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RECYCLING AND WASTE REDUCTION
GUIDE FOR FACILITIES

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1. Introduction

Waste refers to any material which the holder discards, intends to discard or need to discard, as defined in Article 1 of the Jordanian Waste Management Framework Law Number 16 for the year 2020.

Waste management refers to the entire process of handling waste from generation to disposal and/or recycling.[1] Due to increased stress on resources and environment, waste management (part of which is recycling) has been receiving global attention not only as a mean for environmental protection and increased sustainability, but also as a market with numerous investment opportunities. The value of the waste management industry market worldwide reached $2,080 billion in 2019 and is likely to grow to $2,340 billion by 2027[2].

When it comes to commercial[3] facilities including industrial ones, waste management presents a key part of their modern operations. This is clearly needed to ensure cleanliness of the facility and highest hygienic standards. Moreover, effective waste management has become part of the businesses' commitment towards the environment and inseparable from its brand power.

The snapshot shows a news report on Marriott's plans to improve its waste management by reducing plastic waste in its hotels. This translates to cost savings in avoidance of the toiletries as well as decreased hauling service due to less waste generated, while reducing the negative environmental effects of plastic waste.

1. Recycling refers to processing waste (discarded material) into products or feedstock which can be reused
2. Allied market research, Waste management Market, 2020
3. Commercial facilities referenced under this guidebook include industrial facilities.

Improved waste management in a commercial facility can have numerous positive direct and indirect financial consequences:

- Improved waste management translates to reduced generation of waste, reusing waste in operations, and recycling some of the waste, which is commonly referred to as the waste management "3Rs" rule (Reduce, Reuse, and Recycle). It also means an improved and streamlined management of waste on site and ensuring that the waste leaving the facility is reused, recycled or disposed safely.
- Improved waste management leads to separation of recyclables which can be sold.
- Improved waste management reduces amounts and volumes of waste, thus decreasing hauling fees.
- Other direct savings can come from reduced staff time and efforts spent on waste management.
- Improved waste management can also help indirectly brand the facility as a green environmentally responsible one attracting environmentally conscious clients.
- From an environmental perspective, improved waste management leads to reducing the waste reaching the landfills, water canals or soil, thus limiting environmental degradation and pollution. This ultimately leads to improvement in public health and safety by limiting accumulated waste and associated pollution.

61% of millennials, people aged 22-35 years old, are willing to pay more for green products and services.

62% of travelers consider environmental options when choosing a hotel.

GlobalWebIndex Q2, 2018

European journal of tourism research, Effects of green practices on guest satisfaction and loyalty, 2018

Increased reuse and recycling mean that natural resources, such as energy and raw materials used in manufacturing are saved. From an economic perspective, recycling means that countries can save on imports of raw materials and develop a local feeding industry, thus improving the nation trade balance and industrial sustainability. Waste management and recycling are also efficient job creators for university graduates, skilled and semi-skilled labor alike. Improved waste management and more recycling translate into financial gains for commercial facilities as well as enormous environmental, social, and economic gains for Jordan at large. It helps shifting the economy towards a more circular sustainable one where material can flow back into productive cycles rather than ending up as waste.

Despite the enormous business opportunities in recycling and waste management, a significant amount of waste in Jordan is not recycled (only 5%-10% of municipal waste is recycled) and goes to landfills[4]. As a result, commercial facilities miss financial and non-financial gains while struggling to manage their waste on-site which in turn could lead to customers' dissatisfaction. The reasons for such losses include ineffective (or absence of) separation of waste at source which leads to difficulties in recycling, lack of incentives for improved waste management, and gaps in the regulatory framework.

4. USAID Recycling in Jordan, Market Systems Analysis (MSA), 2020 - Aldayyat, Ebtihal, et al. «Solid waste management in Jordan: impacts and analysis.» J. Chem. Technol. Metall 462-454 :(2019) 54.2.

2. Objective of the Guide

The purpose of this guide is to provide general guidelines to help develop and implement solid waste recycling schemes at commercial facilities including industrial ones.

One of the most significant barriers to improved waste management in commercial facilities is limited awareness of the enormous and diverse reduce, reuse, and recycle opportunities and benefits, and weak linkages between commercial facilities and qualified waste management service providers and recyclers. Furthermore, waste management initiatives at the facility level require careful coordination amongst multiple departments as well as changing the culture and habits of employees and customers.

This guide's main objective is to assist commercial facilities including industrial ones in Jordan to overcome such barriers.

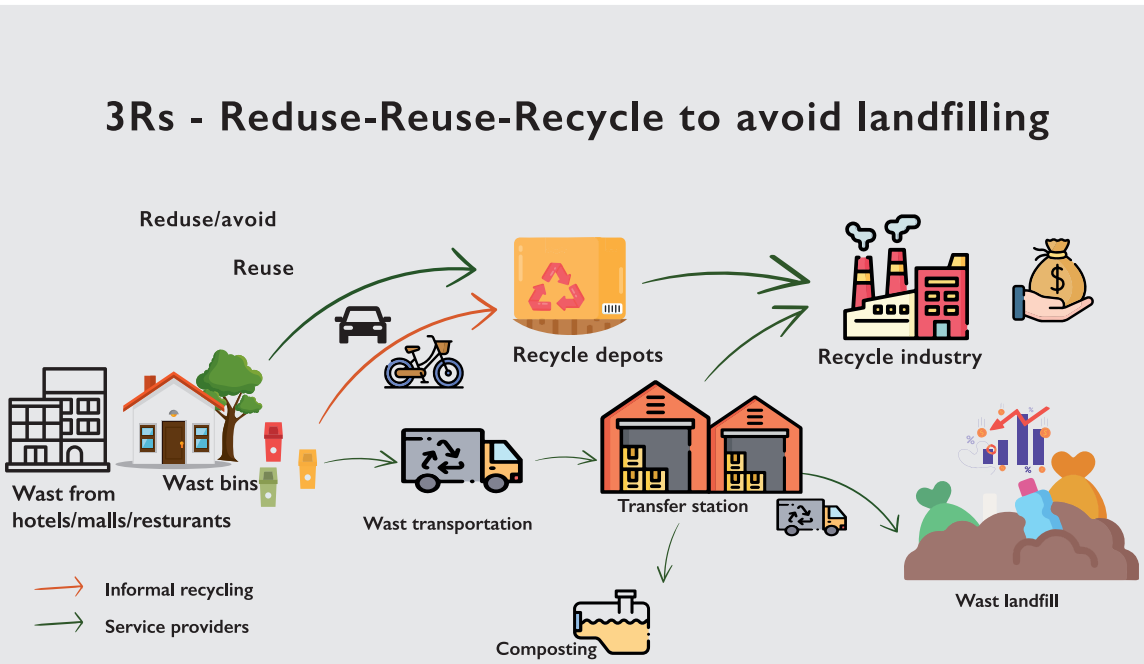


Figure 1: 3Rs principles to avoid landfilling, adapted from "The Concept of Waste and Waste Management", Journal of Management and Sustainability, 2016

3. How to use the guide

The guide is not an exhaustive list of measures and opportunities. Facility staff are expected to build on it and expand beyond it. The guide offers best practices in waste management services and recycling for commercial facilities with the aim of improving the contractual relation and quality of service offered. it also presents waste management and recycling KPIs which the facility can adopt as well as means of communicating the facility activities in waste management and recycling to customers and society.

- The guide provides information in an easy and systematic manner to allow commercial facilities to identify reduce, reuse and recycling opportunities as well as to understand overall waste management and recycling improvement measures.
- The presented opportunities and measures allow managers and staff to take decisions and actions towards improving the facility's environmental footprint and decreasing operational cost.
- The guide is directed towards commercial sectors such as hotels, restaurants, malls, and hypermarkets and other commercial sectors. However, numerous measures and opportunities apply to factories and households as well.
- The guide provides information on how to implement such measures, their ease of implementation, expected challenges, and possible gains.
- The guide is not supposed to provide an action plan for a full transformation of the facility into a greener one, however, it aims to trigger commercial facilities to do so.

Begin by benchmarking your waste management and recycling readiness: The guide offers a simple semi-quantitative tool which allows your commercial facility to benchmark its readiness from the waste management point of view. The tool requires you to assess 40 aspects by scoring your facility in each as "high", "medium" or "low", which translate into a numerical score of 3, 2, and 1 respectively. The tool automatically gives your score a readiness percentage (calculated as the total score divided by 120). The percentage reflects your facility's readiness from the policy, managerial, organizational, and operational perspectives. For instance, the tool investigates whether there are corporate policies on waste management and recycling and whether there is a designated employee in the facility who is responsible for waste management. The tool could provide you with gaps to improve in your system rather than providing a list of technical measures to reduce, reuse, and recycling your waste. A complete list of this tool entitled "Waste Recycling- Start Up Consideration Check List" can be found in Annex B.

Check improvement measures in the long list: The guide offers a long list of measures ("measures" are interchangeably used with "opportunities" herein after) which facilities

can implement. The list is interactive and easy to browse. It includes 29 measures reflecting the most relevant opportunities for commercial facilities in Jordan to reduce, reuse and recycle their waste. The list (included in Annex A with 29 measures; Figure 2) has tags reflecting the following for each measure:

- Type of facility which can benefit from the measure
- Ease of implementation of the measure
- Departments involved in implementing the measure
- Area of the facility relevant to the measure

The above tags allow the reader to choose which measures to focus on. For instance, a facility might prefer to focus on measures related to garden areas, while another might prefer to prioritize those related to kitchen areas. Facilities could also choose to focus on measures with a certain level of ease of implementation. The first step that the reader can take is to scan the long list of measures and note through the tags those of interest.

#	List of measures	Sectors				Type				Department						Area							Assess	
	Description	Hotels	Restaurants	Malls	Hypermarket	General	Reduce	Reuse	Recycle	General	Sales	Marketing	Procurement	Admin	Operations	Kitchen	Others	Cashier	Lobby	Office	Housekeeping	Garden	Ease	Impact
1	Set up central collection system by identifying collection point in a strategic way for different waste types	●	●	●	●	●									●	●	●		●	●	●		High	High
2	Separate waste at source to reduce waste sent to landfills	●	●	●	●	●						●			●	●	●		●	●	●		Medium	High
3	Proper selection of location of recycling bins in your facility in a manner that reflects the type and frequency of wast generation in each location			●	●	●	●		●		●	●			●	●	●		●	●	●		Medium	High
4	Separate organic waste in the kitchen	●	●	●		●									●	●							Medium	High
5	Separate paper/ cardboard waste into grade fractions	●	●	●	●				●						●		●	●	●	●	●		High	Medium

Figure 2 Snapshot of the long list of measures

Start implementation by following the factsheets: The topmost impactful measures are further described through factsheets. The factsheets provide necessary information to begin implementation. They include for each measure:

- Brief description
- Steps of implementation
- Relevant departments
- Ease of implementation
- Direct and indirect financial gains
- Challenges
- Mitigation measures

A sample factsheet is shown below with a description of each part of the factsheet in red italic font.

Fact Sheet: Separate waste at source	
Overview	
What	Separating waste at source to reduce waste to landfills allows better management of waste on-site as well as decreases hauling fees and increase recycling opportunities by preventing waste contamination. *Brief description of the measure*
How	Decide categories of waste to be separated (organic vs non-organic, or organic, paper & cardboard, plastics, metals, etc.) Install separate bins for each type of waste in strategic locations Create proper signage to ensure bins are used correctly *Key implementation steps*
Implementation Features	
Relevant sectors	**Malls – Hyper Markets – Hotels – Restaurants** *Which sectors can benefit*
Ease of implementation	Easy - **Moderate** – Difficult *Easy = doesn't require change in behavior and technology/service is abundantly available* *Moderate = either requires change in behavior or technology/service is not abundantly available* *Difficult = requires change in behavior and technology/service is not abundantly available*
Relevant departments	Operations – Marketing and Communications *Which of your internal departments would play a major role in implementation*
Supporting entities	Waste service providers – recycling bins providers *Key supporting external entities*
Regulatory Aspects	Article 6 of the Waste Management Framework Law No. 16 for the year 2020 emphasizes that measures to ensure separation at source are put in place – Article 11 indicates that generators of more than 1,000 tons of waste annually are required to segregate waste on site. Moreover, according to bylaw no. 85 of 2020 Waste Management Environmental Information and Monitoring System, establishments that generate more than 100 tons annually shall prepare waste management plans within six months from the date of registering in the information system. *Regulatory aspects, if relevant*

Impact/Benefits	
Direct & In-direct Financial Return	• 76% to 95% of waste could be reused or recycled when they are sold separately. • Separation of food waste without any staff training could reduce waste at least 10%. • Revenues could be generated through selling separated waste per category. • Decrease cost of waste hauling since some separated waste can be stored on-site for longer. • Decrease operating cost of recyclers and increase recycling opportunities • Increase quality of final recycled products. *Financial direct and indirect returns*
Considerations	
Key Challenges and mitigation measures	**Challenges:** Separating waste at source might not be a familiar practice for staff and customers **What to do about it:** ✓ Conduct training to staff on importance of separating waste ✓ Prepare proper signage to encourage customers and staff to use separate bins correctly ✓ Place bins in suitable sites ✓ Reward customers and staff who use bins through surprise gifts *Main challenges to implementation and how to overcome them*

Effective engagement of service providers: A brief discussion on how to best engage waste management and recycling service providers is presented. To implement some of the measures, your facility will need the support of service providers and recyclers. Section No.5 titled "Recycling Service Agreement Guidelines for Waste Generators and Service Providers" aims to assist you to find and effectively engage (contract) service providers and recyclers. The section discusses services that you could ask your service provider to provide you with, describes such services and their objectives, and presents best practices and guidelines in waste management service agreements.

Set your Key Performance Indicators (KPIs) and communicate your successes: The guide presents in section 7 titled "Track Your Performance" what KPIs you should set to monitor and continuously improve your waste management system" at facility level". The guide also discusses which data should be collected to allow you to understand your facility's performance, quantify the impacts of your efforts and communicate your successes to employees, customers, and shareholders.

Relevant articles of the waste management Law and bylaw: Finally, the guidelines present in section 8 relevant articles from the Waste Management Framework Law number 16 of the year 2020 and the Environmental Information and Monitoring System of Waste Management Bylaw No. 85 for the year 2020.

The Law and bylaw were recently issued by the Government of Jordan and include various articles of relevance to the waste generators in the commercial sector. The section briefly presents such relevant articles and what they could mean for your facility.

4. Definitions

Terms and expressions used in these guidelines shall have the meanings set out below.

Waste Generators	The Waste Generators refer to all non-residential entities, including private businesses, industrial/manufacturing plants, public institutions (government buildings, public schools/universities, foreign embassies, public hospitals), civil society and religious institutions (community centers, mosques, churches), urban/peri-urban farms, and home-based businesses. Commercial waste generators exclude residential waste generators (i.e., households and apartment buildings).
Recycling Service Providers	Recycling Service Providers refer to individuals, businesses, and/or civil society organizations in the formal or informal sector who provide services that contribute to reduce, reuse, and recycle. This includes advisory services with the objective of improving solid waste management practices (reusing, repurposing, or selling). These services include any services provided by any actor across the value chain - including but not limited to - separation at source, aggregation, collection, sorting, processing, and transportation of the recyclables.
Solid Waste Audits[5]	A solid waste audit entails composition analysis of solid waste to generate data to classify all solid waste outputs, determine the rate of waste generation, analyze the physical composition of waste in accordance with relevant domestic and international standards, and estimate the level of recyclable materials remaining in the unrecyclable waste stream. The process allows for providing recommendations on the possibilities to improve solid waste management and recycling.
Solid Waste Management Plan[6]	A solid waste management plan outlines measures to manage and mitigate waste generation and resource consumption during the operation of the establishment. The aim of the plan is to improve the overall waste management, by applying the statutory waste management hierarchical approach: waste prevention - reduction and improve resource efficiency; reuse; recycling; recovery; and disposal.
Waste Hauler[7]	A public or private entity that collects non-hazardous waste and recyclable materials from residential, commercial, institutional, and industrial sources.

