

Chapter 4: Packaging

Introduction to Chapter 4

This is the fourth module of the Zero Waste in HoReCa Curriculum. This module addresses the topic of packaging, specifically packaging waste in the HoReCa industry. The idea of waste management can seem like a straightforward one. The reduce, reuse and recycle concepts have been established for a long time, and yet there is still an issue with plastic waste in our landfills and oceans. In order to combat this and to reduce packaging waste, we will take a threefold approach. First, we will examine where packaging waste is coming from in HoReCa businesses and learn how to monitor it. Next, we discuss the correct separation and disposal of waste. Finally, we will explore packing waste reduction in the form of reusable packaging and sustainable packaging.



Objectives

Once you have read through this chapter and completed this short unit on Packaging in the HoReCa industry, you will have achieved the following objectives:

- You will gain an understanding of what packaging is, and where it comes from.
- You will learn the importance of monitoring packaging waste, and how to implement a monitoring plan for optimal packaging waste management.
- You will recognise the benefits of recycling packaging and understand the barriers that can be faced in the HoReCa industry when recycling.
- You will gain an appreciation for packaging waste management, with an ability to create a packaging waste management plan and strategy for your workplace.
- You will have an increased comprehension of green procurement and the impact of green marketing.



Unit 4.1 - Packaging waste in HoReCa

Unit 4.1.1 - What is packaging?

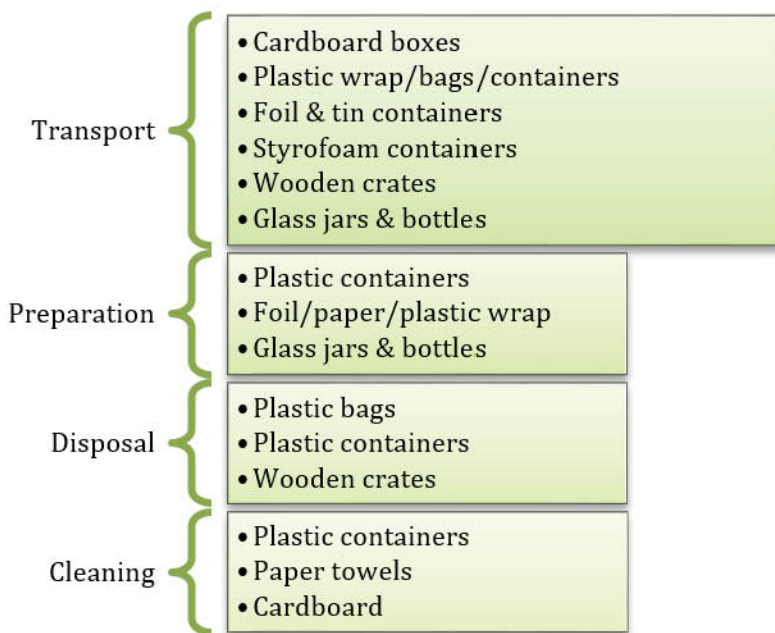
Before we can work to reduce or eliminate packaging waste, it is important to first understand what packaging is and why it is needed. So, what is packaging? **Packaging is defined as the material used to display, contain, protect or transport a product. Most common materials used in packaging are plastics, glass, paper and cardboard, wood, and aluminium** (Eurostat, 2019). Packaging is one of the most important elements in the movement of goods. **The types of packaging used are influenced by the following factors: transport methods, distance and duration of time travelling, the product type, any preservation required, marketing needs, shelf-life expectations and handling** (Eurostat, 2019). While steps are being made to reduce the environmental impact of packaging, there are still some approaches to packaging that are deemed to be problematic for packaging and food waste. In worst case scenarios, packaging practices – such as slack-filling/selling air, attaching free/excess items, and downsizing – can in fact result in unnecessary packaging, therefore creating waste.



Unit 4.1.2 - Packaging waste

The total demand for plastic in Europe has risen to 49 million tonnes per year, of which nearly half is used for packaging (Schweitzer et al., 2018). In 2016, Eurostat (2019) measured the volume of packaging waste for Europe at 86.4 million tonnes – that equates to an average of 169.7kg of packaging waste produced per resident of the EU 28 countries. These averages changed per country, with Croatian inhabitants generating 54.9kg and people in Germany creating 220.6kg of packaging waste.

