

Performance Audit:  
The effectiveness of plastic waste management in Malta

February 2021



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# List of Abbreviations

C&D	Construction and Demolition
EEE	Electrical and Electronic Equipment
ELVs	End-of-Life Vehicles
EPR	Extended Producer Responsibility
ERA	Environment and Resources Authority
EU	European Union
EUROSAI WGEA	European Organisation of Supreme Audit Institutions Working Group on Environmental Auditing
ISSAI	International Standards of Supreme Audit Institutions
MBT	Mechanical and Biological Treatment Plant
MECP	Ministry for the Environment, Climate Change and Planning
MMRF	Multi-Material Recovery Facility
MRF	Material Recovery Facility
MSW	Municipal Solid Waste
NAO	National Audit Office
RDF	Refuse Derived Fuel
SAIs	State Audit Institutions
SAWTP	Sant'Antnin Waste Treatment Plant
SDG	Sustainable Development Goal
SL	Subsidiary Legislation
WEEE	Waste Electrical and Electronic Equipment
WFD	Waste Framework Directive
WMP	Waste Management Plan

# Glossary

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<b>Entrustment Act</b>	An agreement signed between the Government of Malta and WasteServ, whereby Government is entrusting WasteServ to perform public service obligations in Malta, pertaining to the Multi-Material Recovery Facility and the Mechanical and Biological Treatment Plant at Malta North. Obligations include the design, construction, commissioning, management and operation of these two plants.
<b>Gate fees</b>	Fees due to WasteServ levied upon the amount of waste deposited at WasteServ's facilities.
<b>Municipal Solid Waste</b>	Waste from households, as well as other commercial, industrial and institutional waste which, because of its nature or composition, is similar to waste from households. <sup>1</sup>
<b>Recyclable material</b>	Materials which can be recycled or reprocessed into products, materials or substances, whether for the original or other purposes. It includes the reprocessing of organic material. Recyclable waste from households in Malta is collected either door-to-door in the green/grey bags (plastic, metal and paper) or deposited in bring-in sites (plastic, metal, paper and glass). Glass and organic waste are also separately collected from households.
<b>Packaging Waste Recovery Schemes</b>	Businesses trading in Malta are by law required to recover and recycle the resulting packaging waste, waste electrical goods and batteries. Packaging Waste Recovery Schemes provide legal compliance to all such businesses.
<b>Single use plastics</b>	A single use plastic product is a product that is made wholly or partly from plastic and that is not conceived, designed or placed on the market to accomplish, within its life span, multiple trips or rotations by being returned to the producer for refill or reused for the same purpose for which it was conceived. <sup>2</sup>

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<sup>1</sup> SL 549.63, Waste Regulations.

<sup>2</sup> EU Directive, COM (2018) 340 on the reduction of the impact of certain plastic products on the environment.

# KEY FACTS: The Effectiveness of Plastic Waste Management



This Report forms part of the coordinated audit between 12 State Audit Institutions



**38,304** tonnes of plastic waste were generated in Malta during 2019



non-recyclable plastics have become an urgent problem requiring immediate attention

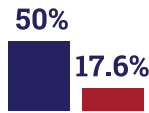


damaging to the natural environment and to human health

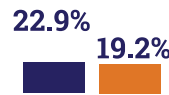
A circular economy aims to prevent the leakage of valuable materials from the economy



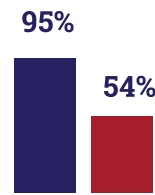
## National Performance against set targets



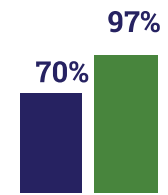
Recycle 50% of paper, plastics, metal and glass waste from households by 2020



For packaging and packaging waste achieve by 2013: Plastic recycling 22.5%



Re-use and recover 95% of an average weight per vehicle per year by 2014



Recover 70% of Construction and Demolition waste by 2020

● Target ● Performance

## Responsibilities

The regulatory function



Waste generators



Waste collectors



Waste treatment facilities operators

## Operational Challenges

Inadequate infrastructure coupled with the loss of Malta's only recyclable waste sorting facility at Sant' Antnin Waste Treatment Plant



Contaminated material as well as limited and inefficient separation-at-source



## During 2019



**58%** of plastic waste was landfilled



**1%** of plastic waste was recycled

Source: WasteServ

## Government is shouldering most of the waste management cost



- Socio-economic considerations override the Polluter Pays Principle



- During 2019 GoM subvention to WasteServ stood at €33 million



- Compensation agreements do not reflect the actual plastic packaging waste treatment costs



- During 2019 WasteServ incurred €3.3 million to derive and export plastic Refuse-Derived Fuel



- The least favourable waste management option, that is landfilling, is estimated to cost €73.71/T. However, gate fees amount to €20/T.

## Planned initiatives:

- Exploiting the full potential of a €0.5 billion planned investment to handle all waste management necessitates behavioural changes.
- Adoption of new and updated strategies, such as the Waste Management Plan and Single-Use Plastics strategy.
- The coordination of the political, administrative and stakeholders' efforts and their collective goodwill remain key to effective waste management.



# Executive Summary

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1. This performance audit sought to evaluate the extent to which Government is effectively managing plastic waste, mainly that relating to plastic packaging. In this regard, the audit objectives sought to:
  - a. determine whether plastic waste management data is comprehensive and reliable.
  - b. assess whether the legal instruments and policies in place are adequate to provide proper plastic waste management and effective in the context of planned goals.
  - c. assess whether implementation, monitoring and enforcement are effective.
2. This Report forms part of a cooperative audit initiative undertaken jointly with another 11 European State Audit Institutions (SAIs) under the auspices of the European Organisation of Supreme Audit Institutions Working Group on Environmental Auditing (EUROSAI WGEA). The partners of the cooperative audit are the SAIs of Albania, Bulgaria, Hungary, Moldova, North Macedonia, Poland, Portugal, Romania, Serbia and Turkey. This cooperative audit performed by the different countries through a harmonised audit scope and methodology aims to determine the degree to which different countries in Europe are effectively managing plastic waste as well as identifying best practices. Following the publication of this Report, the participating SAIs will compile a joint report based on the findings and conclusions of the respective national reviews.
3. Malta is lagging behind in attaining national and European Union (EU) waste management targets, including those related to plastic waste. Inadequate waste separation at source practices result in potentially recyclable waste being landfilled, which is by far the most expensive solution in financial and environmental terms. National waste strategies and the legislative framework advocate the polluter pays principle but in practice, Government is shouldering the lion's share of waste management-related costs. A number of factors contribute to this situation.
4. Waste management costs, including those related to plastic waste, are mostly borne by Government, particularly through the annual subvention of around €25 million to WasteServ. This deviates from the polluter pays principle. But it is also being acknowledged that socio-economic principles come into play. The full transfer of costs to polluters implies that in turn these will be passed on to consumers, which would have an inflationary effect. Additionally, diseconomies of scale push up the cost per unit significantly. Moreover, the recent collapse of the recyclables' market and operational difficulties brought about by the incident at Sant'Antnin Waste Treatment Plant (SAWTP) meant that WasteServ's revenues decreased disproportionately and thus the entity remained far from recovering its waste treatment costs. These circumstances also raise questions regarding the equitable

sharing of risks and responsibilities through WasteServ's agreement with the Packaging Waste Recovery Schemes.

5. Separation at source opportunities remain not fully exploited as separation guidelines are not strictly adhered to by waste generators – another variable which increases waste treatment costs and increases the amount of waste rejects to the detriment of recycling opportunities. The roots of this situation lie in two factors. Firstly, current regulations do not encourage stricter separation by waste streams, which renders waste treatment more complex and costly. Secondly, inappropriate waste separation at source practices contaminate potentially recyclable material.
6. Malta's waste management operations are carried out within an infrastructure which lacks the appropriate capacity. In recent years matters became more exacerbated through the SAWTP incident. Government acknowledges this and there has been a strong political commitment to allocate around €500 million to extend and upgrade Malta's waste treatment facilities.

## Overall conclusion

7. There is no doubt about the required investment in Malta's waste management facilities. Such an investment, however, will not deliver its full potential unless it is complemented with the increased adoption of circular economy principles, which in turn will facilitate the attainment of Sustainable Development Goals targets. The health and environmental risks of plastic can only be mitigated through a consorted effort by all stakeholders, including political, administrative, the industry and consumers, as well as an effort to reduce its production at the outset.

## Recommendations

8. In view of the findings and conclusions emanating from this performance audit, the National Audit Office (NAO) is proposing a number of recommendations. These proposals relate to issues, which are considered as the main factors influencing plastic waste management.

## Strategic recommendations

- i. National authorities are encouraged to significantly shorten the lead time for collating and reporting annual waste management data. EU obligations stipulate that Member States shall report data within 18 months of being collected. Nonetheless, for national purposes, it remains imperative that such data is available at the earliest to enable Management to identify shortcomings at the outset. The timely availability of waste management data will also enable stakeholders, including national authorities, to adopt a more proactive approach in the waste sector.

