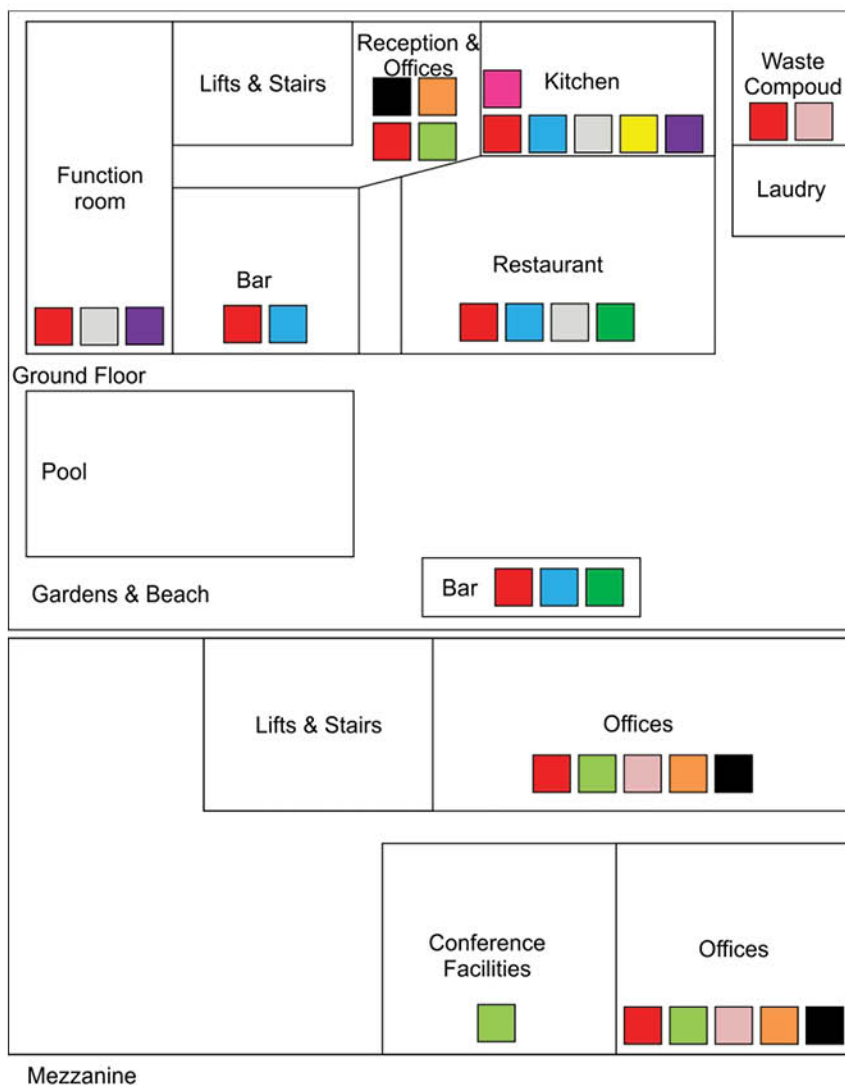
(Owen, Widdowson, & Shields, 2013)

Unit 3.2 - Waste management plan and waste audit













Unit 3.2.2 - Developing a waste map and activity chart

An example of a simple waste map with colour coding allowing to identify various waste types has been presented below:

Figure 2: Waste map of an all-inclusive hotel



Unit 3.2 - Waste management plan and waste audit

Key	Waste type	Key	Waste type
	Non-recyclable waste		Food waste
	Paper and Card		Garden waste
	Plastic		Electrical items
	Glass		Furniture
	Tins & cans		Toner cartridges
	Cartons		Vegetable oil



Unit 3.2 - Waste management plan and waste audit

Unit 3.2.2 - Developing a waste map and activity chart

Adding together the different waste measures from each department gives an overall estimate not only of the amount of waste the hotel or restaurant facility produces (which actually could be provided by the waste contractor without the need to perform the audit in the first place), but most importantly about the structure of the waste generated, areas that produce the most waste and strategies of waste management in different units and in general. This can in turn help identify costs that could be reduced by better waste management.