Figure 4.1 Know Your Packaging Sources



Unit 4.1 - Packaging waste in HoReCa

Unit 4.1.2 - Packaging waste

Over a ten-year period, the approximate total volume of packing waste generated by the EU-28 since 2007 is 811.7 million tonnes. **Eurostat (2019) identified the most significant packaging waste came from paper and cardboard (41%), followed by plastic and glass (19% each), wood (16%) and metal (5%).**

The tourism industry contributes significantly to packaging waste in Europe. Tourists generate nearly twice as much solid waste per person as residents (European Commission, 2013). In a study conducted by the European Commission (2013) restaurants and accommodation providers were named as major contributors of packaging waste. They determined that packaging alone attributed to approximately 40% of a hotel's waste generation. **Cardboard, plastics, aluminium and glass are the various packaging materials most frequently used across all aspects of the HoReCa business. These materials are used in the transportation of goods (both in raw material and final product forms), in the preparation of goods and services, in the disposal of waste, and in the cleaning of service areas.** It is important to note that there are other functions of a HoReCa business that can generate packaging waste, such as: administration, merchandise for guests and customers, and marketing.



Unit 4.1.3 - Problematic packaging design

Packaging in any form contributes to waste. However, problematic packaging design can increase the volume of disposed packaging. Firstly, let's look at small format packaging often used to contain condiments, butters and spreads, milk, and sugars. Sachets are sold in the hundreds of billions each year and represent 10% of the packaging market across the globe (Schweitzer et al., 2016). These sachets and containers are frequently used in catering services, and in most cases are not recycled thus producing waste. They also contribute to food waste as they are often left unfinished by customers and are disposed of by businesses.

(Schweitzer et al., 2016)



Unit 4.1 - Packaging waste in HoReCa**Unit 4.1.3** - Problematic packaging design

Research has shown that small format packaging, as well as flexible and multi-layered packaging are the most waste intensive. These types of packaging are often used in pre-prepared and convenience foods. The need for reduced food preparation time, and the increased call for food on the go, have resulted in a huge increase of packaging (Schweitzer et al., 2016). Taking for example the pre-prepared bag of salad that contains dressing, cheese and croutons – this product contains 4 pieces of packaging. There is also the argument that this bag of salad may be less nutritionally beneficial than buying a head of lettuce, as the leaves are usually treated in the likes of chlorine to have a longer shelf life.

(Schweitzer et al., 2016)

Unit 4.1 - Packaging waste in HoReCa

Unit 4.1.3 - Problematic packaging design

On-the-go foods like pre-packaged sandwiches and wraps and pre-cut fruit and vegetables all have short lifetimes on the shelves and have a heavy dependence on refrigeration. There is an increasing demand for packaging that will assist in lengthening shelf lives, incorporating tools like moisture absorbers, oxygen scavengers and ant-microbial coatings. While these may help the businesses and producers combat food waste, often these smart-packaging solutions increase the number of materials used in the making of the packaging thus reducing their recyclability

(Schweitzer et al., 2016)



Unit 4.2 - Management and disposal of packaging waste

The generation of packaging waste in the HoReCa sector can be traced to four main processes: transportation, production, disposal and cleaning (European Commission, 2013). The introduction and implementation of a packaging waste management strategy will ensure that packaging waste is managed and correctly disposed of.

There are two key elements involved in the effective management of packaging waste: assessment and monitoring of packaging waste, and the separation and disposal of waste.



Unit 4.2 - Management and disposal of packaging waste

Unit 4.2.1 - Monitoring packaging waste

Monitoring is an essential part of any waste management plan (European Commission, 2013). In order to competently monitor packaging waste, it is important that an initial inventory of the sources that contribute to packaging waste in a HoReCa business is carried out. The main streams of packaging waste (transport, production, disposal, cleaning) can and should be further broken down in specific activities and assessed based on the packaging waste they produce - a sample survey used to create this inventory can be found in appendix 4.1 of this chapter. This inventory is beneficial to management and employees, providing them with a full overview of the packaging waste generated by their establishment. It also can assist in the calculation of the costs associated with packaging waste disposal, with a focus on future cost savings once this waste is managed at an optimum level.