- ii. National authorities are to further coordinate between them to determine accurately the amount of plastic placed on the market. Various national authorities collect data for their own purposes. Such data sharing would enable national authorities to better monitor and control plastic waste generators.
- iii. The Ministry for the Environment, Climate Change and Planning (MECP) is to expedite action to enable the adoption of new and revised strategies relating to plastic waste management for the period 2021-2030. This Office acknowledges MECP's efforts to finalise a number of strategies. Nevertheless, delays in the finalisation of these documents hinder their timely implementation.
- iv. Consideration be given so that the ECOHIVE complex gate fees reflect, as much as possible, the full cost of waste management. Waste generators should bear the cost of waste generation and its treatment, in line with the polluter pays principle. This line of thought implies that landfill gate fees should be the costliest.
- v. Government and Packaging Waste Recovery Schemes should revise their compensation agreement to better reflect the cost of treating packaging waste. This is all the more relevant in view of the establishment of new infrastructure, such as the Beverage Container Refund Scheme (BCRS).
- vi. Waste separation at source needs to improve to prevent the contamination of recyclable material. This requires the establishment of new national policies on the matter, as well as liaising with producers on a national level to include labels indicating the disposal methods to consolidate efforts from the general public. It is also critical to complement such initiatives with awareness-raising campaigns to facilitate public compliance. This approach would facilitate treatment operations such as sorting and increase the value of the material that would eventually be sold on to the market or treated through the new capital infrastructure.
- vii. National authorities should consider making waste separation at source mandatory, including the complementary economic measures as well as setting up the required monitoring and enforcement mechanisms. This measure would facilitate treatment operations and discourage waste generation.
- viii. It is to be acknowledged that national authorities are investing in waste management infrastructure. However, in the interim period, national authorities are to explore the possibilities to reduce the amount of untreated mixed municipal waste that is being landfilled.
- ix. National authorities should consider introducing measures to increasingly reduce the generation of plastic waste. This would necessitate legislative interventions as well as collaboration with major stakeholders, namely manufacturers and consumers. While

recycling and recovery are important, the start of the plastic waste management cycle is the generation of such waste.

### Operational recommendations

- x. National authorities are to step up their efforts to carry out characterisation surveys in accordance with the law. This would enable national authorities to identify the predominant material within a waste stream and whether the general public is being compliant with separation at source. Moreover, such surveys enable national authorities to monitor, take remedial action and plan accordingly.
- xi. The Environment and Resources Authority (ERA) is to start performing risk-based assessments to determine the areas that require enforcement. This approach would enable proactive enforcement rather than reactive, as well as, minimising the risk of breaching national and EU law.
- xii. The enforcement function at ERA is to be supported by an adequate pool of resources and tools to enable a proactive approach. It is to be acknowledged that ERA has allocated more resources to its Enforcement Unit. Nevertheless, only a minority of these employees were deployed to waste management-related enforcement.
- xiii. WasteServ is encouraged to, as far as possible, cost its various operations, not only by waste treatment plant but also by waste stream. This would help Management to identify areas of cost inefficiencies. Moreover, the availability of more detailed management accounts would enable authorities to better implement the polluter pays principle.

# Chapter 1

## Terms of Reference

### 1.1. Introduction

- 1.1.1. Plastic pollution causes harm to humans, animals and plants through toxic pollutants. It can take hundreds or even thousands of years for plastic to break down, so the environmental damage is long-lasting. It affects all organisms in the food chain from tiny species like plankton through to whales.<sup>3</sup>
- 1.1.2. Global production of plastics has increased twentyfold since the 1960s, reaching 322 million tonnes in 2015. It is expected to double again over the next 20 years. In the European Union (EU) alone, demand for plastics reached 49 million tonnes in 2015, whereby plastic packaging constitutes around 40 per cent of the demand.<sup>4</sup> Each year, around 25.8 million tonnes of plastic waste are generated in Europe. Yet, the European Commission outlines that less than 30 per cent of the plastic waste that is collected is recycled, whereas the remaining per cent is either landfilled (31 per cent) or incinerated (39 per cent).<sup>5</sup>
- 1.1.3. The transition towards a circular economy, a system aimed at eliminating waste and at increasing the continual use of resources, is one of the current priorities of the EU. The European Commission has adopted a new Circular Economy Action Plan - one of the main blocks of the European Green Deal, Europe's new agenda for sustainable growth. This new Action Plan announces initiatives along the entire life cycle of products, targeting for example their design, promoting circular economy processes, fostering sustainable consumption, and aiming to ensure that the resources used are kept in the EU economy for as long as possible.
- 1.1.4. The circular economy constitutes a tangible contribution to reaching the United Nation's Sustainable Development Goal (SDG) 12, entitled *Ensuring Sustainable consumption and production patterns*, which includes a target to substantially reduce waste generation through prevention, reduction, recycling and reuse by 2030. Other SDGs that are addressed by the Commission's Action Plan on the Circular Economy, and which relate directly to plastic waste management, are the following:
- SDG 3 - addressing microplastics, and
  - SDG 14 - decisive actions to fight marine litter.

<sup>3</sup> <https://www.nationalgeographic.com/magazine/2018/06/plastic-planet-health-pollution-waste-microplastics/> as at 10 November 2020.

<sup>4</sup> Watkins & Schweitzer, 2018. "Moving towards a circular economy for plastics in the EU by 2030", p. 4.

<sup>5</sup> European Commission. "A European Strategy for Plastics in a Circular Economy", p. 6.

- 1.1.5. Malta has embraced the principle of sustainable use of plastics through various policies, strategies and plans. Addressing plastic waste is therefore an urgent priority on a supranational and national level. This performance audit sought to evaluate the extent to which Government is effectively managing plastic waste, mainly that resulting from packaging and single use plastics.
- 1.1.6. This Report will form part of a cooperative audit that is being carried out jointly with another 11 European State Audit Institutions (SAIs) within the auspices of the European Organisation of Supreme Audit Institutions Working Group on Environmental Auditing (EUROSAI WGEA). The partners of the cooperative audit are the SAIs of Albania, Bulgaria, Hungary, Moldova, North Macedonia, Poland, Portugal, Romania, Serbia and Turkey. This cooperative audit performed by the different countries through a harmonised audit scope and methodology aims to determine the degree to which different countries in Europe are effectively managing plastic waste as well as identifying best practices

## 1.2. The prevailing situation

- 1.2.1. On a national level, plastic is imported either in granular form, which is then processed locally, or already processed. Some plastic will become waste, some will remain in stock or in circulation for some time, until it is disposed of. There are two main categories of plastic waste, namely plastic packaging and other non-packaging plastic.
- 1.2.2. The supranational and national legislative frameworks set out a number of measures and targets that are to be attained with respect to packaging waste and single use plastics. Additionally, the legislative framework refers to targets to collect other waste streams such as electrical and electronic equipment (EEE), batteries and end-of-life vehicles (ELVs). Through such targets, plastic waste is also collected. Table 1 refers.

Table 1: Malta's targets with respect to plastic waste management (2017 - 2019)

Waste stream	Target
End-of-Life Vehicles (ELVs)	Re-use and recover 95% of an average weight per vehicle per year by 2014
Construction & Demolition (C&D)	Recover 70% of C&D waste by 2020
Municipal Solid Waste (MSW)	Recycle 50% of paper, plastics, metal and glass waste from households by 2020
Packaging and Packaging Waste	Overall recovery 60% Overall recycling minimum 55% and maximum 80% Glass recycling 60% Metal recycling 50% Plastic recycling 22.5%, Paper & Cardboard recycling 60%, Wood recycling 15% Collection of 65% of the average weight of EEE placed on the national markets by 2021
Waste Electrical and Electronic Equipment (WEEE)	By 2018: Preparing for reuse and recycle: Cat 1: 80%   Cat 6: 55% Cat 2: 55%   Cat 7: 55% Cat 3: 70%   Cat 8: 55% Cat 4: 70%   Cat 9: 55% Cat 5: 55%   Cat 10: 80% Gas lamps recycling: 80%  By 2018: Recovery Cat 1: 85%   Cat 6: 75% Cat 2: 55%   Cat 7: 75% Cat 3: 80%   Cat 8: 75% Cat 4: 80%   Cat 9: 75% Cat 5: 75%   Cat 10: 85%

1.2.3. Table 1 shows that Malta is obliged to attain the targets therein. As will be discussed further on in this Report, Malta has not attained some of them. Moreover, various sources note that plastic waste management still deviates from the principles of the circular economy, as a result of which a significant amount of plastic waste is being landfilled in lieu of recycling and reuse. In 2018, around one third of plastic waste generated in Europe was landfilled, approximately another third was recycled and 39 per cent was incinerated.<sup>6</sup>

<sup>6</sup> European Commission. 2018 Commission factsheet on plastics in Europe, accessed on 19 October 2020.

<sup>7</sup> For the purpose of this Report, WasteServ Malta Limited and WasteServ will be used interchangeably.

<sup>8</sup> Ministry for Sustainable Development, the Environment and Climate Change, 2014. "Waste Management Plan for the Maltese Islands – A Resource Management Approach 2014 – 2020", p. 53, 59 and 63.

### 1.3. The plastic waste management process

- 1.3.1. Plastic waste management is a complex process. Thus, the efficient and effective management of plastic waste depends on the collaboration and cooperation of various stakeholders ranging from private individuals, contractors and national entities.
- 1.3.2. The waste management process works within the parameters of the legislative framework and is regulated by the Environment and Resources Authority (ERA). The Authority issues permits to waste brokers, ensures compliance with legislation as well as collects data to ascertain that Malta reaches the targets. The strategic direction is provided by the Ministry for the Environment, Climate Change and Planning (MECP).
- 1.3.3. Households and private stakeholders in this process, particularly with respect to sorting waste at source. Households and private stakeholders' play an important role in the waste management process adherence to proper waste separation helps to prevent the contamination of plastic from other sources. The cleaner the plastic, the higher the probability that it can be recycled and the higher the economic return earned.
- 1.3.4. The main responsibility concerning the collection of Municipal Solid Waste (MSW) falls on Local Councils. To this end, Local Councils appoint one of the two Packaging Waste Recovery Schemes to collect the recyclable material (green / grey bag) through a competitive call for tender. However, the tender does not involve any financial arrangements as collection costs are to be borne by the Schemes on behalf of the producers. The competitive tender is adjudicated on the basis of the quality of service bid. Local Councils contract private waste operators to collect the Mixed Municipal Solid Waste (black bag).
- 1.3.5. The collection of the recyclable plastic waste (green / grey bag) is undertaken by Packaging Waste Recovery Schemes in terms of Extended Producer Responsibility relating to the placement of packaging on the market. These Schemes operate through plastic packaging producers, who are registered with a Packaging Waste Recovery Scheme. Households are encouraged to dispose of non-recyclable plastic in the black bag.
- 1.3.6. Households can also dispose of plastic waste in Bring in Sites, which are the responsibility of the Packaging Waste Recovery Schemes. On the other hand, a small amount of plastic waste is also recovered in the Civic Amenity Sites, which are run by WasteServ Malta Limited.
- 1.3.7. Small shops should have their own waste collection arrangements. However, various sources, including the Waste Management Plan for the Maltese Islands – *A Resource Management Approach (2014 – 2020)*, claim that these establishments are free riding the system as the former utilise the service provided by the Scheme rather than setting up their own waste collection system. By way of definition, MSW also includes commercial waste from small commercial establishments, which is similar in composition to that of households. Large commercial establishments, on the other hand, engage their own contractor.