5. USAID Recycling in Jordan material

6. USAID Recycling in Jordan material

7. The Ultimate Glossary of Waste & Recycling Terms | Rubicon

Baling	Compressing and forming recyclable material into bales(blocks).
Waste Shredding[8]	Waste shredding is utilized in recycling and waste processing applications. They can reduce the size of various waste materials that differ in dimensions, sort, weight and composition to uniform shape and size for more efficient processing, storing and transportation. Waste shredders are available as stationary and mobile versions.
Hazardous Waste[9]	Waste that poses substantial or potential threats to public health or the environment and consists of four key traits: ignitability, reactivity, corrosivity, and toxicity.
Waste	Any substance that its holder discards, intends to discard or is required to discard, which are described under table no. (1) appended to The Waste Management Framework Law No. 16 of 2020.
Recyclable Materials	Materials that have been recovered or diverted from the non-hazardous solid waste stream for the purpose of recycling and a substantial portion of which is consistently used in the manufacture of products, which may otherwise be produced using raw or virgin materials. Recyclable materials include many kinds of glass, paper, cardboard, metal, plastic, tires, textiles, batteries, and electronics of a marketing value.
Separation at source[10]	The process *by which recyclable materials are segregated and kept apart from the waste stream by the* waste generator thereof for the purpose of recycling.
Recycle	Any process by which waste is treated to be reused for the very same purpose or for other purposes.
Recovery	Any of the operations mentioned under table no. (3) appended to The Waste Management Framework Law No. 16 of 2020, including Reuse.
Landfill	A site intended for final disposal of waste underground or on its surface in an environmentally safe manner.
Storage	Keeping the waste under the holder's possession until disposal.
Reuse	Any process that allows the waste to be used for the very same purpose it was originally used for.
Holder	Any person in possession of waste.

8. https://recycling.metso.com/product/shredders/
9. The Ultimate Glossary of Waste & Recycling Terms | Rubicon
10. https://www.lawinsider.com/dictionary/source-separation

5. Recycling service agreement guidelines for waste generators and service providers

In the transformation journey of the commercial facility generating waste towards reducing, reusing, and recycling waste, various measures will require the support of service providers and recyclers to ensure effective engagement of both. Waste management and recycling services can be diverse and at times hard to define. It is of critical importance to:

- Choose suitable licensed service providers;
- Choose the right package of services; and
- Develop appropriate and fair contractual service agreements.

A directory containing a list of service providers and recyclers in Amman was developed by the USAID Recycling in Jordan. The services offered by each service provider as well as scope of services are also indicated in the directory[11]. This can facilitate the search for the most suitable service providers. The list can also provide options for recycling of waste, by type of waste, through recyclers operating in the area of the commercial facility.

The list does not necessarily represent all service providers and recyclers in the market, but rather those identified by the USAID Recycling in Jordan. Moreover, it is the responsibility of the waste generator to check for the licenced service providers that can satisfy their performance expectations as per the best contract agreements.

Service providers can offer numerous services, each with a possible return to the commercial facility

Each facility is unique and hence each facility requires a tailored service package, this is not a one-size-fits-all, and choosing the best service package could require discussions with your service provider. Recycling services can be tuned to the business needs and objectives. It is best if all the services required are offered to the business by a single firm.

11. https://drive.google.com/file/d/15RdzUPVaZbRYOykppbr1H69n_u907RG0/view?usp=sharing

Vertical Hydraulic Pressing and Bailing Machine used for packaging cardboard waste – photo phswastekit online product catalogue.

RECYCLING SERVICES

While recycling services can vary and be tailored in accordance with the specific needs of the commercial waste generator, these guidelines cover a sample of the most common recycling services that can be of use to the commercial facility:

- Waste audits
- On-site waste management planning
- Staff training service
- Waste hauling service (full /customized)
- Specialized services for recycling and waste disposal
- Provision of bins with branding
- Regular maintenance of bins and replacement of the damaged ones
- Monthly reports on waste and recycling activities
- On-site recyclable waste processing service
- Material destruction services
- Recycling assurance service
- Recyclables' marketing
- Environmental Solutions providers
- Cleaning, Sterilization, and disinfection services including rodent and insect control
- Expediting process for Greater Amman Municipality fees exemptions
- Manufacture and production of recycled products

A description of each service along with its objectives and impacts is presented in the following table.

Baling of waste at site can reduce the volume of waste and hence the collection frequency and hauling services fees – photo pinterest Hendrix Salvage Company Inc uploads.

Table 1 Waste management Services

Service Name	Description	Objectives	Impact
Waste Audits	This service consists of various measurements and assessment techniques with lead to quantification and characterization of waste, including recyclable material (waste composition analysis). This includes amounts of waste generated, segregated by type and area of generation. It also includes the waste generation frequency. The audit determines waste generation benchmarks and compares them with international standards if any.	Quantify and characterize waste for better waste management and recycling decision-making.	• Allows determining the location and sizes of bins in the best possible manner. • Allows planning of hauling services including frequency of collection and sizes of trucks and quantities and types of recyclables. • Establishes a baseline for waste generation and targets for waste reduction and recycling.
On-site Waste Management Planning[12]	This service includes a waste audit that precedes providing support in developing a solid waste management plan for managing your waste. The plan includes locations and sizes of bins, frequency and routes of emptying bins, area of segregation, as well as actions and targets to reduce, reuse or recycle waste, by type of waste (E.g.: sold to recyclers, returned to producers, etc.). The plan also includes a staff training plan.	Plan your waste management activities to reduce, reuse, and recycle and streamline managing waste in the facility.	Smooth management of waste on-site, limited bottlenecks in waste transportation on-site, limited accumulated waste on-site in certain locations, improved waste management footprint (reduce, reuse, recycle).

12. While this is important in general for all facilities, for facilities which generate more than 100 tons and 1000 tons per year, the development of a waste management plan and reporting on waste management activities are an obligation in the Waste Management Framework Law No. 16 for the year 2020 and the Environmental Information and Monitoring System of Waste Management Bylaw No. 85 for the year 2020.

Service Name	Description	Objectives	Impact
Staff Training Service	The service provider can conduct multiple trainings for staff. The training could aim at raising awareness on recycling and best practices such as reduction of waste and separation at source or transferring skills to the waste management team of the facility (E.g.: separation of waste, operating pre-processing equipment, etc.).	Raise awareness of staff on waste management best practices and raise staff skills in managing waste.	Engaging staff in waste management improvement activities and increase success chances of the activities.
Waste Hauling Service	Transporting waste from your facility to recyclers or landfills. It could include conducting some pre-processing on site or emptying bins, loading them in trucks and transporting the waste outside the facility.	Safely remove waste from your facility for safe disposal or processing.	Keeping your facility clean and hygienic.
Provisions of Bins with Branding	Providing bins colored and branded for separation of waste to introduce recycling. This includes determining size and number of bins needed as well as categories for separation of waste. Branding of bins can include signage to assist customers and employees to separate waste in addition to promoting the concept and impacts of waste generation.	Set up bins allowing separation at source.	Increased effectiveness in separation at source and waste collection. Promoting the facility as a green environmentally conscious one.
On-Site Recyclable Waste Processing Service	Baling and shredding of recyclable waste decreases its volume significantly and increases the waste market value. Baling is particularly common in the case of plastics and paper/cardboard waste. The service provider could provide the baling and shredding equipment and operate them on your site. The decrease in volume would mean that less truck loads are needed and hence hauling service fees would decrease.	Decrease volume of waste before transportation.	Decrease number of truck loads needed to transport waste and hence decrease hauling service fees. Increase chances of recycling and possibly receiving higher payment for baled and/or shredded waste.

Service Name	Description	Objectives	Impact
Recycling Assurance Service	This includes the service provider providing you with assurance that the waste collected from your facility was recycled.	Improve waste management footprint.	Ensuring that the highest amount of your waste is recycled which almost entirely removes the negative environmental aspects of waste.
Specialized Services for Waste Disposal	This include working with service providers that are specialized in collecting specific types of material to ensure its recycling and/or safe disposal.	Ensure waste is safely handled and disposed.	Ensures that certain types of waste which are difficult to manage are safely handled and disposed while decreasing environmental risks (batteries, lamps, electronic waste, etc.)
Material Destruction Services	Ensures certain types of waste are properly destructed before recycling or disposal.	Avoid misuse of waste in business fraud.	Ensures that packaging materials which has your firm brand does not reach the market for re-use with your branding on it.
Recyclables' Marketing	If properly separated, some of your waste can be sold as recyclable material for the right service provider or recycler.	Avoid wasting valuable material.	This measures typically ensures that valuable recyclables are separated and/or pre-processed which allows selling them to the right service provider or recycler
Environmental Solutions Providers	Some advanced digital or hardware environmental solutions can improve waste management and optimize operation.	Modernize your waste management operations.	These solutions could include a digital recycle bins which tracks how full bins are and signal need to empty them or machines that takes waste and gives back tokens as an incentive (reverse vending machine), search for the suitable solution provider for your challenge

1. RECYCLING SERVICE AGREEMENT BEST PRACTICES

Waste management and recycling services are difficult to define and assess. Often, disagreements about service terms or different expectations between the service provider and the waste generator can leave both sides frustrated and dissatisfied.

Different types of service agreements, levels of sophistication, and accuracy were identified in the Jordanian market. Strengthens usually included:

- **Clear definition of frequency of collection.**
- **Few agreements clarify the details of on-site separation, including the details of the dedicated space, for instance.**
- **Some others detail the responsibility of the service provider to ensure waste is disposed safely. Yet, others neglect such details.**

Below are few tips derived from international and local best practices identified in the Jordanian market to ensure successful and effective provision of recycling services:

Request the service provider to conduct a pre-contract assessment	It is advisable that the service provider visits your facility before concluding a service agreement contract. In this visit, the service provider should analyze and understand the amounts of waste generated, its composition (even roughly), the frequency of generation, the points of generation, the status of the waste to be collected (separated or mixed), etc.
Technical and financial proposals	The service provider should prepare both technical and financial proposals detailing the services offered, its specifications, its outputs and associated payment conditions. This facilitates negotiation and the contracting process.

Agree on roles and responsibilities	Roles and responsibilities should be agreed upon. For instance, who transfers the waste from various bins inside the facility to the collection and pick-up area, where is the pickup area, who is responsible for loading the trucks, is the collected waste separated or mixed, and who is responsible for separating it. In case there is on-site processing, who is responsible for operating, paying the electricity, and for maintenance expenses, etc.
Request a service plan from your service provider	The service provider should present a service plan indicating times and frequency of visits, steps for collecting waste from your facility including where the collection point will be, point of entry and exit of trucks, time expected for loading waste, any on-site activities such as separation or pre-processing, etc. This plan should be part of the service contract.
Clearly define the service	The service required should be defined as much as possible. For instance, the details of timing and frequency of collection should be defined, describing the quality control measures of the service to be presented. The documentation process (for instance, the forms to be signed by customer upon waste collection) should be agreed upon. Make sure that this is agreed upon as much as possible before contracting.
Determine storage capacity	The frequency of waste collection is reliant on if there is a waste storage area on site and how long the waste can be stored in such are, it is important to clarify if such an area is available and what type of waste can be stored in it.
Process of weighing and specifying the amounts of waste	At the end of the day, the fees of collection are highly related to the amounts of waste. There should be clear agreement of how these amounts will be specified, at times there is a possibility to weigh the collection trucks before and after loading for instance or weighing the waste quantity itself in a bin or as a bale, at other times there could be an agreement of estimating waste by volume, for instance how many bags or waste bins have been emptied. In all cases, make sure that this is determined in the contract.
Reporting requirements and documentation	Indicate what type of documents to be used to define completion of services and what reporting is expected. For instance, what forms will be used to ensure that the collection of waste has been completed effectively, what documentation will be provided by the service provider if recycling is to be ensured, what reports and how frequent they will be submitted (for instance, indicating the amount of waste collected and its disposal), of course this is whenever relevant.

Facility operating hours and collection time window	It is important to define which times will be allowed for collection and indicate the facility operating hours in general, this ensures no collection shift is missed and that collection does not happen in peak hours of operation of your facility.
Health and safety requirements	Make sure that the service provider fully understands your requirements for health and safety whether related to personnel that will work on your facilities or vehicles, in case of on-site processing. Health safety measures required by your facility should be indicated.
Declaration of compliance	The service provider should declare their compliance with laws and regulations related to transport, handling, disposal and/or recycling waste and their responsibility of waste once it leaves the facility.
Hazardous waste management	In case there will be hazardous waste handled, the contract should ensure that the proper procedures are in place for handling and managing it.
Agreement on amounts of waste to be collected and tolerance	It would be critical to specify the amounts of waste to be collected and include a level of tolerance on any change of such amounts. For example, what if amounts are above the listed tolerance, what would be the cost of extra collection trips needed in such a case.
Performance-based contract	Part of the payment could be performance-based, for instance rewarding time commitment and high quality of service.
Incentives and variable expenses	It is also possible to agree on payment of services which includes an incentive to your customer facility. For instance, if waste is delivered separated or amounts of recyclables are high, a payment reduction could take place.
Payment terms and conditions	It is fundamental to setup a clear time frame for the invoicing and payment schedule, clarify retention values and its conditions if any. Penalties should also be specified.

6. Separation at Source and Pre-processing

Separation at source is the first and most critical step in recycling and recovering the value of waste. It is also an important step in managing your waste on-site in a smooth and cost-effective manner. Waste in any facility is generated from multiple sources and comes in various types of material for instance, glass, paper, plastics, food scraps, etc. When the waste gets mixed up in waste bins extra efforts are needed to segregate it later to recover the material for recycling. In addition, some material may get polluted and hence becomes difficult to recycle, for instance, when plastic is strongly polluted with food scraps or other types of plastics and leftovers, it either would be recycled into lower value plastic or becomes very expensive to segregate and clean rendering which leads to unprofitable recycling process. Separation at source refers to ensuring that waste from the start doesn't get mixed[13].

Baling of waste at site can reduce the volume of waste and hence the collection frequency and hauling services fees – photo pinterest Hendrix Salvage Company Inc uploads.

Separation at source can take place through various strategies. One for instance could choose to have a deep separation by putting dedicated recycling bins for paper, metal, glass, plastic, food scrapes, and others. This is an example of an advanced separation at source leading to the highest chance of recovery of the value in waste. More simple strategies could focus on separating food and organic waste in one type of bins (referred to as wet waste) and everything else in a separate bin (referred to as dry waste). This

13. The photo is taken from: www.rubbermaid.eu

strategy is based on the fact that it is much easier for recyclers later to separate dry waste such as metals, plastics and paper from one another than having to separate them from wet waste (organic waste). This strategy is easier to implement but recovers less of the value of waste. Bins are typically marked through signs and colors and the process sometimes requires awareness raising to the facility staff. Also, sometimes, your clients would need communication on the purpose of separation and how it is done.

Another strategy is to focus on separating at source only in certain part of your facility or for a single stream. For instance, simply putting a special bin for paper waste close by to employees' desk or close by printers. Or for instance, putting a bin for coffee cups close by coffee selling places in the facility.