(European Commission, 2013)



Unit 4.2 - Management and disposal of packaging waste

Unit 4.2.1 - Monitoring packaging waste

Once the initial assessment has been completed, a periodical and consistent monitoring plan should be developed. In appendix 4.2 of this chapter, you will find a sample monitoring tool for packaging waste. This examines the volume of packaging waste once it has been segmented into different packaging types: glass, paper/cardboard, plastic, wood, metal, and general waste. On-going monitoring and reporting of packing waste volumes will allow for the evaluation of costs, and potential cost savings, of packaging waste prior to implementing best practice sorting and again once it is being separated correctly.

(European Commission, 2013)

It will also be possible to set measurable targets for packaging waste reduction that will help to assess the effectiveness of recycling strategies in the business.



Unit 4.2 - Management and disposal of packaging waste

Unit 4.2.2- Separation of packaging waste

A heavy reliance on landfills in the past has meant that landfill space is quickly diminishing with time. This has led to increased collection and disposal costs associated with waste, and these costs are likely to continue to increase (European Commission, 2013). There are significant economic incentives for organisations in the HoReCa industry to reduce their waste, particularly with regards to packaging. In some cases, the organisation pays twice for it: once at purchasing and again at disposal (European Commission, 2013). We have already established that paper and cardboard, plastic, glass, wood and metals are the main materials used in the manufacturing of packaging (Eurostat, 2019). A study produced by the European Commission (2013) looked at how each of these materials could be recycled and what benefits their recovery would have on the environment:



Unit 4.2 - Management and disposal of packaging waste

Unit 4.2.2 - Separation of packaging waste

Packaging Material	Recycling or Reuse	Benefits to the Environment
Paper and cardboard	<ul style="list-style-type: none"> Separate by weight (light weight paper, to heavy weight cardboard) and send for recycling Return boxes to suppliers for reuse where possible Look for possible reuse applications on-site – possible reuse in storage 	<ul style="list-style-type: none"> Reduce dependence on landfill; and depletion of natural resources
Plastic	<ul style="list-style-type: none"> Send for recycling and reproduction into new plastic products Return containers to suppliers for reuse where possible Look for possible reuse applications on-site – possible reuse in storage 	<ul style="list-style-type: none"> Reduce dependence on landfill and depletion of natural resources Reduce energy consumption and air pollution
Glass	<ul style="list-style-type: none"> Send for recycling and reproduction into new glass product Return bottles to suppliers for reuse where possible Look for possible reuse applications on-site – possible reuse in storage, or use in décor 	<ul style="list-style-type: none"> Reduce dependence on landfill and depletion of natural resources 20-30% reduction in energy consumption Reduction in oil consumption
Foil and cans	<ul style="list-style-type: none"> Send for recycling and reproduction into new products Look for possible reuse applications on-site 	<ul style="list-style-type: none"> Reduce dependence on landfill and depletion of natural resources 75-90% reduction in energy consumption and air pollution
Wood	<ul style="list-style-type: none"> Send for recycling and reproduction into new products Return crates to supplier for reuse where possible 	<ul style="list-style-type: none"> Reduce dependence on landfill; and depletion of natural resources
Wood	<ul style="list-style-type: none"> Send for recycling and reproduction into new products Return crates to supplier for reuse where possible Look for possible reuse applications on-site – possible use in energy generation or storage 	<ul style="list-style-type: none"> Reduce dependence on landfill; and depletion of natural resources
Other types of packaging	<ul style="list-style-type: none"> Return to supplier for reuse where possible Work with suppliers to reduce non-recyclable packaging Look for possible reuse applications on-site 	<ul style="list-style-type: none"> Reduce dependence on landfill; and depletion of natural resources

Unit 4.2 - Management and disposal of packaging waste

Unit 4.2.2 - Separation of packaging waste

Bad packaging waste management practices can affect resource and financial sustainability, health and hygiene in the workspace, and the overall perception of the organisation (both on a staff level and a customer level). So, what is the best practice for the disposal of packaging waste? **Packaging waste cannot separate itself; the correct sorting and disposal is led by the people that interact with it. Therefore, an optimised strategy for the correct disposal of packaging waste needs to be examined for the following people: customers/guests, employees and management.**



Unit 4.2 - Management and disposal of packaging waste

Unit 4.2.2 - Separation of packaging waste

Employees and Management

Research has shown that choosing recyclable packaging materials alone is not enough to change attitudes towards a more recycling-friendly work environment. A study of McDonalds restaurants in Finland found that while 93% of the packaging was recyclable, in practice only 29% was being recycled as a result of poor waste management practices.