- 1.3.8. Once waste is collected, it is mainly transported to WasteServ's facilities for treatment. WasteServ is responsible for organising, managing and operating integrated systems of waste management including the sorting, reuse, utilisation, recycling, treatment and disposal of waste. A relatively small volume of waste is treated by private waste facilities. Malta lacks the infrastructural capacity to engage in more comprehensive and sustainable waste management. Infrastructural gaps became more apparent following the fire at Sant'Antnin Waste Treatment Plant (SAWTP) in May 2017. Despite the introduction of a few logistical and operational changes, WasteServ's capability of treating and dealing with plastic waste remains weak.
- 1.3.9. National competent authorities acknowledge the need to strengthen the available infrastructure. During 2020, WasteServ launched a project of approximately €500 million that will complement the current waste infrastructure. In the interim, WasteServ is enhancing its processes to maximise operational efficiency.<sup>9</sup>
- 1.3.10. The timeliness of this Report will add value by eliciting inefficiencies and leakages in the plastic waste management process which could be addressed through the envisaged infrastructural project. Malta is also in the process of publishing a revised waste management plan which will delineate a number of measures.

## 1.4. Audit focus

- 1.4.1. The waste management legislative compendium is quite complex as it includes legislation relating to the framework, waste treatment operations and waste streams.<sup>10</sup> However, on both the national and EU level, the legislative corpus focuses on plastic packaging and single use plastic products rather than on the reduction and recycling of plastics in general. It is to be recognised that through other specific legislation such as that relating to batteries and accumulators, (ELVs) End-of life vehicles and waste electrical and electronic equipment (WEEE), plastic is indirectly being collected and recycled. Nevertheless, no specific targets have been set within these directives and regulations to reduce the production and use of plastics as well as to increase plastic recycling. Moreover, single use plastic products have recently become a priority on the EU agenda. Consequently, Directive 2019/904 on the reduction of the impact of certain plastic products on the environment, was only adopted recently.<sup>11</sup> Henceforth, on a national level, Malta is still at the early stages of adopting this Directive and the embedded targets. In view of these circumstances, this audit focused mainly on plastic packaging and to some extent on single use plastics.

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<sup>9</sup> Times of Malta, 2020. "Wasteserv to start industrial rudimentary recycling line" accessed on 22 May 2020 from <https://timesofmalta.com/articles/view/wasteserv-to-start-industrial-rudimentary-recycling-line.793652>

<sup>10</sup> Chapter 3 of this Report will provide further details about the legislation in force.

<sup>11</sup> Directive 2019/904 of the European Parliament and the Council is dated 5 June 2019.

- 1.4.2. Against this backdrop, this performance audit sought to evaluate the extent to which Government is effectively managing plastic waste, mainly that relating to plastic packaging. In this regard, the audit objectives sought to:
- a. determine whether plastic waste management data is comprehensive and reliable.
  - b. assess whether the legal instruments and policies in place are adequate to provide proper plastic waste management and effective in the context of planned goals.
  - c. assess whether implementation, monitoring and enforcement are effective.

## 1.5. Audit methodology

1.5.1. The attainment of the aforementioned objectives entailed a number of methodological approaches. These involved the following:

- a. **Adherence to ISSAIs** - The audit was carried out in accordance with the Standard for Performance Auditing, International Standards of Supreme Audit Institutions (ISSAI) 3000 and International Organisation of Supreme Audit Institutions GUID 9000 – Cooperative Audits between SAIs.
- b. **Documentation review** – This included a thorough analysis of a broad legislative framework, together with the related strategies, as well as other studies and assessments that were carried out. The literature review undertaken during the planning stage of the audit encompassed national and international papers and reports drawn up by environmental institutions, academics and Non Government Organisations.
- c. **Semi-structured interviews** – These interviews enabled the collation of qualitative data, which in turn was used to corroborate information arising from other sources and approaches. To this end, the National Audit Office (NAO) interviewed key officials within the Ministry for the Environment, Climate Change and Planning (MECP), the Environment and Resources Authority (ERA), Wasteserv, the Local Councils Division, the Local Councils Association and the Department of Customs.
- d. **Data analysis** – This approach was required to determine the amount of plastic that was placed on the market, collected and treated. Consequently, this enabled NAO to identify any leakages in the plastic waste management process.
- e. **Financial analysis** – This Office analysed the costs associated with the plastic waste management process. Through such an approach, NAO could identify the cost of leakages in the plastic waste management process as well as areas of over-expenditure from Government’s side.
- f. **Harmonisation of methodology with other member SAIs of EUROSAI WGEA** – In view that this audit is being undertaken in parallel by 11 SAIs, initiatives were taken to ensure a common approach and timeframe for conducting the audit.

1.5.2. Furthermore, all issues and conclusions presented in this Report, unless otherwise indicated, reflect the situation up to the first quarter of 2020.

## Limitations

1.5.3. Despite the various methodological approaches adopted, this review encountered a number of limitations. These limitations and the mitigating approaches adopted will be discussed in detail in the relevant Chapters. Nonetheless, hereunder is a brief outline of the difficulties encountered:

- **Plastic-specific recycling targets** - There is no national and EU plastic-specific recycling target in other waste streams such as waste electrical and electronic equipment or end-of-life vehicles, despite there being an overall recycling target. As a result, this Office could not obtain reliable data on how much plastic is recovered from other waste streams.
- **Strategies are still being drafted** - On the national level, the European legislation on single use plastics is still in the transposition stage, which ends in July 2021. While it is to be recognised that the national strategy on single use plastics outlines a number of measures that are to be introduced imminently, before the end of the transposition process, the implementation of such measures is dependent on formal approvals and the allocation of resources. Moreover, during December 2020 a new Waste Management Plan was published for public consultation.
- **Data fragmentation** – The waste management process entails various stakeholders. The sector regulator remit extends to collection of data for reporting and monitoring purposes. However, waste facilities and brokers have at their end, other information that is useful to get a holistic overview of plastic waste management. Nevertheless, ERA encounters various problems to collect such data as well as to ascertain the quality and integrity of the data submitted.
- **Data availability** – Data is reported to the EU two years in arrears. Consequently, the NAO was at times constrained to utilise unofficial data provided by operators.
- **Products containing plastic are not necessarily registered with Customs Department** – Unless the products are plastic granules, containers, bags or bottles, these are not registered as plastic products. Thus, products such as calculators and toys are not registered under the plastic category. Moreover, due to the free movement of goods, only plastic products that are imported or exported from/to countries outside the European Union are registered. Similarly, small quantities are excluded from such registration.

## 1.6. Report structure

- 1.6.1. Following this introductory Chapter, the Report proceeds to discuss the following:
- a. Chapter 2 analyses the data available with respect to cost and leakages in the plastic waste management process. Furthermore, the Chapter discusses the extent to which data is reliable and comprehensive enough to guide policy making.
  - b. Chapter 3 discusses whether the legal framework and policies in place are adequate enough to provide proper plastic waste management. Moreover, the Chapter will assess whether the legislative and strategic frameworks are effective in the context of planned goals.
  - c. Chapter 4 assesses the progress registered in the implementation of the various measures listed in the strategic framework. Furthermore, the Chapter examines the degree to which the competent authorities are carrying out the required level of monitoring. It also explores whether the enforcement mechanisms are adequate and effective.
  - d. Chapter 5 discusses the variables involved in determining the cost and responsibilities of plastic waste management. To this end, the Chapter discusses the Government's financial role in waste management and the cost of managing plastic waste.
- 1.6.2. The overall conclusions and recommendations related to this performance audit are presented in this Report's Executive Summary from page 9 to 11.

# Chapter 2

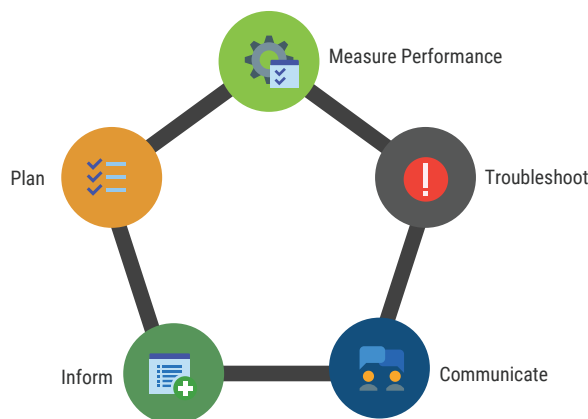
## Data Management

### 2.1. Introduction

2.1.1. Data is key for national authorities to effectively manage plastic waste. Official statistics show that Malta in 2017 was not always reaching waste recycling targets, including those related to plastic waste. The exception relates to plastic packaging where Malta nearly attained this target. Circular economy concepts aim to prevent valuable materials from leaking out of the economy by, amongst others, redesigning products to increase their lifecycle, with plastic being one of the identified priority areas. Thus, the attainment of other non-packaging targets that collect plastic waste as a secondary component, such as Waste Electrical and Electronic Equipment (WEEE) or End-of-Life Vehicles (ELV)-related targets, is also important for the effective management of plastic waste. This performance audit was constrained to evaluate plastic waste operations in 2017, since these are the most recently available figures.<sup>12</sup> Nonetheless, unofficial statistics available at the time of drafting this Report confirm a similar situation as depicted by official data pertaining to 2017.