Beside giving you the chance to sell the recyclables or at least get a discount from the service provider, there are many other benefits. Separation at source sends a message that your institution cares about the environment and is trying to increase recycling chances. In addition, it leads to less bottlenecks in collection and managing of waste in your facility. For instance, if you separate food waste from other types of waste, you can focus on removing food waste from bins more frequently leading to cleaner environment and less effort in emptying the dry waste bins. Separation also allows you to tune the size of bins to the type of waste generated in a certain area (for instance, larger food bins close to food courts in a mall). Separation at source, is truly the most critical step in a successful recycling industry.

[14]Consistent sized bales, allow your business to streamline its material handling process by filling its transport with industry sized bales. Baled waste is easier and more economical for recycling service providers to collect.

On-site processing is an important step in adding value to the waste generated, save you money and ensure recycling takes place. However, for on-site processing to work, you need to have separated waste. On-site processing is the ultimate solution to get the waste from source in the shape and form needed for the recycling. Waste pre-processing can include baling and / or shredding. Baling simply compresses waste and makes its volume smaller (for instance, plastic and cardboard once baled can become at 20% of their non-baled form). What this means is, easier storage of waste on site, which translates into less frequency of hauling and hence less associated fees). Also baling means waste can be transported in an easier manner usually saving 80% of transportation cost. Another step-in pre-processing is shredding which provides even more saving on space. When recyclables are sold their prices increase as they are baled and shredded.

14. Photo from https://globaltrashsolutions.com

Baling is particularly common for paper and cardboard due to the large volume they take on site. Baling also takes place typically for plastics and cans. The dimension and weight of the bales shall be designed to meet the end market requirements in terms of export and container cargo sizes.

A single baling machine can be used for numerous waste streams typically paper and cardboard, plastics, and metals (cans). Baling also could be done through the service provider bringing their own machine on-site for baling. The choice to conduct baling on-site depends on the amounts of waste generated from a certain stream and on the availability of space to place the baling machine (typically having a footprint starting from 4 x 4 meters. It is important to seek your service provider advise on baling machines and the best arrangement to venture into baling[15].

15. Photo from www.facebook.com/disklatinhageraldo/

7. Track Your Performance

Your waste management Key Performance Indicators (KPIs): To ensure continuous improvement for any system, proper KPIs should be defined. As KPIs are critical for you to monitor your waste management system and quantify your gains and improvement. Indeed, a full quality management system could be put in place to manage the waste of your facility. The performance could be also managed through a wider environmental management system such as ISO 14001, which addresses waste management. As a start one can establish a team or a committee with quarterly meetings to report on performance and resolve issues and implement a continuous improvement feedback loop. However, the objective of this section is not to develop of a full management system but rather to present a simple set of KPIs which you may use to start tracking your performance in waste management as well as quantify your gains. Below, we present few suggested indicators which you may use in your facility. What each indicator measures and its relevance are also listed. As can be seen, waste management indicators can tell an accurate story about the overall productivity, profitability, and effectiveness of your own facility in a surprising manner!

It is worth to mention that the monitoring and inspections procedures are crucial to validate the accuracy and creditability of these KPIs in the realty, especially the measurement tools may the generator and service provider agree to use.

Table 2 Waste management KPIs

KPI	Interpretation and possible actions
Total waste generated, segregated by type and source (tons per month)	An increase in waste in certain areas could be an indication of a decreased efficiency of operations or an increased operation in general. This indicator is critical in designing your waste management system on site including number, size and location of bins, frequency of hauling service, and type of service providers or recyclers to be contracted. It is also critical for valorization of waste and for your service provider to quantify and price the services needed.

KPI	Interpretation and possible actions
Specific waste generation (tons per month per operational unit, for instance, tons per month per guest in hotel)	This is a critical parameter that tells an accurate story (more than the previous one) about your waste management footprint. An increase in operation will inevitably results in an increase in waste generated. This indicator measures the waste generation intensity, tons per unit of operation. For instance, in hotels it could be tons per month per guest, in malls it could be tons per month per visitor, in hypermarket tons per customer, and in restaurants tons per month per guest. An increase in specific waste generation usually would mean a decrease in efficiency, increase in losses and hence decrease in profitability.
Waste generation per revenue (tons per month per JOD)	An increase in amount of waste per JOD of revenue reflects that your facility is generating more waste per financial return. This could reflect a decrease in operation efficiency as well as in profit margins as it would mean that more resources are being consumed for the same returns. Further analysis would be needed.
Percentage of waste recycled	This reflects the percentage of your waste being recycled whether on site or through sales to recyclers. This indicator reflects in the best manner the impact of your waste on the environment. Non-recycled waste reaches landfills or dumpsites leading to environmental degradation.
Number of incidences per month where waste overflow occurred	This reflects the number of times waste was recorded to overflow in collection area or bins. Its increase reflects a challenge with your waste management on-site which could be related to sub-optimum sizing or placement of bins, low frequency of emptying bins or low frequency of hauling service.
Amount of single-use plastic consumed per month (tons or number of units, for instance, bags)	An increase in the consumption of single-use plastic reflects an increase in negative environmental impact in general. This indicator is also best understood per unit production (per guest or total revenue).

Establishing a baseline and benchmark: when the above indicators are tracked on monthly basis, you will be able to establish the baseline of your performance and improvements/ deterioration therein after. Over the months, you will be able to establish an internal benchmark, reflecting the quarterly or annual average of the above indictors. When introducing a new initiative, you will be able to track and quantify its impact. You will also be able to set targets and quantify your savings. For instance, decreased waste per unit of operation (per guest) means less spending on hauling service and probably also less spending on inputs such as bags. In certain sectors you might be able to compare your performance to international standards, for instance, typically hotels generate 1 kg of waste per guest per day (varies from 0.89 to 1.22 kg per guest in some studies from 1

star to 4 starts hotels)[16]. You could also compare your facility to world best practices, for instance, 98% of waste is recycled in some small hotels can be achieved as the industry best practice worldwide[17]. Restaurants for instance can recycle 39% to 55% of their waste in general[18]. Other sectors can be difficult to benchmark due to the diversity of operations, for instance, malls waste generation in small malls varies significantly from waste generation in large ones. However, one can still conduct comparisons with caution, for instance, large malls in Dubai have been found to generate 0.52 kg per visitor. This could give an indicator that is relevant to large luxurious malls[19].

Communicate and market your achievements: it is of utmost importance to communicate with your customers and society your efforts in decreasing negative impact of waste.

Figure 3 Examples of achievements communications efforts[20]

This helps position your facility as an environmentally responsible one and attract customers. For instance, 62% of travelers consider environmental performance of hotels in their bookings[21] while 61% of millennials are willing to pay more for green products

16. Environmental Management for Hotels (2008). The industry guide to sustainable operation. International Tourism Partnership.
17. Styles, David, Harald Schönberger, and J. L. Galvez Martos. "Best environmental management practice in the tourism sector." Publications Office of the European Union, Luxembourg, 2013.
18. EU-Best environmental management practice in the tourism sector - 2013
19. Markus Oberlin, Farnek (2018), Dubai Mall Waste Generation Study.
20. Photos taken from: www.environmentalleader.com, and: https://www.pinterest.com/pin/453174781256122542/
21. A survey done by Trip Advisor. Source: "Effects of green practices on guest satisfaction and loyalty", European Journal of Tourism Research, 2018.

and services[22]. International organizations invest in communicating their achievements in waste reduction, reuse, and recycling.

Choose the communication channels that suit your customers the most. You can use social media, flyers, banners, and short videos, for instance. You could set up competitions and reward systems for both customers and employees. Communication and marketing could also simply consist in sharing tips for your customers to reduce, reuse, or recycle. Infographics and stats as the above can be extremely attractive to customers. Make your achievements relatable by tying them to environmental savings. For instance, you may use the following facts to translate your waste saving efforts in a relatable manner to customers:

- 1 ton food waste → 320 Liters of petrol
- 1 ton food waste → 1,900 kg of CO_2
- 1 ton of paper → 17 trees
- 1 ton of plastics → 16.3 Barrel of Oil

All this can be a unique method to increase your customers' loyalty and engage them in a continuous manner.

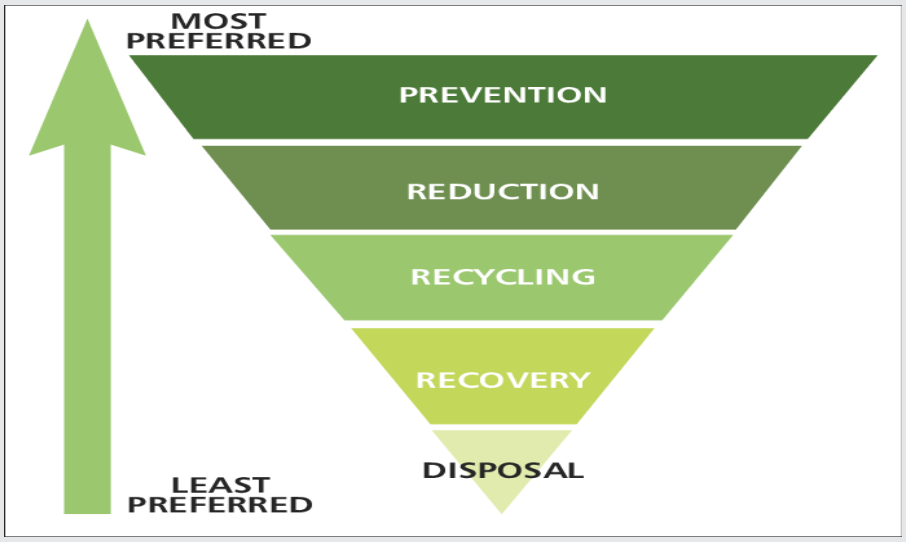
22. GlobalWebIndex, Q2018 2.

8. Waste Management Framework Law and Waste Management Environmental Information and Monitoring System bylaw Relevant Articles

Jordan has recently issued the Waste Management Framework Law Number 16 of the year 2020 which acts as an overarching umbrella that guides all aspects of waste management in Jordan. The law includes articles that are considered the first of its kind in the MENA region and aims at large to encourage recycling and safe disposal of waste. Certain articles are of high relevance to the operations of commercial facilities. At times, this guide provides tools which helps you meet your obligations according to the Law. The Law generally encourages reduce, reuse, and recycling of waste. It drives private businesses to improve their environmental footprint when it comes to waste. Below is a brief on some relevant articles.

Articles 2 to 4 provide a clear definition of all aspects related to waste management, including types of waste, key parties involved and activities and processes of waste management.

Article 6 is a critical one which sets the vision of the Law by stressing on the fact that the measures set by the Law are meant to limit pollution and its negative consequences on the environment and public health while encouraging sustainable development. This is to be done through reduction of waste, reuse, separation of waste at source, managing waste in a manner that allows recovery and recycling, mitigating negative impacts of hazardous waste, and finally, in cases where reduce, reuse, or recycle is not possible, safe disposal is to be achieved. This reflects the international waste management hierarchy which prioritizes reduce, reuse and recycling of waste over disposal as shown in the following figure issued by UNEP in 2011:



Article 7 puts in place some advanced concepts in waste management to be instituted by the Law. For instance, the article puts in place the concept of "extended producers responsibilities" which means that industries producing products or importers and traders leading to the generation of waste have an extended responsibility towards the generation of such waste. This, for example, could mean that soft drink producers can become responsible for plastic bottles waste generated after consumption of such soft drinks and would be expected to take actions to limit it. Another important principle set by the article is the "polluters pay" principle, which puts the financial burden of collection and treatment on those who generated the waste. Finally, another principle of relevance is the "proximity" principle emphasizing that waste should be processed as close as possible to source. Hence, on-site processing could be encouraged.

Articles 9 and 10 sets forth who is who in the sector, defining clearly the roles and responsibilities of each stakeholder in the sector.

Article 11 includes the following important paragraphs:

A. The Holder, Operator or Generator, who possess any amount of hazardous Waste or One Thousand (1000) tons or more of nonhazardous Waste annually, shall commit to the following:

1. Taking measures for recovery or disposal of the waste generated by its activities or processed by it.
2. Collecting and sorting waste separately.
3. Storing waste in environmentally sound manners before recovery or final disposal.

B. Waste must be sorted and collected on the site in ways that reduces environmental risks, for a specific period of time and in accordance with the legislations in force.

C. The generator or holder who recovers or disposes of the waste, must obtain the necessary approvals according to the instructions issued for this purpose.

While Article 12 indicates important paragraphs related to the operators to comply with. Main paragraphs include establishing a special system for waste collection services, receiving waste then transferring to the collection sites, transfer stations, or sites of treatment or final disposal, and colleting sorted Waste.

Article 16 indicates that large waste generators, producing more than 1,000 tons per year of non-hazardous wastes and any amount of hazardous waste, shall commit to the following:

1. On-site sorting and collecting.
2. Obtaining the necessary approvals for recovery or disposal of generated wastes.
3. Conceiving a five-year-renewable waste management plan.
4. Designating an environmental specialist for the waste management plan.
5. Establishing a monitoring program and maintaining relevant records.
6. Forwarding to the Ministry of Environment annual records pertaining to all waste management related matters.

According to bylaw no. 85 of 2020 Waste Management Environmental Information and Monitoring System, establishments that generate more than 100 tons annually of non-hazardous waste and any quantity of hazardous waste excluding households shall commit to the following:

1. Registering in the waste management information system.
2. Acquiring an Environmental Identification Number.
3. Registering information as required in paragraph (A) of Article (6) of the bylaw.
4. Presenting annual reports to the Ministry of Environment including waste management activities and plans, either through the information system or directly to the Ministry of Environment.
5. Prepare waste management plans within six months from the date of registering in the information system.

As can be seen, many of the interventions presented in the guide helps your facility to align with the Law and the bylaw. To name a few, separation at source, on-site pre-processing, waste audits and monitoring, ensuring reduce, reuse and recycling of waste, etc. In reality, while Laws mainly are approached by private firms with the objective of compliance, the Law no. 16 of 2020 is an opportunity to drive private businesses in Jordan to save financially both directly and directly as well as increase the sustainability of the economy at large.

Last not least, the Law included the following punishments as per Articles (27,28, and 29) which can be summarized as follow:

Article Number	Paragraph in Article	Content	Penalties/Fine amount
27	A.1	Any juridical person collecting, treating, sorting, transporting or disposing of waste without obtaining necessary license and permits.	From 1000 JD to 5000 JD.
27	A.2	Any natural person collecting, treating, sorting, transporting or disposing of waste without obtaining necessary license and permits.	Imprisonment for 1 week to 3 months, or fine of 100 JD to 500 JD, or both said penalties.
27	B.1	Any juridical person who causes, throws, or disposes of any hazardous, explosive, flammable, toxic, or infectious waste without obtaining necessary license and permits.	From 10000 JD to 20000 JD.
27	B.2	Any natural person who causes, throws, or disposes of any hazardous, explosive, flammable, toxic, or infectious waste without obtaining necessary license and permits.	Imprisoned from 6 months to 1 year, or a fine from 1000 JD to 5000 JD, or both penalties together.
27	C	Whoever disrupts or prevents any of the employees charged with enforcing the provisions of this law from performing their duties.	Imprisonment from 3 months to 1 year.