(Schweitzer et al., 2018)

With a view to creating positive attitudes to the recycling of packing waste, facilities must be put in place to aid employees to effectively separate waste:

- **Clearly labelled bins or containers need to be allocated for different packaging materials (paper, glass, tins, plastic),**
- **Providing a clean and dry storage space for packaging that will be returned to suppliers for reuse,**
- **Recycling diagrams and information posters in staff areas, providing clear information on what types of materials are to be recycled and how.**

In addition to these provisions, **regular employee training is also important to reiterate the importance of packaging waste management. Management may also look at incentivising or promoting innovation among employees to develop new ways of reusing existing packaging,** thus removing the need for disposal altogether.

Unit 4.2 - Management and disposal of packaging waste

Unit 4.2.2 - Separation of packaging waste

Customers/Guests

Customers and guests can have a huge impact on the success of packaging separation campaigns in the HoReCa industry. They are the end user of the products and services provided in these businesses, and as a result they contribute to the packaging waste creation (REPAK, 2018). **In order to implement best practice strategies for waste disposal, it is imperative that you include the customer in the process where possible. To enable customers to change their behaviours regarding packaging disposal, customer education is required. This can be achieved by clearly presenting information about what the organisation is trying to achieve, and most importantly providing simple and straightforward steps they can take in the separation of waste (both at home and at the establishment).**



Unit 4.2.3 - Barriers to recycling and packaging disposal

While there are clear strategies that can promote and aid the recycling of packaging waste in the HoReCa industry, there are also some barriers faced by businesses in this sector (European Commission, 2013). The first issue that can affect the success of packaging recycling initiatives is the availability of floor space. Best practice recycling of packaging waste strategies would suggest the need for considerable floor space for segregated bin systems and storage of reusable packaging. However, this is not always possible in an establishment with minimal floor space. These businesses may also have limited access to storage space externally. In these instances, the organisations may need to find innovative solutions to their recycling management issues.

Another factor that can influence the success of recycling is the infrastructure in the locality of the business (European Commission, 2013). Options of where to send recyclable materials are **most often dictated by the local authority or waste collection providers**. This may hamper the effective separation and sorting of packaging materials, resulting in an increase usage of general waste bins.

Figure 4.2

Combating the barriers of recycling

Floor space: Assess current availability of floor space. Look for alternative places to put recycling bins. Is there a space up high to place items going back to suppliers? Can you sort waste in front-of-house areas?

Local authorities/ Waste collection providers: Contact your local authority/waste collection provider to enquire about alternative recycling services. Are there any other waste collectors in your area?

Unit 4.3 - Sustainable practice

In 2016, an NGO called Ocean Conservancy organised an international coastal clean up in 112 countries, during which they found a staggering 13.8 million items discarded in oceans and on beaches. Included in this figure was approximately 350,000 take away containers, 400,000 straws and 420,000 plastic lids (Ocean Conservancy, 2017). These alarming figures highlight the significant global issue with waste disposal in our seas and oceans, as well as littering and dumping. They also bring the question of sustainability to the fore. Should we continue to contribute to these statistics in our current purchasing and provision practices? The answer is no! This is a global phenomenon, that is unlikely to be changed in one swift movement. Therefore, it is important as individuals, consumers, business managers/owners, and members of the community that we make and influence small changes to help in the fight against packaging waste. We have examined the sources of packaging waste in HoReCa businesses and established a plan to sort and recycle packing waste correctly. While these first steps will have an impact on landfill waste, it is also important to evaluate sustainable practices, such as reusable practices, within the realm of the HoReCa industry.



Unit 4.3 - Management and disposal of packaging waste**Unit 4.3.1** - Reusable packaging

Before we can evaluate the impact of reusable packaging on HoReCa businesses, it is first essential that we gain an understanding of what reusable packaging is. **Definitions of reusable packaging tend to be similar, describing it as packaging that can be returned to suppliers and used again to deliver products to a business (GWP Group, 2019). There are already several packing solutions that are deemed reusable, such as plastic and wooden pallets, plastic bulk containers, shipping racks, and on a more local level, handheld reusable bags and containers.** This form of reusable packaging – between suppliers and their customers – has proven to effectively reduce the volume of food spoilage, especially in the case of fruit and vegetables.