2.1.2. Through the effective utilisation of data, national authorities have the potential to monitor, evaluate and greatly improve the waste management system. Consequently, national authorities are in a better position to employ the circular economy principles regarding the recycling of plastic waste. Figure 1 shows the process involved when national authorities maintain robust data information.

Figure 1: Process triggered by robust waste data



Source: [https://www.wasteauthority.wa.gov.au/images/resources/files/2019/10/Local\\_Government\\_Guidance\\_Note\\_-\\_Why\\_collect\\_waste\\_and\\_recycling\\_data.pdf](https://www.wasteauthority.wa.gov.au/images/resources/files/2019/10/Local_Government_Guidance_Note_-_Why_collect_waste_and_recycling_data.pdf)

<sup>12</sup> Furthermore, national authorities are only obliged to report the data within 18 months of the end of the reporting year for which the data are collected (EU Directive 94 62 EC on Packaging and Packaging Waste).

2.1.3. Figure 1 shows that the maintenance of robust waste data helps national authorities to identify plastic waste leakages from within the waste management system, identify solutions and subsequently draft long-term strategies. The availability of management information systems also serves as an input to the development of policy in favour of sustainable development. Subsequently, this approach aims to reduce the negative impact of plastic waste on the land and marine environment. Land is a limited natural resource, which, when used for waste management, carries with it an opportunity cost related to greener areas and a healthier environment. Similarly, the impact on the marine environment arises since it is estimated that in the European Union (EU), 150,000 to 500,000 tonnes of plastic waste enter the oceans every year. This situation does not only have an impact on the sustainability of marine life but also on the blue economy.

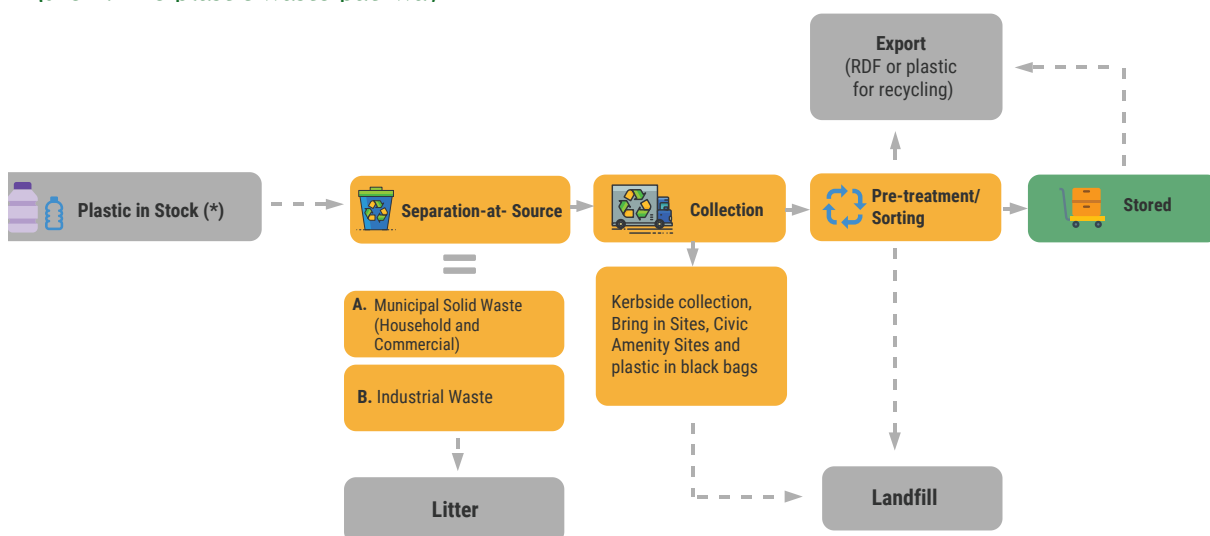
2.1.4. Against this backdrop, this Chapter discusses:

- a. the plastic waste pathway; and
- b. the availability of official data on plastic waste management.

## 2.2. Around two thirds of plastic waste are landfilled

2.2.1. Based on Environment and Resources Authority (ERA) and WasteServ data, between 2016 and 2019, around two thirds of plastic waste were landfilled. This mainly consists of plastics collected within other waste streams such as mixed Municipal Solid Waste. Official and unofficial statistics relating to this period pertaining to both ERA and WasteServ confirm this situation. The National Audit Office (NAO) followed the plastic waste pathway, as outlined in Figure 2, to assess the effectiveness of operations at each stage of the plastic waste pathway. This approach entailed reviewing official waste management statistics as maintained by the regulator, ERA, as well as operational data maintained by Malta's largest facility treating Municipal Solid Waste, WasteServ. Figure 2 provides an overview of the plastic waste pathway.

Figure 2: The plastic waste pathway



\* Plastic in stock is plastic on the market or in circulation but not waste

- 2.2.2. Figure 2 shows the complex plastic waste management process. This diagram does not take into account the Beverage Container Refund Scheme that will be introduced next year. During the course of this audit, the process relating to this Scheme was being finalised. Nevertheless, the process will take a similar approach.
- 2.2.3. National competent authorities do not maintain actual data pertaining to all the stages depicted in Figure 2. The Waste Management Plan for the Maltese Islands (2014 – 2020) and the draft National Strategy for the Environment for 2050<sup>13</sup> confirm this position. The former states that “ [...] further efforts are required to improve upon waste statistics not least in ensuring that public and private stakeholders provide timely and accurate data which is the foundation of robust waste statistics.”<sup>14</sup> Within this context, national authorities are constrained to address data gaps by extrapolating information through waste characterisation surveys to estimate the composition of waste collected through the various sources – including waste separated at source.

### 2.3. Official statistics maintained by ERA show that only around a tenth of all plastic collected is recycled

- 2.3.1. ERA as the regulator of the waste sector collects data from various sources, including from waste brokers and waste management facilities. This information is collected on an annual basis through the use of templates. Thus, the data available to ERA is broad as it encompasses the different waste streams.
- 2.3.2. NAO reviewed this data with a view to trail the plastic waste pathway which comprises collection points and waste destination, as outlined in Figure 2. As EU and national regulations do not stipulate that plastic waste data is collated as a separate waste stream, this evaluation was constrained to use studies commissioned by WasteServ and, in extreme circumstance, assumptions to derive the amount of plastic waste collected and treated. Plastic waste is often a subset of a larger variable, recyclable waste, except for plastic packaging waste, for which Member States are obliged to report separately. Nonetheless, plastic packaging constitutes a proportion of plastic waste, which is a broader term. Consequently, ERA figures are subject to the following:
- a. The amount of plastic waste derived from the mixed Municipal Solid Waste (the black bag collected from households as well as commercial, industrial entities and institutions) considers the waste characterisation survey carried out by WasteServ for the period 2017 to 2018. This percentage was estimated at 19 per cent. This characterisation survey took place prior to the national roll-out of the separate collection of organic waste from households. WasteServ has recently initiated the tender process to select an operator to carry out an updated waste characterisation survey.

<sup>13</sup> ERA & MECP, 2020. “Wellbeing First – A Vision for Malta’s Environment: National Strategy for the Environment for 2050”, pp. 12 and 47.

<sup>14</sup> Ministry for Sustainable Development, the Environment and Climate Change, 2014. “Waste Management Plan for the Maltese Islands – A Resource Management Approach 2014 – 2020”, p.13.

- b. The aforementioned waste characterisation survey estimated that the plastic waste content within bulky waste amounted to 14.68 per cent.
- c. Another waste characterisation study carried out by Packaging Waste Recovery Schemes, in collaboration with WasteServ, of the recyclable bag (the grey / green bag collected from households) estimated the plastic waste content at 24.14 per cent. This survey considered 2015, 2016 and 2017.
- d. Based on WasteServ data for 2020, it is estimated that the amount of plastic waste within Refuse Derived Fuel (RDF) amounts to 35 per cent. In the absence of information relating to previous years, this review was constrained to assume that this proportion also applies to 2016 and 2017. The rationale of this assumption considers the prudence concept since ERA reports a figure of 50 per cent of plastic waste within RDF to the EU Commission. ERA bases its estimate on literature reviews relating to EU Member States.
- e. ERA invokes the provisions of S.L. 549.43 to estimate the amount of plastic placed on the market.<sup>15</sup> This proviso stipulates that the national competent authority can assume that the amount of packaging waste placed on the market is equivalent to the total amount of waste generated / collected within the same year. This provision was transposed in national legislation through Directive 94/62/EC on Packaging and Packaging Waste.

2.3.3. Given the foregoing, ERA estimates that the total amount of plastic waste in 2016 and 2017 collected amounted to 57,220 and 68,307 tonnes. As outlined in Figure 3, the end destination of this waste could be termed as recovered, which includes recycling and incineration with or without energy; exported; stored; or landfilled. During 2016 and 2017, 10 and 14 per cent respectively of total plastic waste collected was recycled while the vast majority of the remainder was landfilled. Table 2 refers.

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<sup>15</sup> Waste Management (Packaging and Packaging Waste) Regulations, Regulation 8(2)(b).