27	**D**	If the violator fails to remove the cause of Pollution and its effects under paragraphs A and B.	The relevant authorities remove it at the violator's expense, in addition to 25% of the removal expense as administrative expenses.
28	**A**	A person who commits the following: 1. Disposal of waste in a manner that violates the conditions of the waste management License in accordance with the provisions of Paragraph (A) of Article (21) of this Law. 2. Violates the conditions stipulated under Articles (11) and (12) of this Law stated above. 3. Violates the provisions of Waste Transport mentioned in this Law and/or the regulations issued by its virtue.	From 1000 JD to 10000 JD.
28	**B**	A person who disposes of waste, dirty water, liquid waste, inoperative machinery, wood, tree trimming waste, grass, dirt, silt, building debris in the streets or on the sidewalks, or anywhere in a way that damages public health and harm others.	From 50 JD to 500 JD, and in the event of a repeat violation, the fine will double.
28	**C**	Any person who disposes of any waste or any other things in places other than designated places, in the public street, in gardens, in waterways, near dams, water sources, or artesian wells, in private areas (tourist, archaeological, religious, etc.), in public buildings, government departments and institutions, in sports facilities, in ports, airports, or commercial centers.	From 50 JD to 500 JD, and in the event of a repeat violation, the fine will double.
28	**D**	Any person who disposes of any waste or any other things in nature reserves and national parks.	Imprisonment from 1 week to 1 month, or a fine from 100 JD to 1000 JD, or both of said penalties.
29		If any of the acts mentioned in this Law are repeated.	The penalty shall be doubled.

9. Improvement Measures & Factsheets

As mentioned earlier in Section 3 of the guide, this section includes 29 most relevant opportunities for commercial facilities in Jordan to reduce, reuse, and recycle their waste. A full list can be found in Annex A. The topmost measures are further described through factsheets providing necessary information to begin implementation.

#	List of measures	Sectors					Type			Department						Area							Assess	
	Description	Hotels	Restaurants	Malls	Hypermarkets	Others	Reduce	Reuse	Recycle	General	Sales	Marketing	procurement	Admin	Operations	Kitchen	Others	Cashier	Lobby	Office	Housekeeping	Garden	Ease	Impact
1	Install Collection Points for Waste Set up central collection system by identifying collection points in a strategic way for different waste types	•	•	•	•	•									•	•	•		•	•	•		High	High
2	Separate waste at source to reduce waste sent to landfills	•	•	•	•	•						•			•	•	•		•	•	•		Medium	High

#	List of measures	Sectors					Type			Department						Area							Assess	
	Description	Hotels	Restaurants	Malls	Hypermarkets	Others	Reduce	Reuse	Recycle	General	Sales	Marketing	procurement	Admin	Operations	Kitchen	Others	Cashier	Lobby	Office	Housekeeping	Garden	Ease	Impact
3	Proper selection of location of recycling bins in your facility in a manner that reflects the type and frequency of waste generation in each location			•	•	•	•		•		•	•			•	•	•		•	•	•		Medium	High
4	Separate organic waste in the kitchen	•	•	•		•									•	•							Medium	High
5	Separate paper/ cardboard waste into grade fractions	•	•	•	•				•						•		•	•	•	•	•		High	Medium
6	Pre-process plastic bottles waste (baling)	•		•	•				•		•				•		•			•			Medium	High

#	List of measures	Sectors					Type			Department						Area							Assess	
	Description	Hotels	Restaurants	Malls	Hypermarkets	Others	Reduce	Reuse	Recycle	General	Sales	Marketing	procurement	Admin	Operations	Kitchen	Others	Cashier	Lobby	Office	Housekeeping	Garden	Ease	Impact
7	Hazardous waste register Develop a hazardous waste register which accounts for all types of hazardous waste and identifies how it will be managed	•	•	•	•	•									•		•			•	•		High	High
8	Reuse laundry plastic bags used in guest rooms in hotels	•						•			•	•	•	•							•		High	Medium
9	Reuse plastic crates/ containers instead of cardboard boxes Provide customers with plastic crates instead of cardboard boxes	•	•	•	•			•					•	•					•	•	•		Medium	Medium
10	Reuse old bedding and napkins Recycle old bedding sheets, towels and napkins into artistic rags/carpets	•									•	•	•	•							•		Low	Medium
11	Reuse the blank side of used paper	•		•		•	•							•						•			High	High

#	List of measures	Sectors					Type			Department						Area							Assess	
	Description	Hotels	Restaurants	Malls	Hypermarkets	Others	Reduce	Reuse	Recycle	General	Sales	Marketing	procurement	Admin	Operations	Kitchen	Others	Cashier	Lobby	Office	Housekeeping	Garden	Ease	Impact
12	Return used chemical containers Resend emptied used chemical containers (containing pesticides, fertilizers, ink, toxic and flammable chemicals, etc.) to suppliers	•		•	•			•							•		•						High	Medium
13	Return used engine oil Resend used engine oils used to suppliers	•	•	•	•			•							•		•						High	Medium
14	Return used lamps and batteries Resend used batteries and lamps to supplier	•	•	•	•			•							•	•	•		•	•			High	Medium
15	Return ink cartridges Ensure return ink cartridges either to the manufacture for safe disposal or supplier to refill	•		•	•	•	•						•							•			High	High
16	Limit printouts to necessary items only when using printers	•	•	•	•		•								•					•			High	Medium

#	List of measures	Sectors					Type			Department						Area							Assess	
	Description	Hotels	Restaurants	Malls	Hypermarkets	Others	Reduce	Reuse	Recycle	General	Sales	Marketing	procurement	Admin	Operations	Kitchen	Others	Cashier	Lobby	Office	Housekeeping	Garden	Ease	Impact
17	Remove excessive packaging material used for products	•	•	•	•	•	•							•					•	•	•		Medium	High
18	Optimize packaging versus product protection Choose high quality and optimized packaging products such as reusable plastic containers, zipped locked .bags, etc		•	•	•		•						•			•							Low	High
19	Compostable (recycled) cutlery Provide customers with compostable biodegradable products such as compostable cutlery	•	•	•	•	•					•	•	•			•							Low	High
20	On-site Vermi (or Bokashi) compost Produce vermi-compost (or bokashi) from organic waste to be used on-site as an organic fertilizers	•	•	•	•				•	•	•	•	•	•	•	•	•	•	•	•	•	•	Low	Low

#	List of measures	Sectors					Type			Department						Area							Assess	
	Description	Hotels	Restaurants	Malls	Hypermarkets	Others	Reduce	Reuse	Recycle	General	Sales	Marketing	procurement	Admin	Operations	Kitchen	Others	Cashier	Lobby	Office	Housekeeping	Garden	Ease	Impact
21	Soap and shampoo dispensers Put a dispenser for soaps and shampoo in rooms instead of individually wrapped ones	•					•						•	•	•		•				•		Medium	High
22	Donate surplus food Donate surplus untouched food from catering displays, buffets and food courts to food charity organizations	•	•	•	•			•	•			•	•		•	•							High	Medium
23	Recycle cooking oil	•	•	•	•				•						•	•							Low	Low
24	Staff awareness on waste handling Provide training sessions and or tips and information to staff to raise their awareness and skills	•	•	•	•	•				•							•						Low	High

#	List of measures	Sectors					Type			Department						Area							Assess	
	Description	Hotels	Restaurants	Malls	Hypermarkets	Others	Reduce	Reuse	Recycle	General	Sales	Marketing	procurement	Admin	Operations	Kitchen	Others	Cashier	Lobby	Office	Housekeeping	Garden	Ease	Impact
25	Ensure your waste is recycled by contracting recyclers to collect waste or by requiring service providers to provide evidence of waste being sent to recyclers	•	•	•	•				•	•					•		•						High	High
26	Incentivize customers to reduce single-use plastic bags Create an incentive-based system for the customer to encourage reducing single-use plastic bags which could influence behavior significantly			•	•			•		•							•	•	•				High	Medium
27	Sell reusable bags Provide customers with reusable products such as bags (made of plastics and (fabric			•	•			•		•							•	•	•				High	Medium

#	List of measures	Sectors					Type			Department						Area							Assess	
	Description	Hotels	Restaurants	Malls	Hypermarkets	Others	Reduce	Reuse	Recycle	General	Sales	Marketing	procurement	Admin	Operations	Kitchen	Others	Cashier	Lobby	Office	Housekeeping	Garden	Ease	Impact
28	Create buy back option for certain products Encourage customers to get rid of their used products such as used electronics, batteries, lamps, used clothes, etc. through offering them some benefits in return like cash back or discounts on next purchase			•	•		•				•				•				•				High	High
29	Promote for green products Use, sell and promote for reusable and recyclable products like thermal mugs and paper bags as much as it could be instead of using single-use products	•	•	•	•			•			•	•	•				•						High	High

1. Install collection points for waste

Fact sheet : Install collection points for waste	
Overview	
What	Setting up central collection system by identifying collection points in a strategic way for different waste types (non-hazardous waste such as paper and magazines, hazardous waste such as batteries and lamps), to facilitate collection and separation for recycling.
How	Assess type and frequency of waste generated on-site in each location (office space, kitchen, food court etc.). Select optimum collection points such as reception and public areas for collecting batteries and lamps (electronic and electric wastes). Compact waste such as paper and magazines using balers to save space on-site. Ensure hazardous/non-hazardous waste are collected properly and given to a service provider who manages the transportation and disposal in an environmental manner.
Implementation Features	
Relevant sectors	**Malls – Hyper Markets – Hotels – Restaurants and other commercial sectors**
Ease of implementation	Easy - **Moderate** – Difficult
Relevant departments	Operations
Supporting entities	Waste management and recycling service providers
Regulatory Aspects	None
Impact/Benefits	
Direct & In-direct Financial Return	76% to 95%of waste could be reused or recycled when they are sold separately[23]. Decrease time and efforts needed to collect waste on site. Decrease cost of waste handling and transportation. Save space on site by allowing easier storage and hence decrease frequency of collection.
Considerations	
Key Challenges and mitigation measures	**Challenges:** Storage areas for waste can be limited. **What to do about them:** For non-hazardous waste, compact waste such as paper and cardboards using balers to reduce storage area requirements and transport cost. For hazardous waste, designate special containers in the storage area or warehouse to keep waste safe until it is handed over as per concerned authorities' regulations and instructions.

23. EU-Best environmental management practice in the tourism sector - 2013

2. Separation at source

Fact Sheet: Separation at source	
Overview	
What	Separation at source to reduce waste sent to landfills allowing better management of waste on-site as well as decreases hauling fees and increases recycling opportunities by preventing waste contamination.
How	Decide categories of waste to be separated (organic vs non-organic, or organic, paper & cardboard, plastics, metals, etc.) and define the waste streams inside the facility per type, frequency, and specialty. Install separate bins for each type of waste in strategic locations. Create proper signage to ensure bins are used correctly.
Implementation Features	
Relevant sectors	**Malls – Hyper Markets – Hotels – Restaurants and other commercial sectors**
Ease of implementation	Easy - **Moderate** – Difficult
Relevant departments	Operations – Marketing and Communications.
Supporting entities	Waste management and recycling service providers – recycle bins providers.
Regulatory Aspects	The waste management law article 6 emphasizes that measures to ensure separation are source are put in place – article 11 indicates that generators of more than 1,000 tons of waste annually are required to segregate waste on site.
Impact/Benefits	
Direct & In-direct Financial Return	76% to 95% of waste could be reused or recycled when they are sold separately[24]. Separation of food waste without any staff training could reduce waste at least 10%[25] . Revenues could be generated through selling separated waste per category. Decrease cost of waste hauling since some separated waste can be stored on-site for longer. Decrease operating cost of recyclers and increase recycling opportunities. Increase quality of final recycled products.
Considerations	
Key Challenges and Mitigation measures	**Challenges:** Separating waste at source might not be a familiar practice for staff and customers. **What to do about them:** Conduct training to staff on importance of separating waste. Prepare proper signage to encourage customer to use separate bins correctly. Place bins in suitable sites. Reward customers who use bins through surprise gifts.

24. EU-Best environmental management practice in the tourism sector - 2013
25. WWF (World Wide Fund for Nature)- fighting food waste in hotels

3. Proper selection of location of recycling bins

Fact Sheet: Proper selection of location of recycling bins	
Overview	
What	Carefully plan the type (for which waste) and size of recycling bins in your facility in a manner that reflects the type and frequency of waste generation in each location leading to less efforts in emptying bins and improved separation at source (by being convenient for the client).
How	Assess type and frequency of waste generated on-site in each location (office space, kitchen, food court etc.). Determine if single bins will be used (not recommended) or two types separating organic vs recyclables or multiple bins (as a start organic, plastics, paper and cardboard, others). Place the right type of recycling bin with the right size in each location (for instance, bigger organic waste bins in food courts, etc.). Seek support of designer and waste bins providers to create attractive and branded bins. Install bins accompanied with an awareness program (internal communication campaigns in case separation at source takes place.
Implementation Features	
Relevant sectors	**Malls** – Hyper Markets – **Hotels** – Restaurants **and other commercial sectors**
Ease of implementation	Easy - **Moderate** – Difficult
Relevant departments	Operations - Sales - Marketing and communication
Supporting entities	Bins provider – recycling
Regulatory Aspects	None
Impact/Benefits	

Direct & In-direct Financial Return	76% to 95%of waste could be reused or recycled when they are sold separately [26]. Decrease time and efforts needed to collect waste on site and empty bins by ensuring the right size of bin is defined. Increase success of waste separation at source by placing the appropriate bin to the appropriate type of waste generated in each area of the facility (for instance paper bins in office space and close by coffee places, organic waste bins in food courts, etc.).
Considerations	
Key Challenges and Mitigation measures	**Challenges:** Determining the right size and type of bin in each location. **What to do about them:** Measure or estimate the amount of waste generated by type in each of your facilities location (seek assistance of service provider to determine this if needed – it can be done by observing the current rate of filling of bins – please reflect on the peak frequency considering seasons and weekends – ask staff to provide their estimates). Refer to international best practices[27] for your facility, if needed. Place generic bins beside specialized ones in case customers or staff can determine the post relevant type of bin. Determine frequency by which waste will be removed from each bin (the less frequent the collection is the larger the bin should be). Determine the size and type of bins accordingly.

26 EU-Best environmental management practice in the tourism sector - 2013
27. The following links contain useful examples for international best practices:
https://archive.epa.gov/wastes/conserve/tools/rogo/web/amrguide.pdf
https//epa.gov/smm/managin-and-reducing-waste-guide-commercial-buildings

4. Separate organic waste in the kitchen

Fact Sheet: Separate organic waste in the kitchen	
Overview	
What	Kitchens generate large quantities of organic waste, including avoidable food waste (plate returns, food spoilage, etc.) and unavoidable food waste/ on-site food preparation (peelings, rind, fruit cores, etc.). Also, it provides transparency and insights into the largest drivers of food waste so you can start planning for reduction.
How	Decide categories of waste to be separated (food preparation (cooked vs non-cooked) or meat/bone free), plate return and dishwashing, etc.). Install separate bins for each type of waste in strategic locations in the kitchen. Create proper signage to ensure bins are used correctly. Train and monitor staff on new separation system.
Implementation Features	
Relevant sectors	**Malls – Hyper Markets – Hotels – Restaurants and other commercial sectors**
Ease of implementation	Easy - **Moderate** – Difficult
Relevant departments	Operations
Supporting entities	Waste and recycling service providers – recycle bins providers
Regulatory Aspects	The waste management law article 6 emphasizes that measures to ensure separation are source are put in place – article 11 indicates that generators of more than 1,000 tons of waste annually are required to segregate waste on site. The Law recognizes the processing of organic waste into compost as one of waste recovery options.
Impact/Benefits	
Direct & In-direct Financial Return	Separation of food waste without any staff training could reduce waste at least 10% [28]. Can decrease cost of food inputs by about 20% [29]. 95% of organic waste separated could be sent for on-site composting [30]. Increase value added of recyclables (compost, animal feed, donations, etc.). Decrease cost of waste hauling since some separated waste can be stored on-site for longer. Decrease operating cost of recyclers and increase recycling opportunities.