(Schweitzer et al., 2016)

Unit 4.3 - Management and disposal of packaging waste

Unit 4.3.1 - Reusable packaging



According to the GWP Group, a packing company in the UK, another concept of reusable packaging comes in the form of **'opportunistic reuse' – meaning to take packaging that was initially intended for single use and reuse/repurpose it for something else** (GWP Group, 2019). For example, a single use plastic container that once held a food product can be cleaned and reused as a storage container. Although this is more widely considered a repurposing technique rather than reusable packaging, it reduces waste creation and has some inherent cost benefits as well. Think back to the inventory taken of the sources of packaging materials that appear in various aspects of a HoReCa business (appendix 4.1). Now consider the lifecycle of these materials – are they single use materials or can they be reused (either returned to the supplier or repurposed in a different part of the business)? The assessment tool in appendix 4.3, will help managers and business owners to evaluate the reusability of the packaging materials across the business.

Unit 4.3 - Management and disposal of packaging waste

Unit 4.3.2 - “Reusable” practice

So far, we have only really considered the reusability of large-scale packaging used to transit and deliver products to a HoReCa business, and briefly examined repurposing some single use packing materials as well. However, to fully comprehend sustainable practices for packaging, we must look at the packaging that is being given to the end user – the customer/guest. **The ‘reuse’ strategy can be most impactful to the reduction in packaging waste when aimed at the customers.** There are a number of changes in practice that can reduce packaging waste in accommodation and catering services offered by HoReCa businesses to their customers.

Accommodation - Guests of accommodation providers regularly have a variety of comforts and amenities offered to them in their rooms. Products like shampoos, conditioners, creams, soaps etc are frequently packaged individually. These products contribute significantly to packaging waste, and unless the hotel has provided segregated bins in the room, this waste is going straight to landfill sites.



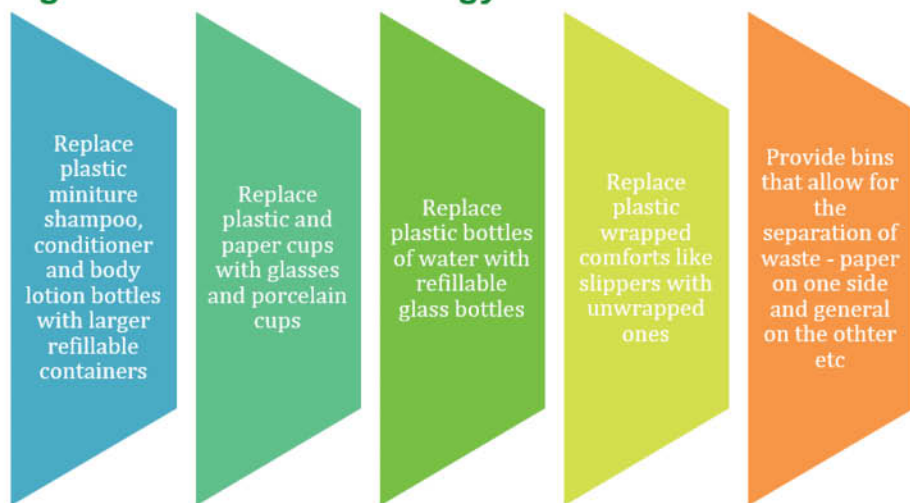
Unit 4.3 - Management and disposal of packaging waste

Unit 4.3.2 - "Reusable" practice

It is also worth mentioning that in the case where the 'shampoo bottle' is not fully used by the guest and put in the bin by staff, it contributes to chemical waste as well (European Commission, 2013). Other features in guest rooms also add to packaging waste like plastic/paper cups for water and hot drinks, individually packaged tea, coffee and milk plastic wrapped guest slippers, plastic bottles of water etc. Businesses can work to reduce packaging waste with a few small changes in practice outlined in Figure 4.3.

(European Commission, 2013)

Figure 4.3 Reusable Strategy in Guest Rooms



Unit 4.3 - Management and disposal of packaging waste

Unit 4.3.2 - “Reusable” practice

Catering Services – Similarly, services provided to customers by restaurants, cafés, catering services, fast food and food on-the-go establishments produce a large amount of packaging waste. We have already discussed the issues of both packaging and food waste that results from the use of individual sachets and pre-packaged foods (section 4.1.3). However, there is also a vast quantity of packaging waste created from paper napkins and tablecloths, plastic/wooden cutlery, and take-away containers.