Table 2: Waste management cycle based on ERA data

		2016		2017	
		Tonnes	%	Tonnes	%
Total plastic waste generated		52,293.82	91	56,197.75	82
Stored plastic waste (RDF b/f from previous year)		4,925.70	9	12,109.30	18
<b>Total plastic waste</b>		<b>57,219.52</b>	<b>100</b>	<b>68,307.05</b>	<b>100</b>
Waste destination:	Recovered (incinerated with energy)	43.5	0	53.96	0
	Recycled (stored, pending further treatment)	4,811.80	8	3,737.90	5
	Recycled (exported)	5,893.00	10	9,430.90	14
	RDF exported	0	0	8.96	0
	RDF				
	Stored, pending further treatment	7,323.50	13	8,470	12
	Landfilled locally	39,147.72	68	46,605.33	68
<b>Total waste destination:</b>		<b>57,219.52</b>	<b>100</b>	<b>68,307.05</b>	<b>100</b>

2.3.4. Table 2 shows the following:

1. Between 2016 and 2017, around 70 per cent of plastic waste collected was landfilled locally.<sup>16</sup> This situation raises concerns on the degree to which Malta is in a position to process larger proportions of plastic waste in terms of the principles of the circular economy and the targets enshrined in the national and EU regulatory framework.
2. This review noted that in 2017 only 96 tonnes of plastic waste should have been landfilled. However, during 2017, 46,605.33 tonnes of plastic waste were landfilled. This was made up as follows:
  - a. 20,028 tonnes of pre-treated non-recyclable plastics. These rejects are not recyclable. Nonetheless, incineration with energy recovery would be a preferred treatment option to landfilling.
  - b. 15,819 tonnes of non-recyclable plastic within the mixed waste bag collected from households and large establishments (the black bag) which was landfilled without any pre-treatment as required by the national landfilling regulations. This state of affairs mainly arises due to the non-availability of operational capacity. This material cannot be recycled. Nonetheless, directing it towards incineration with energy recovery, rather

<sup>16</sup> During 2016, this amount comprised of 17,399 tonnes of plastic rejects (44 per cent), 15,417 tonnes of Mixed Municipal Solid Waste (39 per cent), 6,314 tonnes of plastic in bulky waste (16 per cent) and other plastic waste constituting 51 tonnes (less than 1 per cent).

than disposing of it in the landfill, would be more in line with the principles of the waste hierarchy.

- c. 7,887 tonnes of plastic derived from bulky waste. This amount of waste was landfilled despite its potential to be recycled. Following the fire at the Material Recovery Facility (MRF) at the Sant'Antnin Waste Treatment Plant (SAWTP), the recyclable bag (grey / green bag) had to be directed to the plant originally devised to treat bulky waste. MECP contends that WasteServ requires additional human resources and mechanical capacity to be able to treat bulky waste. Similarly, this line of argument also applies to the sorting of dry recyclables derived from the recyclable bag (green / grey bag).
  - d. 2,776 tonnes of low-quality RDF, which potentially could have been sold for incineration in lieu of landfilling.
  - e. 49 tonnes of plastic that was rejected following treatment.
  - f. 47 tonnes of contaminated biodegradable recyclable plastic bags used by households for recycling purposes.
3. 8.96 tonnes of RDF made of plastic waste was exported during 2017. The national competent authority has ascertained that the exported RDF was incinerated with energy recovery. Landfilled RDF cannot be added towards the targets stipulated in EU and national law, whereas any plastic waste incinerated with energy recovery does count for the calculation of the recovery target.<sup>17</sup> In 2017, the amount of exported RDF was much lower than in subsequent years because WasteServ did not have a contract with third parties to export and manage this material at the time. In the interim, WasteServ either stored or landfilled RDF locally during that year. It is estimated that 75 and 25 per cent respectively were stored and landfilled. It is to be noted that the storage of such material raises fire and infestation risks due to its flammable content.
  4. 9,431 tonnes of plastic waste were recycled.

## 2.4. Wasteserv and ERA's data portray a similar situation

- 2.4.1. This Chapter already noted the low recycling levels reported by ERA. WasteServ's data confirm this position. To this end, Table 3 shows that on average between 2016 and 2019, only three per cent of the plastic waste processed by WasteServ was recycled.

<sup>17</sup> Waste Regulations (Packaging), Schedule 3 (Regulation 8).

Table 3: Waste management cycle using Wasteserv data (2016 - 2019)

	2016		2017		2018		2019		Total (2016 – 2019)	
	Tonnes	%	Tonnes	%	Tonnes	%	Tonnes	%	Tonnes	%
Total plastic waste generated	37,961.03	97	40,022.36	86	40,487.98	81	38,304.90	81	156,775.86	86
Stored plastic RDF	1,016.41	3	6,271.54	14	9,468.02	19	9,468.02	19	26,223.98	14
<b>Total plastic waste</b>	<b>38,977.44</b>	<b>100</b>	<b>46,293.90</b>	<b>100</b>	<b>49,956.00</b>	<b>100</b>	<b>47,772.50</b>	<b>100</b>	<b>182,999.84</b>	<b>100</b>
Waste destination:										
Recycled	2,024.60	5	1,073.33	2	1,025.08	2	479.06	1	4,602.07	3
RDF exported	257.21	1	8.96	0	4,753.00	10	16,996.66	36	22,015.83	12
RDF Stored	6,271.54	15	9,468.02 <sup>18</sup>	20	9,468.02	19	2,805.07	6		
Landfilled	30,424.09	78	35,743.59	78	34,709.90	69	27,491.71	58	128,369.30	70
<b>Total waste destination:</b>	<b>38,977.40</b>	<b>100</b>	<b>46,293.90</b>	<b>100</b>	<b>49,956.00</b>	<b>100</b>	<b>47,772.50</b>	<b>100</b>		

2.4.2. Table 3 shows that ERA and WasteServ data portrays similar positions. Nevertheless, Table 3 highlights the advantages associated with the availability of more recent data, namely 2018 and 2019.

2.4.3. Thus far, this Chapter focused mainly on the statistical aspect related to plastic waste management performance. Other benefits derived from analysing this data include determining the extent to which this information provides reliable and timely management information.

## 2.5. Data lacunas, timeliness and cooperation issues weaken the plastic waste management information system

2.5.1. ERA, as the national regulator, is responsible for the collection of waste data from operators, facilities and brokers on annual basis. This responsibility facilitates the monitoring and the obligatory EU reporting functions. On the other hand, waste operators – including collectors, brokers and exporters, among others - are responsible for furnishing ERA with data management information. These obligations are highlighted within the terms and conditions of their respective operational permits issued by ERA.

<sup>18</sup> The amount of plastic RDF burned in the fire at the Material Recovery Facility in Sant'Antnin in May 2017 is not included here. This exclusion is mainly due to lack of quantitative information.

2.5.2. The EU and national legal frameworks define the data that national entities are obliged to collate and maintain. Generally, this performance audit found that national entities fulfil these requirements. In turn, the collation of this data lends itself to be utilised by national entities as management information, which in turn facilitates planning and monitoring of waste management operations at the strategic and micro levels. Nonetheless, this review noted three key issues which directly influence the reliability of this data when utilised as management information.

### **The actual yearly amount of plastic placed on the market is not known and is assumed to be equivalent to the amount of waste collected**

2.5.3. For the amount of packaging waste generated, national legislation (S.L. 549.43) outlines that *“packaging waste generated in Malta may be deemed to be equal to the amount of packaging or packaging material put on the market in the same calendar year (i.e. from 1 January to 31 December) within the territory of Malta by each producer”*.<sup>19</sup> Such an assumption can be applied in view of the short shelf life and ease of consumption of plastic packaging.

2.5.4. However, for plastic products or items that contain plastics apart from plastic packaging there is a significant difference between the number of plastic products placed on the market and when they are actually disposed of. Such a situation materialises in view of the long shelf life associated with these products. Thus, the assumption made with respect to plastic packaging cannot be extrapolated to other products which contain plastic. In this regard, ERA as the regulator of the sector is not in a position to reconcile the amounts of plastic placed on the market and the amounts of plastic waste that was not properly disposed of. Such a state of affairs is not only detrimental to the environment but also impinges on other entities’ remit such as those responsible for cleansing as they have to step up their efforts to clean up.

2.5.5. Besides ERA, the Customs Department is also responsible for maintaining data relating to plastic products or components that are traded between EU and non-EU countries. However, the following limitations prevail:

- a. Provisions relating to the free movement of goods within the EU do not require the Customs Department from collecting data relating to goods traded between EU countries unless an excise duty is paid.
- b. In accordance with EU data conventions provided in the relative legislative framework, the Customs Department is not obliged to register the packaging of products as it only registers the primary product shipped from / to non-EU countries. For example, when shampoo is imported from non-EU countries, this is registered as “shampoo” and not as a plastic bottle / container. This is due as it is the intrinsic commodity that is classified and not its packaging. Hence, national authorities are not in a position to determine the amount of plastic associated with such transactions.

<sup>19</sup> Waste Management (Packaging and Packaging Waste) Regulations, Regulation 8(2)(b).

- c. The Customs Department does not record purchases that are less than €22 from non-EU countries.

2.5.6. The issues raised in this Section show that national authorities are complying with the legislative framework. Nonetheless, data gaps relating to the amount of plastic which is placed on the market remain. This is detrimental to management information, decision-making and enforcement. It also deviates from the circular economy principles. The risks associated with this situation could be mitigated through studies and surveys relating to plastics placed on the market. Despite these material costs associated with such an approach, the opportunity cost arising through more comprehensive data would reap financial savings from waste management processes and be conducive to more sustainable decision-making.

### **Official data on plastic waste management are available two years in arrears**

2.5.7. Article 12 of Directive (EU) 2018/852, amending Directive 94/62/EC on Packaging and Packaging Waste, stipulates that Member States shall report data electronically within 18 months of the end of the reporting year for which the data are collected.<sup>20</sup> Similarly, Article 37 of the Waste Framework Directive establishes an 18-month period for the competent authorities to report the data.<sup>21</sup> However, ERA is not adhering to this timeframe.

2.5.8. This situation raises a number of issues:

- a. Non-compliance with EU's reporting obligations is considered to be a serious matter as Malta risks facing infringement procedures.
- b. Delays in compiling annual waste management statistics weakens management information and detracts timely waste management in terms of planning, direction, monitoring and control.
- c. In part, these delays are due to the quality of information submitted to ERA by operators, facilities and brokers. The processing of data is further prolonged in view of ERA's limited human resources.
- d. The regulator, ERA, is not fully utilising interim waste management statistics derived from WasteServ. These statistics relate to the majority of waste collected and treated in Malta.