28. WWF (World Wide Fund for Nature)- fighting food waste in hotels
29. EU-Best environmental management practice in the tourism sector - 2013
30. EU-Best environmental management practice in the tourism sector - 2013

Considerations	
Key Challenges and mitigation measures	**Challenges:** Separating waste at source might not be? a familiar practice for staff and customers. **What to do about them:** Conduct training to staff on importance of separating waste at source. Prepare proper signage to encourage staff to use separate bins correctly. Place bins in suitable sites in the kitchen. Reward staff who use bins through bonuses.

5. Separate paper/cardboard waste into grade fractions

Fact Sheet: Separate paper /cardboard waste into grade fractions	
Overview	
What	Separate paper and cardboard per quality (low and high grade) and sell them to recycling service providers to increase value addition and quality of recycling of paper and cardboard waste including (recycling to the same grade, corrugated cardboard, tissue manufacture, etc.).
How	Decide categories of waste to be separated per quality (deinking grade, mixed papers/cardboard, not meeting a specified grade). Perform baling step on each paper/cardboard grade. Contact a recycling service provider to collect paper/cardboard waste.
Implementation Features	
Relevant sectors	**Malls – Hyper Markets – Hotels – Restaurants and other commercial sectors**
Ease of implementation	Easy - **Moderate** – Difficult
Relevant departments	Operations
Supporting entities	Recycling service providers
Regulatory Aspects	None
Impact/Benefits	
Direct & In-direct Financial Return	Price of paper and cardboard can double if high quality types are separated. Increase value added and quality of recyclables (recycling to the same grade, corrugated cardboard, tissue manufacture, etc.). Decrease cost of waste hauling since some separated waste can be stored on-site for longer. Decrease operating cost of recyclers and increase recycling opportunities.
Considerations	
Key Challenges and mitigation measures	**Challenges:** Separating waste at source might be not a familiar practice for staff and customers. **What to do about them:** Conduct training to staff on importance of separating waste at source. Prepare proper signage to encourage customer to use separate bins correctly. Place bins in suitable sites.

6. Pre-process plastic bottles waste (baling)

Fact Sheet : Pre-process plastic bottles waste (baling)	
Overview	
What	Pre-processing is an essential step in adding value to the waste generated by effectively preparing waste for upcoming recycling processes. Pre-processing of plastics waste includes – after separation at source – baling, washing/ cleaning, then preparing for recycling step by shredding. Baling step is used to compact waste into blocks which can be easily transported.
How	Collect separated plastic bottles waste from waste generator facility. Perform baling processing upon the plastic bottles waste to reduce volume and transportation cost. Wash/clean the plastic bottles waste from any debris or unmatched items, in some cases the bottles lids could be removed and handled separately by the service provider. Shred the plastic bottles waste. Sell baled, flaked plastics to a service provider or a plastic recycler.
Implementation Features	
Relevant sectors	**Malls – Hyper Markets – Hotels – Restaurants and other commercial sectors**
Ease of implementation	Easy - **Moderate** – Difficult
Relevant departments	Operations
Supporting entities	Waste generators facilities – equipment suppliers – recyclers/service providers
Regulatory Aspects	None
Impact/Benefits	
Direct & In-direct Financial Return	Baling can save 80% of plastic waste transportation cost [31]. Less storage space for collecting plastics bottles waste. Decrease volume of collected plastic bottles waste thus decrease transportation cost. Increase added value of recyclables.

31. https://www.pakawaste.co.uk/the-benefits-of-balers/

Considerations	
Key Challenges and mitigation measures	**Challenges:** Lack of knowledge of staff that might lead to incorrect waste separation, provision of equipment. **What to do about them:** Conduct training to staff on importance of separating waste. Prepare proper signage to encourage customer to use separate bins correctly Provide incentive. to housekeeping staff (or bonus) in rolling out the system. Contract with service providers to provide required equipment.

7. Hazardous waste register

Fact Sheet: Hazardous waste register	
Overview	
What	Hazardous waste is a certain category of waste which has considerable negative impact on the environment, public health, and safety. Waste management systems should carefully manage this type of material. It is advised to develop a hazardous waste register which accounts for all types of hazardous waste and identifies how it will be managed (such as batteries, e-waste, used cooking oil, chemicals, etc….) and put in place clear guidelines for their collection and disposal. This will improve environmental compliance and ensure negative environmental impact is minimized.
How	Design the waste register including areas of waste generation, waste categories, amounts, storage area, and monitoring procedures as per the Material Safety Data Sheets (MSDS). Design data collection form and assign responsibilities for data collection and consolidation. Collect data about hazard waste types, forms, amounts and from where it is generated. Ensure hazardous waste is tracked properly and given to a service provider who manages the transportation and disposal in an environmental manner. Collect data about the existing service providers in the market who specialized in collecting, handling, treating disposing the hazardous waste; to ensure the proper handling in terms of time, cost and potential impacts/risks.
Implementation Features	
Relevant sectors	**Malls – Hyper Markets – Hotels – Restaurants and other commercial sectors**
Ease of implementation	Easy - Moderate – **Difficult**
Relevant departments	Operations
Supporting entities	Service providers, Ministry of Environment

Regulatory Aspects	Waste management framework law in Jordan: **Article 3:** Categorize waste according to hazardous and non-hazardous waste. **Article 11:** Manufacturer who produces any amount of hazardous waste should separate and dispose it safely. Also store waste in an environmentally manner in specific duration according to legislations with an agreed license for handling hazardous waste.
Impact/Benefits	
Direct & In-direct Financial Return	Savings mainly come from avoiding non-compliance incidences leading to fines (which is mandated by the new law). Decrease potential of on-site contamination due to hazardous waste. Create KPIs that allows improved handling of waste. Compliance with laws and regulations thus less violations fees and fines. Decrease possibility of hazardous waste contaminating the environment.
Considerations	
Key Challenges and Mitigation measures	**Challenges:** Lack of knowledge on what constitutes hazardous waste and how to manage it. **What to do about them:** Review Jordanian Law (Waste Management Framework Law; articles 3 & 11) and other Laws related to Hazardous Waste Management in Jordan. Raise staff awareness on hazardous waste. Provide training to staff on how to manage hazardous waste (consult your service provider).

8. Reuse laundry plastic bags

Fact Sheet : Reuse laundry plastic bags	
Overview	
What	Reuse laundry plastic bags used in guest rooms in hotels or replace them with reusable laundry bags made from linen or cotton to reduce single-use plastic waste.
How	Select the most suitable type of reusable laundry bags. Select a supplier to provide you with reusable laundry bags. Engage and train the staff for waste management practices (especially reducing single-use plastics).
Implementation Features	
Relevant sectors	Malls – Hyper Markets – **Hotels** – Restaurants
Ease of implementation	**Easy** - Moderate – Difficult
Relevant departments	Procurement - Sales – Marketing and Communications
Supporting entities	Reusable bags manufacturers – designers – marketing agencies
Regulatory Aspects	Reuse is recognized by the Waste Law as an important element of improving waste management – article 6 stipulates those measures will be taken to increase the reuse of waste.
Impact/Benefits	
Direct & In-direct Financial Return	Single reusable bag can replace over 125 plastic bags. Increase lifetime of use of reusable laundry bags. Decrease cost of plastic bags waste handling and transportation. Use branded and customized bags for promotion of your facility.
Considerations	
Key Challenges and mitigation measures	**Challenges:** Staff resistance to behavioral changes required. **What to do about it:** Communicate to staff the positive impact of using reusable laundry bags. Create incentives or recognition programs to reward department or staff who effectively participate in waste management and recycling improvement efforts (like reducing single-use plastics) in your facility.

9. Reuse plastic crates/containers instead of cardboard boxes

Fact Sheet : Reuse plastic crates/containers instead of cardboard boxes	
Overview	
What	Provide customers with plastic crates/containers that are easier to fill up, handle, transport, store and wash than disposable cardboard boxes to reduce cardboard waste generated.
How	Select type and material of plastic crates (long-lasting, stackable, durable, transparent, etc.). Select a supplier to provide you with plastic crates. Engage and train the staff for waste management and recycling practices (especially reducing cardboard waste).
Implementation Features	
Relevant sectors	**Malls – Hyper Markets – Hotels – Restaurants and other commercial** sectors
Ease of implementation	**Easy** - Moderate – Difficult
Relevant departments	Procurement
Supporting entities	Plastic crates manufacturers
Regulatory Aspects	Reuse is recognized by the Waste Law as an important element of improving waste management – article 6 stipulates those measures will be taken to increase the reuse of waste.
Impact/Benefits	
Direct & In-direct Financial Return	Save all costs of cardboard boxes. Increase lifetime of use of plastic crates. Increase protection of products without tearing the boxes. Decrease cost of cardboard waste handling and transportation.
Considerations	
Key Challenges and mitigation measures	**Challenges:** Plastic crates tends to cost more than cardboard boxes. **What to do about them:** Purchase a smaller number of plastic crates than of cardboard boxes so better protecting products and longer lifetime (last for up to five years).

10. Reuse old bedding and napkins

Fact Sheet: Reuse old bedding and napkins	
Overview	
What	Recycle old bedding sheets, towels, and napkins into artistic rags/cleaning cloths to decrease waste generated. Recycled rags could be made in fashionable way and the process of creating the rag could be so interesting that hotel guests would want to watch.
How	Collect old bedding sheets, towels, and napkins to be sent to a recycling station. Seek support of designers to create attractive and branded recycled rags. Create a recycling station where old bedding sheets, towels and napkins will be recycled, the station should have area where interested guests could sit and watch recycling progress. Determine a selling price for the recycled rags. Promote the concept of reusing and recycling waste in your facility.
Implementation Features	
Relevant sectors	**Hotels** – Malls – Hyper Markets – Restaurants
Ease of implementation	Easy - Moderate – **Difficult**
Relevant departments	Procurement - Sales – Marketing and Communications
Supporting entities	Recyclers – designers – marketing agencies
Regulatory Aspects	Reuse is recognized by the Waste Law as an important element of improving waste management – article 6 stipulates those measures will be taken to increase the reuse of waste.
Impact/Benefits	
Direct & In-direct Financial Return	Reusing of old beddings, towels and napkins could reduce 30% of waste generated[32]. Revenues could be generated through selling recycled rags. Decrease cost of bedding and napkins waste handling and transportation. Use branded recycled products for promotion of your facility.

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Considerations	
Key Challenges and mitigation measures	**Challenges:** Customers' resistance to switch to recycled rags (products). **What to do about it:** Communicate to customers the positive environmental impact of using recycled rags. Show customers the process of cleaning and disinfecting old bedding sheets, towels and napkins. before sending it to the recycling station. Make sure that rags are made in fashionable way that may play critical role in encouraging the customers/guests.

11. Reuse the blank side of used paperbags

Fact Sheet: Reuse the blank side of used paper	
Overview	
What	Most of the modern printers have an option to be easily chosen the printing side. Using draft paper for internal printing and notes saving in amount of paper used.
How	Communicate to staff the positive impact of reusing blank sides of papers. Inform staff with a fixed place where draft paper can be placed in (for example adding a box besides the printer). Add clear and accessible space where staff can return the draft paper.
Implementation Features	
Relevant sectors	**Malls** – Hyper Markets – **Hotels** – Restaurants **and other relevant commercial businesses**
Ease of implementation	**Easy** - Moderate – Difficult
Relevant departments	Admin
Supporting entities	None
Regulatory Aspects	None
Impact/Benefits	
Direct & In-direct Financial Return	This can save half your expenses on printing paper. Decrease purchasing cost of printing paper. Decrease amount of paper waste generated.
Considerations	
Key Challenges and mitigation measures	**Challenges:** staff feel that it is inappropriate to use the draft paper and having confidentiality concerns. **What to do about it:** Train staff on using the draft paper for internal printing / notes purposes. Conduct awareness campaign on the importance of using the draft paper, savings and returns on the entity and the environmental impact. Clarify that confidential paper should be shredded not reused.

12. Return used chemical containers

Fact Sheet: Return used chemical containers	
Overview	
What	Resend emptied used chemical containers to suppliers where possible to decrease chemical containers mixing with waste which is considered hazardous and highly polluting waste. Chemical containers could include but not limited to containers of pesticides, fertilizers, ink, toxic and flammable chemicals.
How	Establish an area to collect used chemical containers and make sure that it is a safe place to store. Train staff on how to empty the containers based on manufacturer's instructions as per the Material Safety Data Sheet (MSDS). Communicate with containers manufacturers who can take them back – if not, communicate with service provider who can ensure safe disposal or recycling of chemical containers. Hand over chemical containers to manufacturers or specialized service providers.
Implementation Features	
Relevant sectors	**Malls – Hyper Markets – Hotels – Restaurants and other relevant commercial sectors**
Ease of implementation	**Easy** - Moderate – Difficult
Relevant departments	Operations
Supporting entities	Containers manufacturers - recyclers - service providers
Regulatory Aspects	None
Impact/Benefits	
Direct & In-direct Financial Return	Avoid penalties from hazardous waste miss management and non-compliance. Revenues could be generated through selling used chemical containers. Avoid/prevent disposal of highly hazardous waste with other types of waste.
Considerations	
Key Challenges and mitigation measures	**Challenges:** Storage of collected items till they are handed over can be challenging – Staff resistance to behavioral changes required. **What to do about it** Designate special containers in storage area or warehouse to keep hazardous items like batteries and lamps till they are handed over as per concerned authorities' regulations. Set a regular time for collection with service providers to avoid over storage. Communicate to staff the positive environmental impact of returning emptied chemical containers.

13. Return used engine oil

Fact Sheet: Return used engine oil	
Overview	
What	Resend used engine oils to suppliers to prevent disposal of engine oil in wrong way with wastewater which could lead to operational problems in treatment facilities and high pollution to the environment.
How	Collect used engine oil in special containers. Use efficient collection system for collecting used engine oil or put oil back into oil bottles. Filter used engine oil before collection. Hand over used engine oil to manufacturers or specialized service providers.
Implementation Features	
Relevant sectors	**Hotels – restaurants – malls – Hypermarkets and other relevant sectors**
Ease of implementation	Easy - Moderate – **Difficult**
Relevant departments	Operations
Supporting entities	Recyclers - service providers
Regulatory Aspects	Recycling on engine oils is recognized by the law as an important recycling process.
Impact/Benefits	
Direct & In-direct Financial Return	Some recyclers and producers can purchase the used oil. Decrease/prevent disposal cost of used engine oil. Save water ways and water resources by avoiding disposal of oil in sinks. Increase sustainable biofuels leading to reduced CO2 and harmful emissions from fossil fuels.
Considerations	
Key Challenges and mitigation measures	**Challenges:** Inefficient and unsafe collection of used engine oil. **What to do about them:** Use a central storage tank with automatic level to collect all used engine oil. Attach a filter to the hose for used engine oil filtration. Contract with recyclers/service providers to take the following into consideration (provision of equipment and oil collection as required for a monthly fee, payment for oil collected and setting a regular time for collection of the oil).

14. Return used lamps and batteries

Fact Sheet: Return used lamps and batteries	
Overview	
What	Resend used batteries and lamps to supplier to decrease batteries and lights mixing with waste which are both considered hazardous and highly polluting waste.
How	Establish an area to collect used batteries and lamps. Collect used batteries and lamps. Communicate with suppliers (manufacturers) of batteries and lighting units who can take them back – if not, communicate with specialized service provider who can ensure safe disposal or recycling of batteries and lamps. Hand over batteries and lamps to manufacturers or specialized service providers.
Implementation Features	
Relevant sectors	**Malls – Hyper Markets – Hotels – Restaurants and other relevant commercial sectors**
Ease of implementation	**Easy** - Moderate – Difficult
Relevant departments	Operations
Supporting entities	Used batteries and lamps manufacturers – specialized service providers
Regulatory Aspects	None
Impact/Benefits	
Direct & In-direct Financial Return	Savings on penalties for non-compliance in managing hazardous waste. Avoid/prevent disposal of highly hazardous waste with other types of waste. Some manufacturers could provide discount on new batteries in exchange for used ones.
Considerations	
Key Challenges and mitigation measures	**Challenges:** Storage of batteries and lamps till they are handed over can be challenging. **What to do about them:** Designate special containers in storage area or warehouse to keep used batteries and lamps till they are handed over as per concerned authorities' regulations and instructions.