Figure 4.4 Reusable Strategy in Catering Services



People in South Asia use ‘tiffin boxes’ – reusable stainless-steel lunch boxes – to transfer their meals. This has inspired an initiative in Brussels in which several restaurants have created a partnership. Customers buy their lunch/dinner, and have it delivered by couriers on bikes. Customers are then encouraged to wash out the containers and return them to the courier then next day or when they are next getting a meal delivered (Schweitzer et al., 2016). While this initiative is successful in Brussels, it requires the co-operation of other restaurateurs in the locality and may take some time to establish. In the meantime, there are a number of quick action steps that can be implemented to reduce packaging provided to the customers – see figure 4.4.

(European Commission, 2013)

Unit 4.3 - Management and disposal of packaging waste

Unit 4.3.3- Considerations for reusable practices

Before HoReCa organisations move to follow reusable practices, they must look at all elements involved in implementing them. **Considerations like floor space, delivery times, health and safety standards, and costs involved should all be examined.**

(GWP Group, 2019)

Floor Space and Delivery Times – The strategy of reusing packaging, specifically when returning packaging to a supplier for reuse, depends on the availability of floor space on the premises. In cases where floor space is limited, it may not be possible for HoReCa businesses to hold reusable packaging for suppliers. This becomes more of an issue when deliveries from suppliers are not frequent. Therefore, the success of a reusable packaging system with suppliers will require storage space and/or frequent deliveries with the supplier.

(GWP Group, 2019)

Health and Safety Standards – It is crucial when providing a service to members of the public that the introduction of new strategies is fully compliant with hygiene standards, such as HACAP, and local restrictions. This must be considered when packaging is being reused or repurposed in food preparation areas, and also in the provision of other amenities like refillable bottles of water, condiments, and hygiene products.

(European Commission, 2013)

Unit 4.3 - Management and disposal of packaging waste

Unit 4.3.3 - Considerations for reusable practices

Cost vs Savings – There are of course some costs involved in moving to reusable packaging for products. Investment will be necessary to provide refillable bottles and containers needed to replace sachets, miniature bottles and plastic bottles. However, the return on investment will be considerable in comparison to the cost of buying these products in their current state. In terms of reusable containers from suppliers, research has shown that there is reduced spoilage of products on delivery which is an immediate saving for the organisation (GWP Group, 2019). The GWP Group (2019) also found that savings on the cost of delivery per trip can be as high as 40-70%.

Other Considerations – There are also 'social' benefits of implementing a reusable model for packaging. By using reusable packaging, organisations are reducing the material sent to landfill, reducing their carbon footprint, and of course they can inform their customers/guests about the great work they are doing to help the environment.

(GWP Group, 2019)



Unit 4.4 - Green Procurement

In this chapter, we have looked at the sources of packaging waste in a HoReCa business, we have assessed the best ways to separate and dispose of this waste and discussed reusing our packaging to eliminate waste. Nevertheless, there is still more we can do in our fight against packaging waste. **Businesses must work towards choosing more eco-friendly packing sources, transitioning to sustainable alternatives for single-use plastics.** This is quite a challenging transition for a business to make without causing disruption to the functioning of their business (Schweitzer et al., 2016). As with reusable packaging strategies, **there are factors that should be analysed before choosing sustainable alternatives, namely shelf life and locality, and recyclability and volume.**