(Owen, Widdowson, & Shields, 2013)



Unit 3.2 - Waste management plan and waste audit

Unit 3.2.2 - Developing a waste map and activity chartsteam



Once all data and information are collected and presented on the waste map, the next step is to develop activity charts for all the operation areas or the areas that need intervention. The activity charts should indicate all inputs – goods and products; and outputs – the waste produced, in the unit. A close cooperation with unit staff and leaders is crucial at this stage to better understand the practices performed regularly in the unit. If completed in a detailed way, the activity charts can help managers to indicate ill-functioning elements of activity schemes or practices contributing the most to waste production.

(Owen, Widdowson, & Shields, 2013)

At this stage, it is important to look at the actual cost of the waste, as it is necessary to analyse the invoices and bills indicating the value of inputs and outputs.

Unit 3.2 - Waste management plan and waste audit

Unit 3.2.3 - Establishing goals and creating a work plan

A completed waste map and activity chart will allow HoReCa managers or business owners to better understand:

- Which operation areas contribute to highest waste production
- The type of waste generated
- Which activities contribute the most to waste production
- The cost of waste generated

Knowing the above, the leader of the waste audit activity in cooperation with managers of the organisation and leaders of different units, should be able to identify areas of operation that require intervention in the first place. Next, opportunities for improvements should be identified and goals to reduce the amount of waste (and the cost related) set.



Unit 3.2 - Waste management plan and waste audit

Unit 3.2.3 - Establishing goals and creating a work plan



Managers and key staff members should also design strategies to replace or improve previous practices. Hence, it should be considered that changes to some routine practices in different units of the business' operations might be required as a result of the audit.

(Owen, Widdowson, & Shields, 2013)

Based on the findings of these analysis, an action plan of tasks and strategies should be designed, and the staff responsible for implementing the changes indicated. An example of a simple action plan to reduce waste and cost of the waste in key hotel areas is presented below.

Unit 3.2 - Waste management plan and waste audit

Unit 3.2.3 - Establishing goals and creating a work plan

Figure 3: Work plan for actions to be taken as a result of waste audit

Area for improvement	Action to be taken	Timescale for implementation	Responsibility
Housekeeping	Implement bulk toiletries system in guest accommodation:		
	<ul style="list-style-type: none"> Further investigate prices and systems from suppliers 	1 month	Housekeeping manager
	<ul style="list-style-type: none"> Agree preferred approach 	3 months	Hotel manager
	<ul style="list-style-type: none"> Purchase system 	4 months	Hotel manager
	<ul style="list-style-type: none"> Provide training to staff 	6 months	Housekeeping manager
	<ul style="list-style-type: none"> Roll out new approach 	7 months	Housekeeping manager
Kitchen and restaurant area	Introduce food waste monitoring scheme into kitchens and restaurants:		
	<ul style="list-style-type: none"> Discuss monitoring scheme and approach with key kitchen and restaurant staff 	1 month	Food and beverage manager
	<ul style="list-style-type: none"> Develop recording sheets 	1 month	Food and beverage manager
	<ul style="list-style-type: none"> Provide training to staff 	2 months	Food and beverage manager
	<ul style="list-style-type: none"> Roll out monitoring process 	2 months	Food and beverage manager
	<ul style="list-style-type: none"> Monitor usage. 	3 months	Food and beverage manager

Source: (Owen, Widdowson, & Shields, 2013)

Unit 3.2 - Waste management plan and waste audit**Unit 3.2.3 - Establishing goals and creating a work plan**

A waste audit should be held at least two times a year in order to monitor the changes and improvements. It is recommended, that the areas that were covered in the action plan will be the key focus of next audit activities. However, except from shifts in management strategies and regular practices, the behavioural change in staff, suppliers and customers is necessary. For this reason, a broad communication strategy is recommended, to inform all sides involved about the objectives and strategies adapted. Training tailored to the specific needs of the staff in different units should be provided and employees should be aware of the waste reduction and recycling standards accepted.

(Owen, Widdowson, & Shields, 2013)



Unit 3.2 - Waste management plan and waste audit

Unit 3.2.4 - Green procurement

An important step that businesses can take in order to support their waste management strategies is adapting green procurement practices. **Green Procurement described also as ‘environmentally friendly procurement’ is defined as “an approach to purchasing products and services that always take into account the economic, environmental and social impacts of organisation’s buying choices” (Eades, 2012).** Sustainable procurement requires all elements of the business supply chain are characterised by high environmental and ethical standards. It requires planning and researching while sourcing for suitable products, services and suppliers in order to ensure that their activities go along with organisation’s values and their negative impact on the environment is as low as possible.