15. Return ink cartridges

Fact Sheet: Return ink cartridges	
Overview	
What	Most of modern printers and copying machines have refilling ink cartridges. The ink cartridges are plastic material contaminated by ink which is hazardous material and when it reaches the environment, it causes significant harmful. Ensure return ink cartridges either to the manufacture for safe disposal or supplier to refill to avoid environmental contamination.
How	Determine list of suppliers that can refill the cartridges and discuss to know who can collect them. Inform staff that ink cartridge will be dismantled once it empties to refill on monthly basis. Assign staff to outreach suppliers and manufactures to ensure refill or safe disposal. Ensure buying new printers and copying machines with refilling ink cartridges.
Implementation Features	
Relevant sectors	**Malls** – Hyper Markets – **Hotels** – Restaurants **and other relevant sectors**
Ease of implementation	Easy - **Moderate** – Difficult
Relevant departments	Purchasing - waste management
Supporting entities	Cartridge's suppliers - service providers
Regulatory Aspects	None
Impact/Benefits	
Direct & In-direct Financial Return	3.5 liters of oil is used to make just one new ink or toner cartridge[33]. Decrease purchasing cost of printing and ink cartridges. Save contaminated plastic with ink to reach out the soil. Decrease amount of hazardous waste mixed with the cartridges.
Considerations	
Key Challenges and mitigation measures	**Challenges:** Ensure good quality of refilling the ink cartridge and how to dismantle and collect the empty cartridge from the staff side. **What to do about it:** Train the staff members on how to dismantle and collect empty ink cartridge in a safe way based on supplier's instructions. Assign area for cleaning and drying the cartridge before collecting in containers to be sent to the supplier.

33. https://www.ldproducts.com/blog/ink-cartridge-recycling-tips

16. Limit printouts to necessary items only when using printers

Fact Sheet: Limit printouts to necessary items only when using printers	
Overview	
What	Limit printouts to the most important document like confidential papers and enhance using soft copies of emails, reports, and admin documents instead of hard copies. Decrease paper use will improve office productivity and save printing costs and storage area for paper in addition to save trees and have positive environmental impact.
How	Communicate to staff the positive environmental impact of using soft copies and reduce hard copies. Add green email signature footer like (Please consider your environmental responsibility/ before printing this e-mail message, ask yourself whether you really need a hard copy). Give staff dual monitors, to reduce the need to print documents. The dual monitors boost the staff productivity and satisfaction. Activate automatic electronic backups.
Implementation Features	
Relevant sectors	**Malls** – Hyper Markets – **Hotels** – Restaurants **and other relevant sectors**
Ease of implementation	**Easy** - Moderate – Difficult
Relevant departments	Adin
Supporting entities	None
Regulatory Aspects	None
Impact/Benefits	
Direct & In-direct Financial Return	Using soft copies instead of printing paper reduce paper waste by 10% to 30%[34]. Copying on both sides of the paper reduce paper use by 50%. Decrease purchasing cost of printing paper. Decrease amount of paper waste generated.
Considerations	
Key Challenges and mitigation measures	**Challenges:** Staff cannot differentiate between necessary and unnecessary documents. **What to do about it:** Train staff on using automatic electronic backups. Conduct awareness campaign on the importance of using electronic versions and its impact on their productivity. Create list of type of necessary documents which can be printed out.

34. WWF (World Wide Fund for Nature)- How to reduce paper consumption in your office

17. Remove excessive packaging

Fact Sheet : Remove excessive packaging from products (example electronic products)	
Overview	
What	Decrease packaging material used for products such as home appliances. other consumer products or delivery purposes to save material cost and decrease waste generated by packaging materials.
How	Determine what is the sustainable and useful amount of packaging material to use for each product. Conduct training/awareness raising to staff of how to reduce excessive packaging material.
Implementation Features	
Relevant sectors	**Malls – Hyper Markets – Hotels – Restaurants and other relevant sectors**
Ease of implementation	Easy - **Moderate** – Difficult
Relevant departments	Admin
Supporting entities	None
Regulatory Aspects	None
Impact/Benefits	
Direct & In-direct Financial Return	Savings are proportionate to the amount of packaging material reduced. Decrease cost of packaging materials. Decrease waste generated from packaging materials.
Considerations	
Key Challenges and mitigation measures	**Challenges:** Customers resistance to receive products with less packaging material – Staff resistance to behavioral changes required. **What to do about it:** Create a channel for the customers to receive their complaints and have an awareness campaign on the importance of decreasing packaging materials. Communicate to the staff the importance of decreasing amount of packaging material. Put Key Performance Indicators (KPIs) on using packaging materials for each product.

18. Optimize packaging versus product protection

Fact Sheet: Optimize packaging (product protection versus packaging) to keep food fresh and safe for consumption	
Overview	
What	Choose proper high quality and optimized packaging products such as reusable plastic containers, zipped locked bags, etc. to keep food fresh, avoid its spoilage and decrease excessive amount of packaging material.
How	Select type and material of packaging material (high quality reusable plastic containers or zipped locked bags, etc.). Check the fridge temperature not to be too cold or too hot to avoid food spoilage. Select a supplier to provide you with optimized packaging products. Engage and train the staff for optimizing packaging waste versus product protection.
Implementation Features	
Relevant sectors	**Malls – Hyper Markets – Hotels – Restaurants and other relevant sectors**
Ease of implementation	Easy - **Moderate** – Difficult
Relevant departments	Procurement
Supporting entities	Packaging products manufacturers
Regulatory Aspects	None
Impact/Benefits	
Direct & In-direct Financial Return	Optimizing packaging material could save at least 15% of packaging material[35]. Decrease amount of generated food waste. Keep lifetime/freshness of food consumed. Decrease cost of food purchased.
Considerations	
Key Challenges and mitigation measures	**Challenges:** Spoilage of stored food and water condensation of food. **What to do about it:** Use zipped lock bags with high quality to ensure air be vacuumed and avoid condensation. Use Storage containers with high quality to keep food fresh and safe. Check the temperature of food before storage to be not too hot or too cold.

35. Oakded hollins-Waste prevention in hospitality sector-2011

19. Compostable (recycled) cutlery

Fact Sheet: Compostable (recycled) cutlery	
Overview	
What	Provide customers with compostable biodegradable[36] products such as compostable cutlery (spoons, knives, forks, etc.) to reduce single-use plastics and reduce contamination caused by food waste.
How	Select type of material and cutlery to replace. Select suppliers to provide you with cutlery. Determine if cost of compostable (recycled) cutlery will be added to the total meal cost. Promote the concept of compostable (recycled) products to customers.
Implementation Features	
Relevant sectors	**Malls – Hyper Markets – Hotels – Restaurants and other relevant sectors**
Ease of implementation	Easy - **Moderate** – Difficult
Relevant departments	Procurement – Sales – Marketing and Communications.
Supporting entities	Compostable cutlery manufacturers – marketing agencies.
Regulatory Aspects	None
Impact/Benefits	
Direct & In-direct Financial Return	Premium on selling compostable cutlery could create financial returns. Use branded cutlery products for promotion of your facility. Save water and energy related to washing metal cutlery used in your restaurant.
Considerations	
Key Challenges and mitigation measures	**Challenges:** High cost of compostable or recycled cutlery. **What to do about them:** Slightly increase cost of food served to absorb the higher cost.

36. Compostable biodegradable refers to materials that can be decomposed in natural products in a compost environment (compostable specific conditions) within a limited period of time and with no toxic impact on the soil.

20. On-site Vermi (or Bokashi) compost

Fact Sheet: On-site Vermi (or Bokashi) compost	
Overview	
What	Produce vermi-compost[37] from organic waste to be used on-site as an organic fertilizer while decreasing expenses on transport of organic waste to landfill. Vermi-compost can be produced under anaerobic conditions with odor free in an isolated plastic tank. Prior to composting, organic waste should be separated to compostable materials (e.g., yard waste, fruit and vegetables, bread, rice, potato peels, kitchen roll, coffee and tea filters, potted plants, meat) and non-compostable materials (e.g., separate bones, uncooked meat, cooking oils, fats and grease).
How	Install small-medium scale vermi or bokashi[38] composting bins. Regularly follow up on composting system. Use vermi-(bokashi) compost on-site in gardens or backyards.
Implementation Features	
Relevant sectors	**Malls** – Hyper Markets – **Hotels** – Restaurants **and other relevant sectors**
Ease of implementation	**Easy** - Moderate – Difficult
Relevant departments	Operations – Procurement
Supporting entities	Plastic containers manufacturers or compost unit producers – vermi-worms' producers[39].
Regulatory Aspects	Composting is recognized by the Law as one of the key waste processing technologies.
Impact/Benefits	

37. Vermi-compost is based on breeding a special species of worms that can feed on large amounts of food waste.
38. Vermi-compost can be done aerobically while Bokashi is same as vermi-compost except that composting can be done in closed sealed container.
39. Vermi compost other than yielding compost also generates worms that can continue to accumulate and grow. The worms themselves can become another product that can be used as fish feed or input material for pharmaceutical industries. The worms can be sold to vermi-compost producers as well. Hence, the worm's reproduction itself technically referred to as worm culture can become the core business of a firm.

Direct & In-direct Financial Return	95% of organic waste separated could be sent for on-site composting[40]. Each ton of organic waste can produce roughly 500 kg of compost which can save similar amount of purchased fertilizers. Decrease cost of organic waste hauling and transportation equivalent to amounts of tons saved.
Considerations	
Key Challenges and Mitigation measures	**Challenges:** Separating compostable materials (e.g., yard waste, vegetable cuttings, fruit peels) from non-compostable waste (e.g., plastics, meat and fatty food waste, metals) as they are generated from the source might be not a familiar practice for staff and customers. **What to do about them:** Separate waste at source by installing at least bins for organic waste and bins for other waste. Conduct training to staff on importance of separating waste in kitchen. Prepare proper signage to encourage customers to use separate bins correctly.

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21. Soap and shampoo dispensers

Fact Sheet: Soap and shampoo dispensers	
Overview	
What	Put a dispenser for soaps and shampoo in rooms instead of individually wrapped ones and fill the soap and shampoo regularly which decreases waste generated by plastic shampoo bottles and soap wrapping - provide additional toiletry items only on request in hotels to decrease packaging waste.
How	Buy dispenser for each room. Contract with liquid soap and shampoo suppliers. Fill dispenser with liquid shampoo or soap. Make sure housekeeping fill dispensers daily. Provide additional toiletry items only on request such as shower caps, brushes, nail files, etc.
Implementation Features	
Relevant sectors	**Hotels** – Restaurants – Malls – Hypermarket
Ease of implementation	Easy - **Moderate** – Difficult
Relevant departments	Operations – Procurement
Supporting entities	Dispenser manufacturers – liquid soap and shampoo suppliers
Regulatory Aspects	None
Impact/Benefits	
Direct & In-direct Financial Return	Only 15 % of individual soaps and shampoos provided to guests are used. Installing soap and shampoo dispenser reduce waste volume by 40%[41]. Refilling soap is cheaper than plastic bottled soap and saving can be assessed with offers coming from refilling soap suppliers. Decrease spending on shampoo and soap since liquid ones for re-filling are usually less expensive. Decrease packaging waste and bottles waste leading to less expenses on hauling services.
Considerations	
Key Challenges and mitigation measures	**Challenges:** Housekeeping system resistance due to efforts required in re-filling. **What to do about them:** Provide detailed training to housekeeping on how to refill the bottles effectively and in short time period. Provide incentive to housekeeping staff (or bonus) in rolling out the system.

41. EU-Best environmental management practice in the tourism sector - 2013

22. Donate surplus food

Fact Sheet: Donate surplus food	
Overview	
What	Donate surplus untouched food from catering displays, buffets and food courts to food charity organizations such as homeless shelters, orphanages, etc. which is regarded as food waste prevention.
How	Develop standard operating procedures for handling food set for donation. Inform and train staff on the surplus food donation specific operating procedures. Dedicate space in storage areas for foods to be donated. Select and identify a trusted and experienced food recovery community partner.
Implementation Features	
Relevant sectors	**Malls – Hyper Markets – Hotels – Restaurants and relevant sectors**
Ease of implementation	Easy - **Moderate** – Difficult
Relevant departments	Operations – Marketing and communications
Supporting entities	Food charity organizations
Regulatory Aspects	None
Impact/Benefits	
Direct & In-direct Financial Return	Help vulnerable people by providing food for free. Improve staff morale and benefit the local community. Decrease cost of food waste handling and transportation.
Considerations	
Key Challenges and mitigation measures	**Challenges:** The surplus food often has a short shelf-life. **What to do about it:** Efficient storage of surplus food in cold temperatures to protect it from spoilage. The facility could contract with food charity organization and agree to take surplus food as early as possible in fixed time everyday.

23. Recycle cooking oil

Fact Sheet: Recycle cooking oil	
Overview	
What	Collect and filter used cooking oil and sell it to biodiesel recyclers or soap producers to decrease used cooking oil handling and disposal efforts and generate revenues.
How	Use efficient collection system for collecting used cooking oil or put oil back into oil bottles. Filter used cooking oil before collection. Make long term contract with biodiesel or soap producers.
Implementation Features	
Relevant sectors	**Hotels – Restaurants – Malls** – Hypermarket
Ease of implementation	Easy - Moderate – **Difficult**
Relevant departments	Operations
Supporting entities	Service providers / recyclers of cooking oil to biodiesel or soap).
Regulatory Aspects	None
Impact/Benefits	
Direct & In-direct Financial Return	Changing cooking practice could reduce the amount of oil used by 30% - 50%[42]. A net saving of 1.0 JOD can be created for saving 1 Liter of oil. Decrease/prevent disposal cost of used cooking oil. Save sewage water networks and resources by avoiding disposal of oil in sinks. Increase sustainable biofuels leading to reduced CO2 and harmful emissions from fossil fuels.
Considerations	
Key Challenges and mitigation measures	**Challenges:** Inefficient and unsafe collection of used cooking oil. **What to do about them:** Use a central storage tank with automatic level to collect all used cooking oil. Use a mobile container with a hose resistant to high temperature. Attach a filter to the hose for used cooking oil filtration. Contract with biodiesel recyclers to take the following into consideration: provision of equipment and oil collection as required for a monthly fee, payment for oil collected and setting a regular time for collection of the oil.

42. Oakded hollins-Waste prevention in hospitality sector-2011

24. Staff awareness on waste handling

Fact Sheet: Staff awareness on waste handling	
Overview	
What	Provide training sessions and or tips and information to staff to raise their awareness and skills, as well as change their behavior towards waste to ensure overall improved waste management in your facility.
How	Prepare a list of tips on reducing waste as part of an internal communication campaign (you can use tips from this Guide). Using this guide, conduct a training/awareness raising session on the most important/relevant measures in this guide to your facility can reduce, reuse and recycle waste (printing of dash paper, using reusable mugs and cutlery, etc.). Conduct training/awareness raising on types of waste, separation of waste at source and its importance.
Implementation Features	
Relevant sectors	**Malls – Hyper Markets – Hotels – Restaurants and other relevant sectors**
Ease of implementation	**Easy** - Moderate – Difficult
Relevant departments	General
Supporting entities	HR - Operations
Regulatory Aspects	None
Impact/Benefits	
Direct & In-direct Financial Return	70% of waste could be reduced through better awareness and separation[43]. Revenues could be generated through having separated recyclable material which can be sold. Decrease time and cost of waste management by decreasing amounts of waste. Decrease cost of waste hauling service by decreasing amounts of waste. Increase retention of staff and their pride by demonstrating your facility's commitment to maintaining Jordanian's environment and society.