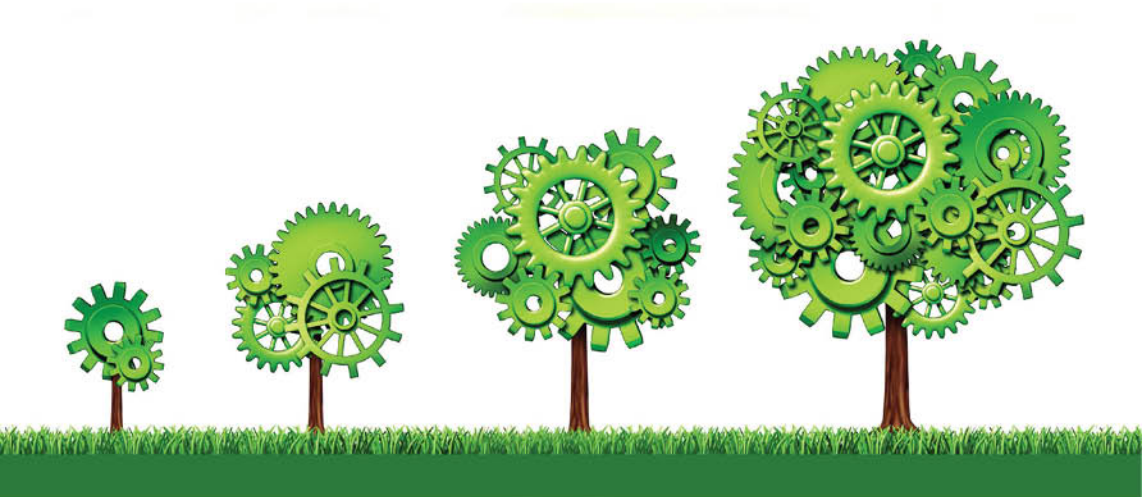


Unit 4.4 - Green Procurement

Unit 4.4.1 - Considerations for green procurement

Shelf Life and Locality – As previously mentioned, the shelf life of products will influence the type of packing used. This is especially important when choosing sustainable alternatives to single use packaging, as the ‘green’ option must be able to maintain the shelf life of the product when traveling long distances and in different modes of transport (European Commission, 2013). It is also important to think about the locality of the sustainable packaging source. **Research suggests that the environment benefits of choosing eco-friendly packaging can be negated by the carbon footprint if it is coming from far away. Hence, it is recommended that sustainable alternatives are found as close to the business and/or supplier as possible.**

(Schweitzer et al. 2016)



Unit 4.4 - Green Procurement

Unit 4.4.1 - Considerations for green procurement



Recyclability and Volume – Packaging recyclability and volume are the most important factors that should be analysed when making green procurement decisions (European Commission, 2013). Efforts to make packaging more light weight in order to reduce the carbon emissions of transport, has resulted in increased flexible and multi-material packaging. This packaging is increasing difficult to recycle (Schweizer et al., 2016). Other materials to be avoided are polyvinyl chloride (PVC), low density polyethylene and polystyrene as they are all difficult to recycle (European Commission, 2013). So how do you go about green procurement? **It is recommended that, where possible, compostable packaging materials are most suited to a green procurement strategy. There are a variety of products in the market that are biodegradable. However, it is interesting to note that biodegradable products can take up to 1,000 years to break down in a landfill. Compostable products take 90 days to break down and can be break down in as little at 6 weeks in a commercial composting facility.**

(Down2Earth Materials, 2019)

Unit 4.4 - Green Procurement**Unit 4.4.2 - Going Green**

Green Team - For a green procurement effort to be successful, the European Commission (2013) suggests that a green procurement team is established. The team, comprising of employees from a range of departments or a purchasing department, should work to promote and support the efforts of the organisation to replace packaging with sustainable alternatives. The team is responsible for identifying new opportunities in green procurement across the business and should have the support of senior management or business owners.

Local Initiatives - The European Commission (2013) also recommends that HoReCa businesses conduct basic research before beginning a green procurement strategy. Local authorities and agencies may be able to identify initiatives and incentives for local green procurement.

Green Marketing - While of course there are vital environmental benefits of adopting a green procurement strategy, there is added-value to the organisation as well. HoReCa businesses can benefit greatly from 'green marketing'. This concept is based on the idea that you inform your customers and guests about your efforts to reduce packaging waste. If you have changed practices and are now reusing packaging, or you have replaced packaging sources with sustainable alternatives, or a mixture of both, you can capitalise on these ethical and sustainable practices by advertising to customers and getting them involved in the process where.

Appendices

Appendix 4.1 – Survey to assess current sources of packaging waste across different activities in a HoReCa business

Assess different services of your HoReCa business, examining the packaging waste produced by different activities in this function. What packaging waste is generated in this area? Is this packaging recycled or sent to landfill with general waste?