### **Characterisation surveys to determine the composition of recyclable plastics within Municipal Solid Waste are not regularly undertaken**

2.5.9. ERA, Wasteserv and the National Statistics Office have been carrying out characterisation surveys since at least 2002. The last of these studies was undertaken by Wasteserv in

<sup>20</sup> Directive (Amending) 2018 / 852 on Packaging and Packaging Waste, Article 12(3a).

<sup>21</sup> Waste Framework Directive, Article 37.

2017. These surveys elicited information on the behavioural shifts by households towards separation of waste at source. However, since this last survey, national entities have not carried out statistical representative surveys to evaluate the shift in the composition of Municipal Solid Waste collections from households. Consequently, national authorities, do not have available reliable information regarding waste management shifts since the introduction of the organic bag in October 2018. This state of affairs prohibits national authorities from accurately determining:

- a. the amount of plastics within the various collection streams of Municipal Solid Waste, particularly in view of the post-2018 period - that is, since the introduction of the separate collection of organic waste.
- b. the effectiveness of several educational campaigns associated with separation at source by households, including the impact on waste management and treatment. The costs of these campaigns amounted to €6.2 million.

## 2.6. Conclusion

- 2.6.1. The discussion within this Chapter elicited two major themes. On the one hand, the Chapter outlined a number of waste management data limitations. On the other hand, despite information gaps, it is clear that Malta needs to step up its efforts towards attaining obligatory EU and national targets as well as adopting, as far as possible, the principles of a circular economy.
- 2.6.2. Data limitations have led to national authorities missing out on waste management reporting deadlines. The various data gaps that exist prohibit national authorities from maintaining timely and comprehensive management information. Additionally, the cooperation and coordination between national authorities and private stakeholders is not at the level where it permits the use of operational data maintained to enable ongoing evaluation of the waste management system.
- 2.6.3. From available statistics, it is evident that Malta's waste management performance needs to be stepped up. This Chapter has illustrated that various obligatory targets were not reached. But such a situation also implies that Malta is still distant from fully embracing the principles of a circular economy to the detriment of sustainable waste management. A case in point relates to the significant amount of plastic waste that is being landfilled rather than being reused or recycled. Apart from the environmental costs, this situation also incurs financial and economic implications.
- 2.6.4. The next Chapter discusses Malta's strategic approach to waste management. The issues therein outline the extent to which Government has reached its strategic objectives and is developing its approach for the period 2021 to 2050.

# Chapter 3

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## The legislative and strategic frameworks

### 3.1. Introduction

3.1.1. European Union (EU) and national legislation together form the regulatory framework, which controls the plastic waste management process. National legislation on waste management reflects the provisions stipulated in the European Union regulatory framework. Nonetheless, this audit noted that the supranational and national regulatory frameworks are, to varying degrees, characterised by some gaps that are affecting plastic waste management.

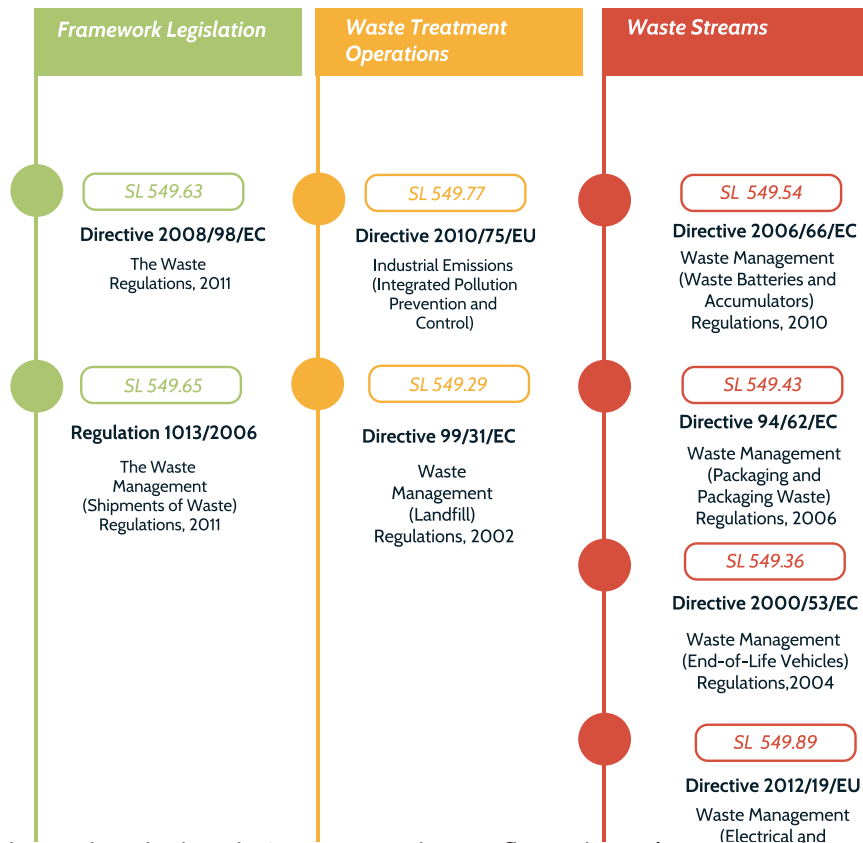
3.1.2. Malta's national strategic framework on plastic waste management, as can be expected, draws on the legislative framework. The strategic framework aims to project Government's vision for effective plastic waste management. However, certain lacunas in the legal framework cascade to the strategic documents. Currently Government is working towards committing around half a billion euros to support these strategic provisions. The strategic provisions, coupled with the capital investment, are key to attain national and EU targets. Against this backdrop, this Chapter discusses the extent to which plastic waste management processes are sustained by provisions within:

- a. The national legislative framework, and
- b. The strategic framework.

### 3.2. Legislative lacunas are, to varying degrees, negatively impacting Malta's plastic waste recycling levels

3.2.1. Malta's legislation on waste mirrors the European framework on the subject matter. All EU Directives on waste were transposed into Maltese legislation. Waste falls under the EU's environmental policy, which is an area of shared competence between the EU and Member States. Most of the legal instruments making up the legislative framework as well as those regulating the waste treatment operations and the various waste streams are Directives. These Directives were recently updated, which amendments are currently being transposed into Maltese legislation, with the main change being the publication of a new Directive on single use plastics. In this regard, Figure 3 reflects the supranational and national framework.

**Figure 3: Legislation that has a direct and indirect impact on plastic waste management**



- 3.2.2. Figure 3 shows that the legislative compendium reflects the EU’s vision on the subject matter. Nevertheless, some legislative lacunas and inconsistencies deter national authorities from compiling more robust information relating to plastic waste. The following refers:
- The national and European legislative frameworks are not broad enough to effectively manage plastic waste; and
  - The legal provisions relating to landfilling gate fees do not promote the concept of the circular economy.

**The national and EU legislative frameworks are not broad enough to effectively manage plastic waste**

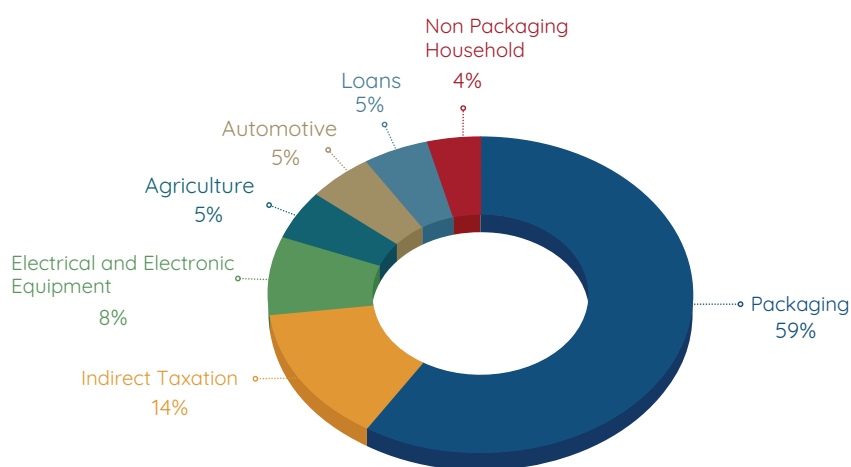
- 3.2.3. The legislative framework aims to regulate how producers and national entities conduct their waste management related business. However, this Report identified areas where neither the national nor the EU provisions are appropriately broad to enable a more comprehensive and effective regulation of plastic waste. The following issues refer:
- The main legislative instrument that regulates plastic waste focuses on one type of plastic waste: plastic packaging waste; and
  - The definition of packaging waste omits references to online purchases and shopping from abroad.



*Legislative and regulatory instruments relating to plastic waste mainly focus on packaging waste and exclude most other waste streams*

3.2.4. The main national legislative instrument that specifically regulates plastic waste is the Waste Management (Packaging and Packaging Waste) Regulations. In the coming months, the legislative provisos will be supplemented with the transposition into national legislation of the Directive on the reduction of the impact of certain plastic products on the environment, including single use plastics. However, packaging is only one type of plastic waste. In 2015, the European Commission estimated that packaging constituted 59 per cent of the total plastic waste generated in Europe. Figure 4 refers.

Figure 4: EU plastic waste generation in 2015



Source: 2018. A European Strategy for Plastics in Circular Economy, p. 2

3.2.5. Figure 4 shows that plastic is ubiquitous. Plastic waste is neither directly regulated by sector nor by material in other non-packaging waste streams. Sectors such as agriculture and healthcare are highly dependent on the use of plastics. However, EU Directives, or national legal instruments, do not specify recycling targets with regard to the plastic content within these waste streams. A similar situation prevails with respect to waste streams such as waste electrical and electronic equipment (WEEE).<sup>22</sup> Regulation in this respect stipulates recycling targets relating to total material (by weight) rather than type of material.