43. Oakded hollins-Waste prevention in hospitality sector-2011

Considerations	
Key Challenges and mitigation measures	**Challenges:** Staff resistance to required behavioral changes. **What to do about it:** Communicate to staff the societal and global impact of improved waste management, mainly decreasing negative impact on environment, improving public health due decreases of amounts of accumulated waste in streets and dumpsites, and increasing sustainability of the economy by decreasing the use of raw material/increasing recycling. Conduct internal communication campaigns, training and awareness sessions. Create incentives or recognition programs to reward departments or staff who effectively participate in waste management improvement efforts in your facility. Ask staff to come up with waste reduce, reuse, and recycle ideas which the facility can endorse and hence increase staff ownership of waste management improvement efforts in your facility.

25. Ensure your waste is recycled

Fact Sheet: Ensure your waste is recycled	
Overview	
What	Ensure your waste is recycled by contracting recyclers to collect waste or by requiring service providers to provide evidence of waste being sent to recyclers. To ensure this, it is advised to separate waste on-site (fact sheet 2) or pre-process waste (fact sheet 6).
How	Separate your waste into at least the following categories (organic, metals, wood, paper and cardboard, plastics, glass). Assess amounts of waste from each category (service providers can help in this process through conducting solid waste composition analysis) as it is an important part of negotiating with recyclers or service providers. Contract recyclers or service provider (s) who can handle each type of waste. Regularly sell waste to contracted recycler or service provider.
Implementation Features	
Relevant sectors	**Malls – Hyper Markets – Hotels – Restaurants, and other relevant sectors**
Ease of implementation	Easy - **Moderate** – Difficult
Relevant departments	Operations – General
Supporting entities	Recyclers - service providers
Regulatory Aspects	Article 16 stipulates that generators of more than 1,000 tons of waste annually should put plans to ensure their waste is recycled.
Impact/Benefits	
Direct & In-direct Financial Return	76% to 95% of waste could be reused or recycled when sold separately[44]. Revenues could be generated through selling recyclable waste. Decrease cost of hauling service. Increase recycling, hence increasing economic sustainability.
Considerations	
Key Challenges and mitigation measures	**Challenges:** Separating waste at source might not be a familiar practice for staff and customers – challenges in finding recyclers. **What to do about them:** Conduct training to staff on importance of separating waste. Prepare proper signage to encourage customer to use separate bins correctly. Place bins in suitable sites. Reward customers who use bins through surprise gifts. Consult service providers to channel your waste to recyclers or reach out to recyclers through online channels.

44. EU-Best environmental management practice in the tourism sector - 2013

26. Incentivize customers to reduce single-use plastic bags

Fact Sheet: Incentivize customers to reduce single-use plastic bags	
Overview	
What	Create an incentive-based system for the customer to encourage reducing single-use plastic bags which could influence behavior significantly. For example, providing a cash-back scheme, availability of reusable bags, and discounts for next purchase.
How	Conduct a baseline survey to record transactions in each shop and the different types of bags that customers used. Determine which type of incentive scheme to apply (cash-back scheme, availability of reusable bags, or discounts for next purchase). Take feedback from customers and analyze their behavior to reach the most optimum incentive scheme with best behavioral change. Organize training sessions for staff working in shops to understand waste management principles and how to make customers feel satisfied. Organize events or promotions to raise customers' awareness on benefits of reducing single-use plastic bags and use their own reusable bags. Promote for this service/rebates to your facility.
Implementation Features	
Relevant sectors	**Malls – Hyper Markets** – Hotels – Restaurants **and other relevant sectors**
Ease of implementation	Easy - **Moderate** – Difficult
Relevant departments	General
Supporting entities	HR - Operations
Regulatory Aspects	None
Impact/Benefits	
Direct & In-direct Financial Return	Simple awareness can lead to 12% reduction in amounts of single used bags you have to provide to customer[45]. Decrease time of serving customers consumed in bagging. Decrease cost of single-use plastics waste handling and transportation. Increase awareness among customers for using their own reusable bags instead of single-use plastic bags.
Considerations	
Key Challenges and mitigation measures	**Challenges:** Customers' resistance to switch to reusable. **What to do about it:** Communicate to customers the positive impact of using reusable bags. Continue to offer reusable plastic bags in parallel for small fees.. Impose small fee for single used plastic bags.

45. SANDEE (South Asian Network for Development and Environmental Economics) - Consumer Responses to Incentives to Reduce Plastic Bag Use: Evidence from a Field Experiment in Urban India

27. Sell reusable bags

Fact Sheet: Sell reusable bags	
Overview	
What	Provide customers with reusable products such as bags (made of plastics or fabric).There are many items can be reused such as: thermal mugs, cups, plastic containers and crates, refillable glass bottles, etc.) to decreases waste generation particularly plastics.
How	Select the most suitable type of reusable bags. Select a supplier to provide you with reusable bags. Determine a selling price for the reusable bags. Promote the concept to shops in your facility.
Implementation Features	
Relevant sectors	**Malls – Hyper Markets – Hotels – Restaurants and other relevant sectors**
Ease of implementation	Easy - **Moderate** – Difficult
Relevant departments	Procurement - Sales – Marketing and Communications
Supporting entities	Reusable bags manufacturers – designers – marketing agencies
Regulatory Aspects	Reuse is recognized by the Waste Law as an important element of improving waste management – article 6 stipulates those measures will be taken to increase the reuse of waste.
Impact/Benefits	
Direct & In-direct Financial Return	Typically, one reusable bag replaces 125 traditional single use plastic shopping bags[46]). Revenues could be generated through selling reusable bags. Decrease time and resources needed to serve customers in bagging services. Use branded green products for promotion of your facility.

46. https://core.ac.uk/download/pdf/41335942.pdf

Considerations	
Key Challenges and mitigation measures	**Challenges:** Customer's resistance to switch to reusable bags (products). **What to do about it:** Communicate to customers the positive environmental impact of using reusable bags. Select the right material in terms of durability and washability. Promote and offer reusable plastic bags for small fees. A small fee can be imposed on single used plastic bags. Consider offering rebate (or reward point system for every time customers use reusable bags) to encourage the switch to reusable bags.

28. Create buy back option for certain products

Fact Sheet: Create buy back option for certain products	
Overview	
What	Encourage customers to get rid of their used products such as used electronics, batteries, lamps, used clothes, etc. through offering them some benefits in return like cash back or discounts on next purchase which encourage customers to decrease waste generated.
How	Establish an area to collect used products and make sure that it is a safe place to store, and sort returned items. Develop a reward point system that gives cash back or discount on next purchase. Contact service providers/recyclers who can recycle collected items. Promote the idea to your facility.
Implementation Features	
Relevant sectors	**Malls – Hyper Markets – Hotels – Restaurants and other relevant sectors**
Ease of implementation	**Easy** - Moderate – Difficult
Relevant departments	Operations
Supporting entities	Recyclers - service providers
Regulatory Aspects	None
Impact/Benefits	
Direct & In-direct Financial Return	Glass bottles waste could be reduced by 98% through glass bottles return[47]. Decrease/prevent disposal of highly hazardous waste with other types of waste. Revenues could be generated through selling collected items.

47. Oakded hollins-Waste prevention in hospitality sector-2011

Considerations	
Key Challenges and mitigation measures	**Challenges:** Storage of collected items till they are handed over can be challenging. **What to do about it:** Designate special containers in storage area or warehouse to keep hazardous items like. batteries and lamps till they are handed over as per local authorities' instructions if any? Set a regular time for collection with service providers to avoid over storage. Conduct training to staff to separate and package collect items (Boxes in case of electronic waste and vacuum packs in case of clothes) once received to avoid any damage.

29. Promote for green products

Fact Sheet 29: Promote for green products	
Overview	
What	Use, sell and promote for reusable and recyclable products like thermal mugs and paper bags as much as possible instead of using single-use products like paper cups and plastic bags.
How	Seek support of designers to create attractive and branded green products. Create stand in the entrance to show green products and explain their benefits. Train staff to offer green alternative to the customers. Determine a selling price for each of the green products. Promote for these green products to your customers (like through social media).
Implementation Features	
Relevant sectors	**Hotels – restaurants – malls – Hypermarkets and other relevant sectors**
Ease of implementation	**Easy** - Moderate – Difficult
Relevant departments	Procurement - Sales – Marketing and Communications
Supporting entities	recyclers – designers – marketing agencies
Regulatory Aspects	None
Impact/Benefits	
Direct & In-direct Financial Return	Revenues could be generated through selling green products. Decrease cost of waste handling and transportation. Use branded green products for promotion of your facility.
Considerations	
Key Challenges and mitigation measures	**Challenges:** Customer resistance to buy green products and pay extra money. **What to do about it:** Communicate to customers the positive environmental impact of using green products. Select the right material in terms of durability and washability. Offer future discounts to customers who use their green products.

ANNEX A

Annex A represents the list of measures. It includes 47 measures reflecting the supposed opportunities for commercial facilities in Jordan to reduce, reuse and recycle their waste. The first 29 measures highlighted in green are the most relevant opportunities which represented in fact sheets (see section 9).

#	List of measures	Sectors					Type			Department						Area							Assess	
	Description	Hotels	Restaurants	Malls	Hypermarkets	Others	Reduce	Reuse	Recycle	General	Sales	Marketing	procurement	Admin	Operations	Kitchen	Others	Cashier	Lobby	Office	Housekeeping	Garden	Ease	Impact
1	Set up central collection system by identifying collection points in a strategic way for different waste types.	•	•	•	•	•									•	•	•		•	•	•		High	High
2	Separate waste at source to reduce waste sent to landfills.	•	•	•	•	•						•			•	•	•		•	•	•		Medium	High

#	List of measures	Sectors					Type			Department						Area							Assess	
	Description	Hotels	Restaurants	Malls	Hypermarkets	Others	Reduce	Reuse	Recycle	General	Sales	Marketing	procurement	Admin	Operations	Kitchen	Others	Cashier	Lobby	Office	Housekeeping	Garden	Ease	Impact
3	Proper selection of location of recycling bins in your facility in a manner that reflects the type and frequency of waste generation in each location.			●	●	●	●		●		●	●			●	●	●		●	●	●		Medium	High
4	Separate organic waste in the kitchen.	●	●			●									●	●							Medium	High
5	Separate paper/ cardboard waste into grade fractions.	●	●	●	●				●						●		●	●	●	●	●		High	Medium
6	Pre-process plastic bottles waste (baling).	●		●	●				●		●				●		●			●			Medium	High

#	List of measures	Sectors					Type			Department						Area							Assess	
	Description	Hotels	Restaurants	Malls	Hypermarkets	Others	Reduce	Reuse	Recycle	General	Sales	Marketing	procurement	Admin	Operations	Kitchen	Others	Cashier	Lobby	Office	Housekeeping	Garden	Ease	Impact
7	Develop a hazardous waste register which accounts for all types of hazardous waste and identifies how it will be managed.	●	●	●	●	●									●		●			●	●		High	High
8	Reuse laundry plastic bags used in guest rooms in hotels.	●						●			●	●	●	●							●		High	Medium
9	Provide customers with plastic crates instead of cardboard boxes.	●	●	●	●			●					●	●					●	●	●		Medium	Medium
10	Recycle old bedding sheets, towels, and napkins into artistic rags/carpets.	●									●	●	●	●							●		Low	Medium
11	Reuse the blank side of used paper.	●		●		●	●							●						●			High	High
12	Resend emptied used chemical containers (containing pesticides, fertilizers, ink, toxic and flammable chemicals, etc.) to suppliers.	●		●	●			●							●		●						High	Medium

#	List of measures	Sectors					Type			Department						Area							Assess	
	Description	Hotels	Restaurants	Malls	Hypermarkets	Others	Reduce	Reuse	Recycle	General	Sales	Marketing	procurement	Admin	Operations	Kitchen	Others	Cashier	Lobby	Office	Housekeeping	Garden	Ease	Impact
13	Resend used engine oils used to suppliers.	●	●	●	●			●							●		●						High	Medium
14	Resend used batteries and lamps to supplier.	●	●	●	●			●							●	●	●		●	●			High	Medium
15	Ensure return ink cartridges either to the manufacture for safe disposal or supplier to refill.	●		●	●	●	●						●							●			High	High
16	Limit printouts to necessary items only when using printers.	●	●	●	●		●								●					●			High	Medium
17	Remove excessive packaging material used for products.	●	●	●	●	●	●							●					●	●	●		Medium	High
18	Choose high quality and optimized packaging products such as reusable plastic containers, zipped locked bags, etc.		●	●	●		●						●			●							Low	High
19	Provide customers with compostable biodegradable products such as compostable cutlery.	●	●	●	●	●					●	●	●			●							Low	High

#	List of measures	Sectors					Type			Department						Area							Assess	
	Description	Hotels	Restaurants	Malls	Hypermarkets	Others	Reduce	Reuse	Recycle	General	Sales	Marketing	procurement	Admin	Operations	Kitchen	Others	Cashier	Lobby	Office	Housekeeping	Garden	Ease	Impact
20	Produce vermi-compost (or bokashi) from organic waste to be used on-site as an organic fertilizer.	●	●	●	●				●	●	●	●	●	●	●	●	●	●	●	●	●	●	Low	Low
21	Put a dispenser for soaps and shampoo in rooms instead of individually wrapped ones.	●					●						●	●	●		●				●		Medium	High
22	Donate surplus food Donate surplus untouched food from catering displays, buffets and food courts to food charity organizations.	●	●	●	●			●	●			●	●		●	●							High	Medium
23	Recycle cooking oil	●	●	●	●				●						●	●							Low	Low
24	Staff awareness on waste handling Provide training sessions and or tips and information to staff to raise their awareness and skills.	●	●	●	●	●				●							●						Low	High

#	List of measures	Sectors					Type			Department						Area							Assess	
	Description	Hotels	Restaurants	Malls	Hypermarkets	Others	Reduce	Reuse	Recycle	General	Sales	Marketing	procurement	Admin	Operations	Kitchen	Others	Cashier	Lobby	Office	Housekeeping	Garden	Ease	Impact
25	Ensure your waste is recycled by contracting recyclers to collect waste or by requiring service providers to provide evidence of waste being sent to recyclers.	●	●	●	●				●	●					●		●						High	High
26	Incentivize customers to reduce single-use plastic bags Create an incentive-based system for the customer to encourage reducing single-use plastic bags which could influence behavior significantly.			●	●			●		●							●	●	●				High	Medium
27	Sell reusable bags.			●	●			●		●							●	●	●				High	Medium
28	Create buy back option for certain products Encourage customers to get rid of their used products such as used electronics, batteries, lamps, used clothes, etc. through offering them some benefits in return like cash back or discounts on next purchase.			●	●		●				●				●				●				High	High