Service: Kitchen										
Types of Packaging	Food Preparation		Food Preservation		Cleaning		Appliances		Storage	
	General Waste	Recycled	General Waste	Recycled	General Waste	Recycled	General Waste	Recycled	General Waste	Recycled
Plastic										
Paper/Cardboard										
Glass										
Wood										
Metal										
Other										

Service: Restaurant/Bar										
Types of Packaging	Condiments/ Snacks		Decoration		Merchandise		Cleaning		Other:	
	General Waste	Recycled	General Waste	Recycled	General Waste	Recycled	General Waste	Recycled	General Waste	Recycled
Plastic										
Paper/Cardboard										
Glass										
Wood										
Metal										
Other										

Service: Administration										
Types of Packaging	Office Management		Reception of guests/ customers		Laundry services		Technical services (lighting)		Other:	
	General Waste	Recycled	General Waste	Recycled	General Waste	Recycled	General Waste	Recycled	General Waste	Recycled
Plastic										
Paper/Cardboard										
Glass										
Wood										
Metal										
Other										

Service: Purchasing/Transport										
Types of Packaging	Delivery of products from supplier		Transport of final good		Storage		Other:			
	General Waste	Recycled	General Waste	Recycled	General Waste	Recycled	General Waste	Recycled	General Waste	Recycled
Plastic										
Paper/Cardboard										
Glass										
Wood										
Metal										
Other										

Appendix 4.2 – Packaging Waste Monitoring Tool: Cost Calculation

(To be completed weekly, bi-weekly, or monthly)

Day of audit	Date	Total volume of general waste (Kg)	Total volume of plastic waste (Kg)	Total volume of paper waste (Kg)	Total volume of glass waste (Kg)	Total volume of wood waste (Kg)	Total volume of metal waste (Kg)
1							
2							
3							
4							
5							
6							
7							
Total volume		X1 = Subtotal	X2 = Subtotal	X3 = Subtotal	X4 = Subtotal	X5 = Subtotal	X6 = Subtotal
		Total Volume = (X1+X2+X3+X4+X5+X6)					
Average cost of packaging waste disposal		(Total Waste Collection Costs/Total Volume of Waste)					
Average cost of packaging waste disposal per material		Y = (Cost of waste collection per material / total volume of that material)					
		Y1 = (Cost of general waste collection /x1)	Y2 = (Cost of plastic waste collection /x2)	Y3 = (Cost of paper waste collection /x3)	Y4 = (Cost of glass waste collection /x4)	Y5 = (Cost of wood waste collection /x5)	Y6 = (Cost of metal waste collection /x6)

This food waste cost calculation sheet was developed based on the free resources provided by <http://www.wrap.org.uk>

Appendices

Appendix 4.3 – Survey to evaluate the types of packaging waste that come from various streams of a HoReCa business

Use this tool to assess different services of your HoReCa business, this time focusing on the type of packaging waste. Is it single use packaging which must be disposed of? Or can the packaging be reused – either in the form of returning it to the supplier or repurposing it within the organisation?

Service: Kitchen										
Types of Packaging	Food Preparation		Food Preservation		Cleaning		Appliances		Storage	
	Single Use	Reusable	Single Use	Reusable	Single Use	Reusable	Single Use	Reusable	Single Use	Reusable
Plastic										
Paper/Cardboard										
Glass										
Wood										
Metal										
Other										

Service: Restaurant/Bar										
Types of Packaging	Condiments/ Snacks		Decoration		Merchandise		Cleaning		Other:	
	Single Use	Reusable	Single Use	Reusable	Single Use	Reusable	Single Use	Reusable	Single Use	Reusable
Plastic										
Paper/Cardboard										
Glass										
Wood										
Metal										
Other										

Service: Administration										
Types of Packaging	Office Management		Reception of guests/ customers		Laundry services		Technical services (lighting)		Other:	
	Single Use	Reusable	Single Use	Reusable	Single Use	Reusable	Single Use	Reusable	Single Use	Reusable
Plastic										
Paper/Cardboard										
Glass										
Wood										
Metal										
Other										

Service: Purchasing/Transport										
Types of Packaging	Delivery of products from supplier		Transport of final goods		Storage		Other:			
	Single Use	Reusable	Single Use	Reusable	Single Use	Reusable	Single Use	Reusable	Single Use	Reusable
Plastic										
Paper/Cardboard										
Glass										
Wood										
Metal										
Other										