3.2.6. To varying degrees, this state of affairs undermines plastic recycling in general as the national authorities do not have robust management information and are not obliged to or driven to establish mechanisms to specifically target plastic for recycling in other waste streams. Such circumstances do not enable national authorities to identify areas where the opportunity exists to retrieve plastic for recycling.

<sup>22</sup> SL 549.89 Schedule 5.

### *The definition of packaging waste does not consider the rise of online purchases and shopping from abroad*

3.2.7. The definition of packaging waste does not capture packaging that is imported into Malta through online purchases made by individual customers. Producers who are putting on the market less than 100 kilogrammes of packaging or packaging material in a calendar year are exempt from the obligations of the Packaging Waste Regulations (SL 549.43).<sup>23</sup> By extension, importers, like packaging producers, are placing packaging on the market; however, online customers import less than 100 kilogrammes of packaging and are therefore clearly exempt.

MECP contends that other EU member states are also face challenges regarding the recovery of packaging material from online purchases. Discussions at EU level on how to address this issue are still on-going.

### **Legally established gate fees encourage landfilling**

3.2.8. Subsidiary Legislation 549.29 entitled, the Waste Management (Landfill) Regulations, provides that the gate fees should reflect all the costs involved from establishing the landfill, operating it, closing the area and the after-care period for the site.<sup>24</sup> On the other hand, Schedule C of Subsidiary Legislation 549.07 regulating the Deposit of Waste and Rubble (Fees), outlines that contractors are to be charged €20 per tonne for Mixed Municipal Solid Waste and €0.50 per tonne for dry waste separated at source as well as for bulky (dry) waste segregated at source.<sup>25</sup>

3.2.9. This raises a number of concerns:

- a. SL 549.07 was last updated in 2011.<sup>26</sup> Consequently, the fees indicated therein do not reflect the cost of living and inflationary adjustments.
- b. As indicated by the rate of landfilling in recent years, it is clear that the current fees are not acting as a deterrent to reduce the amount of waste generated and, as far as possible, to incentivise the re-use of products. The current level of chargeable fees does not reflect that landfilling is the last option in the waste management hierarchy.
- c. The Waste Management Plan (2014 – 2020) outlines that *“From a financial perspective it is thought that, to date, the true cost of waste management operations may not be fully known. This is spurned by issues such as the lack of factoring of true operational costs in the gate fees for the various facilities currently in operation. The lack of precise quantitative and qualitative data on waste and its composition may not be accurately*

<sup>23</sup> SL 549.43 Article 1.3.b.

<sup>24</sup> SL 549.29 Article 12.

<sup>25</sup> SL 549.07 Schedule C, p. 16.

<sup>26</sup> SL 549.07 Schedule C, p. 16.

*known.*<sup>27</sup> Wasteserv is cognisant of this problem and argues that the landfilling fees should not only reflect the operational cost of landfilling, but also the opportunity cost for the land used for landfilling.

3.2.10. This aforementioned situation highlights that the legal provisions relating to the Schedule of fees charged are not adequate to reflect the current circumstances as well as to consider both the variable and fixed costs. This Report discusses in further detail the costs associated with the various stages of the waste hierarchy and process in Chapter 5.

### 3.3. The strategic framework gives the appropriate operational direction

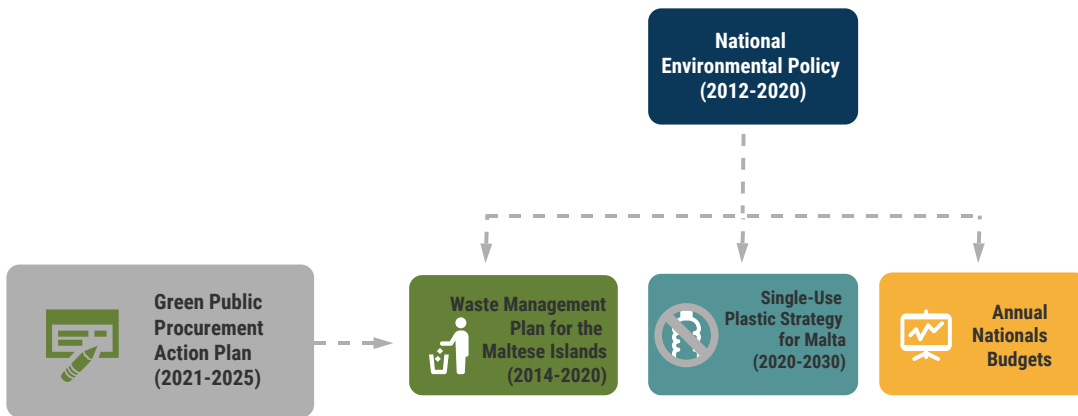
3.3.1. The National Environmental Policy is the main overarching strategy governing the waste management process. This document outlines that in order to manage waste in an environmentally sustainable manner, Government needs to ensure that the three pillars of sustainable development, namely environmental, social, and economic aspects, are taken into consideration in the decision-making process in the waste sector.<sup>28</sup> To this end, the national strategic framework outlines the need for Malta to invest in waste management infrastructure. Official documentation in this regard, estimates a capital investment of around €500 million (the ECOHIVE complex project).

3.3.2. Waste-specific strategies complement the aforementioned overarching framework. Within the plastic waste context, these emanate from the Waste Management Plan for the Maltese Islands (2014 – 2020)<sup>29</sup>, and the draft strategy relating to single use plastics. The former plan is in the process of being updated and both the new waste management plan and the draft strategy relating to single use plastics are due to be finalised by the end of the year. Complementary and contributing to the Waste Management Plan is the Green Public Procurement National Action Plan. Government expands on these plans by including additional measures on a needs-basis as well as allocates the necessary funds through the annual budget. Figure 5 refers.

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<sup>29</sup> For the purpose of this Report, the “Waste Management Plan for the Maltese Islands” (2014 – 2020) will be referred to as the “Waste Management Plan”, in short, WMP.

Figure 5: The plastic waste management strategic framework



3.3.3. Figure 6 shows the relationship between the various strategic documents. The strategies cover Malta’s national and EU obligations. This results from the relative transposition of European legislation in national legislation, which forms the basis of Malta’s strategic framework. Moreover, the adoption of the first European Strategy for Plastics in a Circular Economy in January 2018 also influenced the national strategic framework as this document identifies single use plastics as one of the main plastics of concern. The strategic framework, however, also inherits the limitations or gaps identified in the Section 3.2. on the legislative compendium. When evaluated against generally accepted business management criteria, it was found that Malta’s strategic framework generally adhered to these principles.

**The strategic framework is considered to be generally robust**

3.3.4. The national strategic framework reflects generally accepted business management criteria, such as clear definition of objectives, ownership, timeframes; is subject to public consultation; clearly outlines measures to be implemented; and establishes key performance indicators. This makes the strategic framework more conducive to effective implementation since it lays a strong foundation, which encourages cooperation and coordination between stakeholders. This notwithstanding, the strategic framework is subject to some limitations namely in the areas relating to establishing timeframes, availability of data and resources. Table 4 refers.

<sup>30</sup> European Strategy for Plastics in a Circular Economy, accessed at <https://era.org.mt/en/Pages/Plastic-Waste.aspx>, as at 4 June 2020.

Table 4: Evaluating the strategic framework

	Waste Management Plan for the Maltese Islands	Single Use Plastic Products Strategy for Malta	Green Public Procurement Action Plan
Ownership	Ministry for the Environment, Climate Change and Planning (MECP)	MECP	MECP
Duration	2014–2020; 2021 – 2030	2020 – 2030	2021 – 2025
Formally Adopted	New plan still in draft format (new plan subject to public consultation)	Draft (expected publication in Q4 2020)	Draft (expected approval in Q4 2020)
Based on data	Limited <sup>31</sup>	Limited <sup>32</sup>	Limited but being enhanced through introduced measures
Public consultation	Yes <sup>33</sup>	Yes	Yes
Proposes set of measures	Yes	Yes	Yes
Key Performance Indicators to quantify status of measures	Yes	No	Yes
Reviewed	Yes	N/A	Yes
Resourcing	Not in place when finalised <sup>34</sup>	Not in place	Not applicable

3.3.5. Further to the points outlined in paragraph 3.3.4., Table 4 shows the following:

- a. The new Waste Management Plan is valid for nine years rather than six years as stipulated by SL 549.63, the Waste Regulations.<sup>35</sup> The Ministry envisages to conduct a review of this Plan within six years of its adoption.
- b. Malta’s targets with respect to single use plastics will be delayed beyond December 2020. Nonetheless, Malta is still in time to transpose the EU Directive on the reduction of the impact of certain plastic products on the environment (single use plastics) by the stipulated date in July 2021.
- c. MECP considers that the available data was sufficient to enable the policy direction puts forward in the Waste Management Plan to be properly motivated. Nonetheless,

<sup>31</sup> Ministry for Sustainable Development, the Environment and Climate Change, 2014. “Waste Management Plan for the Maltese Islands – A Resource Management Approach 2014 – 2020”, p. 13.

<sup>32</sup> Ministry for the Environment, Sustainable Development and Climate Change, 2019. “Single-Use Plastic Products Strategy for Malta – Public Consultation Document”, p. 24.

<sup>33</sup> Ministry for Sustainable Development, the Environment and Climate Change, 2014. “Waste Management Plan for the Maltese Islands – A Resource Management Approach 2014 – 2020”, pp. 62 - 64.

<sup>34</sup> Ibid. p. 158.

<sup>35</sup> SL 549.63 Article 30.

within the same document, MECP also highlights data limitation concerns noted by NAO. Therein it is stated that, “[...] *further efforts are required to improve upon waste statistics not least in ensuring that public and private stakeholders provide timely and accurate data which is the foundation of robust waste statistics.*”<sup>36</sup>

- d. Similarly, the single use plastics strategy remarks that statistical information regarding these plastic products in the environment is “*rather limited*”.<sup>37</sup> Chapter 2 of this Report has highlighted the various problems that national entities are encountering to have robust management information.
- e. The strategic framework or related documentation do not outline the resource requirements for its implementation. In this respect, efforts are ongoing to secure the required funding at the national and EU level. These circumstances limit entities from building up their respective administrative and operational capacity to enable the expedient implementation of measures.