#	List of measures	Sectors					Type			Department						Area							Assess	
	Description	Hotels	Restaurants	Malls	Hypermarkets	Others	Reduce	Reuse	Recycle	General	Sales	Marketing	procurement	Admin	Operations	Kitchen	Others	Cashier	Lobby	Office	Housekeeping	Garden	**Ease**	**Impact**
29	Promote for green products. Use, sell and promote for reusable and recyclable products like thermal mugs and paper bags as much as it could be instead of using single-use products.	●	●	●	●			●			●	●	●				●						High	High
30	generate an inventory of the types and sources of on-site waste generation and identify waste recycling options for the whole facility.	●	●	●	●	●				●							●						Medium	High
31	Continuously monitor and report waste generation and collection by fraction.	●	●	●	●	●				●							●						Medium	High
32	Reuse cardboard boxes or other plastic containers to decrease disposal rate of cardboard boxes or plastic containers.	●	●	●	●			●					●	●					●	●	●		Medium	Medium

#	List of measures	Sectors					Type			Department						Area							Assess	
	Description	Hotels	Restaurants	Malls	Hypermarkets	Others	Reduce	Reuse	Recycle	General	Sales	Marketing	procurement	Admin	Operations	Kitchen	Others	Cashier	Lobby	Office	Housekeeping	Garden	Ease	Impact
33	Incentivize shoppers to bring their own reusable shopping bags through giving bonuses for reusable bag use.			●		●				●		●						●					Low	High
34	Use the two-sided printing option on printers and copying machines.	●		●	●		●							●						●			High	High
35	Check the temperatures and seals on fridges and freezers regularly to avoid food spoilage and save energy used for cooling.	●	●	●			●								●	●							High	High
36	Check expiration dates of foodstuffs and use food items in the order in which they were purchased, Rotate stock: first in, first out.	●	●	●	●	●	●								●	●							High	Medium
37	Check food labels regularly: 'use-by' and 'best-before' dates to decrease any possibility of food spoilage.	●	●	●	●	●	●								●	●							High	Medium

#	List of measures	Sectors					Type			Department						Area							Assess	
	Description	Hotels	Restaurants	Malls	Hypermarkets	Others	Reduce	Reuse	Recycle	General	Sales	Marketing	procurement	Admin	Operations	Kitchen	Others	Cashier	Lobby	Office	Housekeeping	Garden	Ease	Impact
38	Return wood pallets to suppliers for reuse to increase recycling opportunities.	●	●	●	●			●					●	●					●	●	●		Medium	Medium
39	Deliver goods in reusable containers to decrease plastic waste generated.	●	●	●	●		●				●	●	●			●	●		●				Low	High
40	Add compartments to room service trolleys for different types of wastes to improve waste collection and separation.	●				●									●		●				●		High	Medium
41	Set collection points for centralized composting to improve waste collection and increase recycling opportunities.	●	●	●	●	●									●	●	●		●	●	●	●	High	High
42	Recycle organic waste to produce biogas for on-site use by your facility.	●	●	●	●				●						●	●							Low	Low

#	List of measures	Sectors					Type			Department						Area							Assess	
	Description	Hotels	Restaurants	Malls	Hypermarkets	Others	Reduce	Reuse	Recycle	General	Sales	Marketing	procurement	Admin	Operations	Kitchen	Others	Cashier	Lobby	Office	Housekeeping	Garden	Ease	Impact
43	Control portion when serving main courses without impacting on customer satisfaction to decrease food waste generated.	●	●	●	●		●	●	●			●	●		●	●							High	Medium
44	Reduce waste trimmings when preparing food in the kitchen to decrease kitchen preparation waste.	●	●	●	●		●								●	●							High	Medium
45	Serve vegetables in large central dishes, rather than serving individual portions to decrease plate return waste.	●	●	●	●		●								●	●							High	Medium
46	Provide optimized offers on the menu in the hotels/ restaurants to decrease plate return waste.	●	●	●	●		●								●	●							High	Medium
47	Put recycling bins in guest rooms to improve separation at source.	●	●	●	●		●								●	●							High	Medium

ANNEX B

WASTE RECYCLING - START UP CONSIDERATIONS CHECKLIST			RECYCLING READINESS	100%	
No.	**Preliminary considerations and tips**	**Description**	**Priority**	**Status**	**Points**
1	**Realize that the commitment level of senior management.**	*Realize that the commitment level of senior management plays a huge role in the success of a recycling program,and that the overall success of a recycling program depends on everyone's cooperation from the top down. A good start is for management and employees to work together on crafting a 'mission statement' for the recycling program.*	**High**	**Yes**	**3**
2	**Designate a waste recycling manager or coordinator.**	*Designate a waste recycling manager or coordinator who will oversee the collection of information, the evaluation of data, and the implementation of the recycling program.*	**High**	**Yes**	**3**
3	**Create a waste recycling task force.**	*Create a waste recycling task force that will be in charge of overseeing the day-to-day activities of the recycling program.*	**Medium**	**Yes**	**2**
4	**Conduct a thorough waste audit which can provide valuable information about the profile of waste stream.**	*Conduct a thorough waste audit which can provide valuable information about the profile of waste stream and the most logical materials that should be considered for recycling, based on volume, market conditions (for the recyclables in question) and other factors that can help make the recycling program be more effective.As part of the waste audit try to identify potential waste reduction opportunities.*	**High**	**Yes**	**3**

5	**Implement a set of corporate policies.**	*Implement a set of corporate policies that outline waste reduction, reuse, and recycling as being preferable to waste disposal and landfilling.*	**Medium**	**Yes**	**2**
6	**Evaluate material waste exchanges.**	*Evaluate material waste exchanges. Waste materials from one company are usually needed by other companies. Markets for recyclables are growing rapidly, however there are several factors that can impact the value of the recyclables such as:The market demand, the condition of the recyclable, the availability of bales and bale size and proximity to markets. Start with the easy recyclables first. Packaging materials usually provides the easiest reduction opportunities.*	**High**	**Yes**	**3**
7	**When deciding what materials to recycle consider contamination aspects.**	*When deciding what materials to recycle consider contamination aspects, volume, loading and transportation requirements, storage space, separation requirements, estimated revenues, estimated maintenance and other costs including any consumables (such as baling wire).*	**High**	**Yes**	**3**
8	**Devise collection systems that are convenient to use.**	*Devise collection systems that are convenient to use. Consider things like space availability, labor needs, equipment / container requirements and physical layout.*	**High**	**Yes**	**3**
9	**Promote the program in order to maximize participation.**	*Promote the program in order to maximize participation and ensure compliance with the program requirements.*	**High**	**Yes**	**3**
10	**Re-evaluate the program on routine basis.**	*Re-evaluate the program on a routines basis in order to monitor its effectiveness and efficiency. Feedback on the program can be obtained from a variety of sources such as: (a) custodial staff, for input regarding material quality and handling practices, (b) employees or customers, for opinions concerning convenience and (c) waste hauler or recycler, for data concerning the type and amount of material recycled.*	**Medium**	**Yes**	**2**

11	**In the initial stages it is important to provide the necessary budget and incentives.**	*In the initial stages it is important to provide the necessary budget and incentives for maximizing follow-through of the recycling (and waste reduction) program. Reward and recognize employees when they come up with new ways to reduce and recycle. This could include bonuses, certificates, recognition in newsletters, etc..*	**Low**	**Yes**	**1**
12	**Create milestones and track your company's waste and recycling.**	*Create milestones and track your company's waste and recycling related progress and accomplishments (such as percentage of waste being recycled).*	**Low**	**Yes**	**1**
13	**Track your waste processing cost reductions and overall savings**	*Track your waste processing cost reductions and overall savings. In addition to actual costs also consider avoided costs.*	**High**	**Yes**	**3**
14	**Encourage the use of products that reduce waste and reuse waste.**	*As part of the waste recycling program, encourage the use of products that reduce waste and reuse waste.*	**Low**	**Yes**	**1**
15	**Promote the expansion of recyclables.**	*Promote the expansion of recyclables markets by 'Buying Recycled'.*	**Low**	**Yes**	**1**
16	**Provide proper recycling bins.**	*Provide proper recycling bins for the various recyclables that have been chosen to be recycled.*	**High**	**Yes**	**3**
17	**Placement of the recycling bins.**	*The placement of the recycling bins should be such that they achieve a good balance between convenience and clutter. If bins are too far away from where the waste is discarded, they won't be used. People who work in each area can oftentimes offer good suggestions as to where the bins should be placed. Also, be sure to monitor the bins closely, especially in the beginning to make sure that the bins aren't overflowing.*	**High**	**Yes**	**3**
18	**Make sure that bins in public areas are well-marked.**	*Make sure that bins in public areas are well-marked. For these areas, it is best to choose bins with custom openings, such as a hole for cans or a slot for newspapers etc. It is also important to place bins at the location where the materials are generated.*	**High**	**Yes**	**3**

19	**Determine the best way for trash to be processed based on the addition of the recycling program.**	*Depending on the physical layout of the building(s) and other factors, determine the best way for trash to be processed based on the addition of the recycling program. Keep in mind that any waste that is considered hazardous (such as red-bag waste for medical facilities) must be processed according to regulations and there is no leeway in this area.*	**Medium**	**Yes**	**2**
20	**Organize your various waste streams according to different categories.**	*Where possible try to organize your various waste streams according to different categories. For example, package wastes (waste from the packaging of your suppliers' products sold to you etc.) or process wastes (waste produced while producing products for others etc.), office trash, food service areas, staff lounges, manufacturing areas and any other areas that are applicable.*	**Low**	**Yes**	**1**
21	**Walk-through of each work area.**	*Perform a walk-through of each work area within your facility and note what type of trash is generated from each area. A walk-through will not only reveal important information, but it will also help you understand the types of containers and placement of containers that will be needed. For example, a typical walk-through might reveal the following:* *- Administrative and office areas - plastic bottles, cans, office paper, corrugated cardboard and other paper.* *- Food service areas – amount of wet waste, grease, paper, glass, metal, cans, food containers and cardboard* *- Public areas - bottles, cans, newspaper and magazines.*	**High**	**Yes**	**3**
22	**After evaluating the different types of waste streams.**	*After evaluating the different types of waste streams within your facility in more detail, other decisions may be more obvious. For example, if your office generates huge amounts of paper waste, determine whether a mixed paper program would be preferable to a 'white paper / newspaper / computer paper' program. Knowing your facility will help you to decide which program best suits your needs.*	**Low**	**Yes**	**1**

23	**Be sure that regular waste is not being mixed with any hazardous waste.**	*Be sure that regular waste is not being mixed with any hazardous waste. Educate staff members about what does and does not belong in the regular trash bins. Also, make sure that any food waste is separated or that it goes down the garbage disposal.*	**High**	**Yes**	**3**
24	**Procedures for how the recyclables will be collected, separated and/or sorted.**	*Determine and develop procedures for how the recyclables will be collected, separated and/or sorted. For example, designate a central area for collection of recyclable materials in storage rooms or other common area. The bigger the program, the more serious the sorting procedures will have to be.*	**High**	**Yes**	**3**
25	**Memo out to all involved explaining the process and specific separation and sorting procedures that have been decided upon.**	*Once the process has been refined, send a memo out to all involved explaining the process and specific separation and sorting procedures that have been decided upon. For example, remind everyone to keep food waste out of recycling containers and trash. Food waste should go down the garbage disposal or be handled separately from trash and recyclables. Be specific about what items get placed where, such as cans from XYZ company get recycled, but the ABC company containers go into the trash.*	**Medium**	**Yes**	**2**
26	**Dos and Don'ts" list.**	*Make up a "Dos and Don'ts" list for recycling and post it on the bulletin board or at workstations.*	**High**	**Yes**	**3**
27	**Post signs about your recycling efforts.**	*In self-serve restaurants, post signs about your recycling efforts and clearly indicate where they should dispose of their recyclable materials. Recycling bins should be convenient for the customers disposal and collection by employees.*	**Low**	**Yes**	**1**
28	**Basic internal and external controls.**	*Set up some basic internal and external controls. For example, carefully track the volume and types of recyclables that are being processed at your facility. Not only does this serve as a check and balance for the compensation you are to receive but it will also prompt you to sudden changes in data.*	**Medium**	**Yes**	**2**

29	**Continuous education.**	*In addition to educating everyone involved about the waste recycling procedures in the initial stages, there must be continuous education as the procedures are refined and streamlined. Provide new employees with recycling information and an orientation packet about the waste processing routines.*	**Medium**	**Yes**	**2**
30	**Differentiate the responsibilities.**	*Clearly describe and differentiate the responsibilities of all who are involved from management to the recycling coordinator to the task force to the employees.*	**Medium**	**Yes**	**2**
31	**Weekly or monthly follow up.**	*Keep employees informed about the progress by issuing periodic memos. Designate weekly or monthly follow up to ensure that procedures are being followed and further educate employees as necessary.*	**Medium**	**Yes**	**2**
32	**Refine the processes.**	*Once policies have been implemented continue to refine the processes and routines by encouraging feedback from your employees, especially those who are most involved in the waste processing operations.*	**Medium**	**Yes**	**2**
33	**Yard waste separate.**	*Keep yard waste separate from other waste.*	**Low**	**Yes**	**1**
34	**Wet waste separated from recyclables.**	*The recycling program should include provisions for keeping wet waste separated from recyclables which includes separate containers for regular trash versus recyclables.*	**High**	**Yes**	**3**
35	**Training and orientation materials.**	*For all new hires, include waste recycling information in your training and orientation materials.*	**Medium**	**Yes**	**2**

36	**Some additional considerations.**	*The larger the quantity of a specific recyclable (such as cardboard) that is being generated, the more it becomes necessary to evaluate things in much greater detail. For example, with huge amounts of a particular recyclable, some additional considerations might be:* *a) Local reservoir of buyers for the respective recyclable.* *b) Prices paid for the respective recyclable.* *c) Guidelines for amount of recyclables that are acceptable for pick-up.* *d) Whether the recyclables qualify for pick-up in loose form or if it requires densification such as baling or compacting* *e) Pricing variances based on things such as who will load the recyclables. Will the hauler load or will the seller load?.* *f) Will containers be furnished by the buyer or recycler.* *g) What condition are the recyclables. Are they in excellent condition or contaminated, and if so to what degree?.*	**Low**	**Yes**	**1**
37	**Opportunity to reuse.**	*Where large amounts of a particular recyclable are involved determine whether or not there is an opportunity to reuse some of that waste stream. For example, consider the reuse of cardboard waste by donating or selling cardboard containers to other firms. Oftentimes boxes can be given away depending upon their quality and size.*	**Low**	**Yes**	**1**
38	**Collection of recyclables with regular trash collection.**	*Coordinate the collection of recyclables with regular trash collection.*	**High**	**Yes**	**3**

39	**Balers, shredders, and glass crushers.**	*Depending upon the materials that you have isolated for recycling, consider special equipment such as balers, shredders and glass crushers that can help reduce the volume of your recyclable material. In addition, large recycling programs may find it efficient to purchase a forklift and designate one employee to collect, bale and load the recyclable. This equipment will allow for efficient management of space and may increase the likelihood of favorable recycling service contracts.*	**High**	**Yes**	**3**
40	**Estimate of the payback for a waste recycling program,**	*For a quick estimate of the payback for a waste recycling program using a baler, some preliminary basics can be applied and then later refined. For example:* ***A. Main Cost Items per year - (Example using Baler(s) as equipment purchased):*** *i) Cost of Baler(s) (amortized) over 10 years – (Cost of Baler divided by 10)* *ii) Cost of Wire per bale* *iii) Cost of Electricity per bale* *iv) Cost of Maintenance – Figure anywhere from 1 – 3 percent yearly of the (new) Baler cost and much more than that on used balers)* *v) Cost of Labor per bale (figuring 45 minutes per bale)* *vi) Other – Such as any hauling costs or other miscellaneous costs, depending on circumstances* ***B. Revenues:*** *i) Tons of Recyclable per month x 12 months x JOD per ton received equals revenue per year* *ii) Plus Savings from reduced disposal costs due to diverting recyclables out of waste stream,*	**High**	**Yes**	**3**

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