environmentally friendly procurement

Unit 3.2 - Waste management plan and waste audit**Unit 3.2.4 - Green procurement**

Moreover, the company needs to analyse the environmental consequences and impacts of the products or services at the different stages of their life-cycle such as manufacturing, transporting, storing, handling, using and disposing (International Institute for Sustainable Development, 2013). Hence, some of the elements that HoReCa organisations should take into consideration while deciding on their purchasing strategy should include energy and water efficiency, packaging and waste, carbon footprint, recycling possibilities, food miles etc. In order to ensure that green procurement strategies in the HoReCa businesses are well planned and implemented, organisations should develop procurement programmes into their waste management programmes and ensure their integration with daily operational practices.

(International Institute for Sustainable Development, 2013)

Unit 3.2.5 - Stock management strategies

One of the most important streams of waste production in the HoReCa organisations is kitchen and kitchen related processes. Statistics indicate that up to 10% of food purchased in food service businesses is wasted even before it reaches the customer's plate. One of the main reasons is a poor stock management. Stock, or inventory management is a strategy that can support HoReCa organisations in improving their supply management practices, reducing waste amount and cost related to the supply practices. By enabling organisations to track the ingredients and products that come in and out of the stock, inventory management system allows to control the supply status and flows.



Unit 3.2 - Waste management plan and waste audit

Unit 3.2.5 - Stock management strategies

Key principles of developing an effective stock management strategy in the HoReCa organisation include. (The Restaurant Times, 2019):

- **Regular monitoring** – a staff member such as a chef or manager should be designated to coordinate the stock monitoring practices. All the kitchen employees should contribute to monitoring the flow of supplies, recording the changes daily. Monitoring may be facilitated with use of reporting sheets, recording products remaining in and taken out of the stock or digital systems.
- **FIFO (First In First Out) method should be applied in order to avoid spoilage and waste.** To support this method, it is recommended to use transparent containers with clear descriptions, informing the date of arrival and spoilage of the product. This inventory method should allow businesses to use existing products before bringing in fresh supplies. The shelf-life of products should be monitored on regular basis in order to ensure that those with shorter spoilage date, or ones that soon will be out of date will be used first.
- **Products and ingredients with an impending spoilage date should be used to prepare existing dishes, or specials often offered off the menu to guests.**
- **All kitchen staff should be trained in the stock management strategies, and the kitchen management or chef should be responsible for monitoring the implementation of new strategies.**

Appendices

Appendix 3.1 – Quick Checklist of Positive Habits to Minimise Food Waste.

The checklist below presents a list of ideas that the HoReCa facilities should consider in their everyday routine to prevent food loss and waist.

It is recommended that a shift towards more sustainable food waste practices begin from conducting a food waste audit and was supported by an information campaign directed to all staff of the facility.

Area	Task	Yes	No
Preparation and storage	Avoid preparing meals ahead of time		
	Use cook-to-order instead of bulk-cooking toward the end of the day		
	Use leftovers from the day before		
	Freeze fruits and vegetables for reuse in future		
	Marinate meats to extend shelf life		
	Use leftover ingredients in different recipes		
	Use see-through storage containers		
	Don't peel fruits and vegetables if not necessary		
	Eliminate inedible and unnecessary garnish		
	Immerse wilted vegetables in warm water to reuse		

Shopping and supply	Use reusable containers and bottles instead of single use		
	Buy bruised or odd shaped vegetable or fruits at a discount to use e.g. for soups		
	Buy local foods		
	Choose suppliers with positive food waste management strategies (Encourage your present suppliers to positive change)		
	Do regular inventory checks		
	Prepare shopping lists		
	Increase the frequency of shopping to reduce spoilage		
Serving area	Increase the frequency of shopping to reduce spoilage		
	Provide taste samples for hesitant customers		
	Offer take-away containers for leftovers		
	Introduce 'pay-per-item' instead of 'all-you-can-eat' approach in your buffet		
	Remove trays from buffet to encourage customers to take only as much food as they need		
	Use smaller plates and bowls for serving food		
	Offer different portion sizes		
	Decrease portion sizes		
	Ask customers about their preferences before automatically serving bread, chips or side items		
	Promote food waste prevention among customers		

This checklist was developed based on EPA's "Food Loss Prevention Options for Restaurants". Available at: <https://www.epa.gov/sustainable-management-food/how-prevent-wasted-food-through-source-reduction>