### 3.4. Conclusion

- 3.4.1. Malta’s legal and strategic waste management frameworks relay national obligations and direction to minimise and reuse as much as possible plastic waste. With few exceptions, these frameworks are conducive to enable the attainment of Government’s objectives.
- 3.4.2. The legislative framework reflects EU Directives. To this end, national authorities seek to fulfil the obligations therein but are not appropriately motivated to go beyond the scope of the regulatory framework. A case in point relates to the situation whereby national authorities are not obliged to determine the amount of plastics within all waste streams. In turn, this leads to the absence of crucial management information which would encourage national authorities to focus on areas of concern and devise the appropriate strategies in a timelier manner. Preliminary information from the partner SAIs involved in the co-operative audit also lamented that unreliable/incomplete data on plastics production, usage and plastic waste treatment is also an issue in their respective countries. Moreover, the current landfilling fees stipulated in the legislative framework run counter to the principles of the circular economy.
- 3.4.3. Malta’s strategic framework generally portrays Government’s objectives relating to waste management including plastic. In view of its long-term vision, it is imperative that the strategic framework is broken down into manageable plans pertaining to specific measures. This performance audit is aware that MECP has initiated such a process. However, progress to date does not extend to cover most measures mainly because the Ministry has not been

<sup>36</sup> Ministry for Sustainable Development, the Environment and Climate Change, 2014. “*Waste Management Plan for the Maltese Islands – A Resource Management Approach 2014 – 2020*”, p.13.

<sup>37</sup> Ministry for the Environment, Sustainable Development and Climate Change, 2019. “*Single-Use Plastic Products Strategy for Malta – Public Consultation Document*”, p. 24.

allocated the required financial resources. In such circumstances, the risk exists that the implementation of the strategic framework becomes fragmented rather than following a more logical pathway.

- 3.4.4. Despite the robustness of Malta's legislative and strategic frameworks, progress relating to the attainment of waste management targets has to date been slow. The next Chapter discusses Malta's progress in implementing the Waste Management Plan and measures in the Annual Budgets up to June 2020.

# Chapter 4

## Implementation of measures

### 4.1. Introduction

4.1.1. Malta has not attained a number of its plastic waste management related European Union (EU) and national targets. This implies that on a national level, the implementation of measures addressing plastic waste has not yet reached the desired levels.

4.1.2. Following a presentation of Malta's progress against plastic related targets, this Chapter discusses the following:

- a. Malta's waste infrastructure is insufficient;
- b. Separation at source opportunities are not being fully exploited;
- c. Key measures listed in the strategic documents are still work in progress; and
- d. Enforcement actions undertaken by the Regulator is generally reactive.

### 4.2. Malta has not attained a number of obligatory plastic waste targets

4.2.1. EU Directives and national legislation stipulate that Malta is obliged to attain targets specifically relating to plastics within packaging waste and Municipal Solid Waste.<sup>38,39</sup> The legislative framework also stipulates various recovery, recycling and re-use targets relating to Waste Electric and Electronic Equipment (WEEE), end-of-life vehicles (ELVs) and Construction and Demolition (C&D), within which is a significant component of plastic waste.<sup>40,41,42</sup> As noted in Chapter 2, there are no plastic waste-specific targets within these latter waste streams. Consequently, for the purpose of this audit, it was agreed with the Environment and Resources Authority (ERA) that it would be realistic to assume that the level of recovery, recycling and re-use relating to the overall target is reflective of the level of plastic waste treated within these waste streams.

<sup>38</sup> Waste Regulations, Schedule 5 (paragraph 12).

<sup>39</sup> Waste Packaging Regulations, Regulation 8 & Schedule 3.

<sup>40</sup> Waste Management (End of Life Vehicles) Regulations, Regulation 7.

<sup>41</sup> Waste Management (WEEE) Regulations, Regulation 7.

<sup>42</sup> Waste Regulations, Schedule 5 (paragraph 12).



**Table 5: Malta's progress with respect to the EU targets (up to 2017)<sup>43</sup>**

Waste stream	2013	2014	2015	2016	2017
Re-use and recover 95% of an average weight per vehicle per year by 2014	92%	45%	78%	54%	
Recover 70% of C&D waste by 2020	96%	81%	93%	82%*	97%*
Recycle 50% of paper, plastics, metal and glass waste from households by 2020	22%	19%	16.2%	19%*	17.6%*
For packaging and packaging waste achieve by 2013: Overall recovery 60%,	38%	41%	37%	36%	36%
For packaging and packaging waste achieve by 2013: Overall recycling 55%	38%	41%	37%	36%	36%
For packaging and packaging waste achieve by 2013: Plastic recycling 22.5%,	23%	33%	29%	19%	19.2%
Collection of 65% of the average weight of EEE Placed on the national markets by 2021	2.8 kg/capita**	2.9 kg/capita**	3.8 kg/capita**	22%	24%
By 2018: WEEE Preparing for reuse and recycle <sup>44</sup> :	<b>Preparing for reuse and recycling rate:</b>	<b>Preparing for reuse and recycling rate:</b>	<b>Preparing for reuse and recycling rate:</b>	<b>Preparing for reuse and recycling rate:</b>	<b>Preparing for reuse and recycling rate:</b>
Cat 1: 80% Cat 6: 55%	Cat 1: 89% Cat 6: 0%	Cat 1: 94% Cat 6: 92%	Cat 1: 34% Cat 6: 59%	Cat 1: 79% Cat 6: 100%	Cat 1: 75% Cat 6: 99%
Cat 2: 55% Cat 7: 55%	Cat 2: 96% Cat 7: 95%	Cat 2: 215% Cat 7: 0%	Cat 2: 50% Cat 7: 62%	Cat 2: 315% Cat 7: 341%	Cat 2: 135% Cat 7: 53%
Cat 3: 70% Cat 8: 55%	Cat 3: 91% Cat 8: 95%	Cat 3: 130% Cat 8: 62%	Cat 3: 101% Cat 8: 64%	Cat 3: 95% Cat 8: 99%	Cat 3: 66% Cat 8: 100%
Cat 4: 70% Cat 9: 55%	Cat 4: 90% Cat 9: 100%	Cat 4: 132% Cat 9: 0%	Cat 4: 94% Cat 9: 99%	Cat 4: 138% Cat 9: 162%	Cat 4: 64% Cat 9: 37%
Cat 5: 55% Cat 10: 80%	Cat 5: 0% Cat 10: 0%	Cat 5: 7% Cat 10: 0%	Cat 5: 38% Cat 10: 0%	Cat 5: 118% Cat 10: 0%	Cat 5: 0% Cat 10: 0%
Gas lamps recycling: 80%	Gas Discharge Lamps: 95%	Gas Discharge Lamps: 0%	Gas Discharge Lamps: 0%	Gas Discharge Lamps: 0%	Gas Discharge Lamps: 0%
By 2018: WEEE Recovery	<b>Recovery rate</b>	<b>Recovery rate</b>	<b>Recovery rate</b>	<b>Recovery rate</b>	<b>Recovery rate:</b>
Cat 1: 85% Cat 6: 75%	Cat 1: 92% Cat 6: 0%	Cat 1: 97% Cat 6: 92%	Cat 1: 34% Cat 6: 59%	Cat 1: 79% Cat 6: 100%	Cat 1: 75% Cat 6: 99%
Cat 2: 55% Cat 7: 75%	Cat 2: 96% Cat 7: 95%	Cat 2: 219% Cat 7: 0%	Cat 2: 50% Cat 7: 62%	Cat 2: 315% Cat 7: 341%	Cat 2: 135% Cat 7: 53%
Cat 3: 80% Cat 8: 75%	Cat 3: 92% Cat 8: 95%	Cat 3: 140% Cat 8: 64%	Cat 3: 101% Cat 8: 64%	Cat 3: 95% Cat 8: 99%	Cat 3: 66% Cat 8: 100%
Cat 4: 80% Cat 9: 75%	Cat 4: 94% Cat 9: 100%	Cat 4: 147% Cat 9: 0%	Cat 4: 94% Cat 9: 99%	Cat 4: 138% Cat 9: 162%	Cat 4: 64% Cat 9: 37%
Cat 5: 75% Cat 10: 85%	Cat 5: 0% Cat 10: 0%	Cat 5: 7% Cat 10: 0%	Cat 5: 38% Cat 10: 0%	Cat 5: 118% Cat 10: 0%	Cat 5: 4% Cat 10: 0%

\*Data is provisional and subject to revision

\*\* Until 31 December 2015, the collection target was the collection of 4 kilograms on average per inhabitant per year of WEEE from private households.

Source: ERA

#### 4.2.2. Table 5 shows that:

- By 2017 Malta almost managed to reach a number of targets, namely those relating to packaging waste and WEEE.
  - In absolute terms, this implies that national entities treated 2,559 tonnes of plastic packaging waste which suggests it fell 434 tonnes short of the target.
  - A similar estimate cannot be drawn up with respect to WEEE. Nonetheless, the overall performance when compared to the obligatory targets implies that the amount of plastics treated through this waste stream is close to expectations.
- Waste management performance relating to Municipal Solid Waste (MSW) and ELVs were not reached.
  - Statistics relating to Municipal Solid Waste show that the overall performance comprising the recycling of glass, metal, paper, and plastic were 32.4 per cent short of mandatory targets.
  - A similar situation materialised regarding ELVs. Performance relating to this waste stream was 41 per cent (2016) short of mandatory targets.
  - In the absence of a specific target related to the waste component in MSW and ELVs, it is assumed that the treatment of plastic waste within these waste streams was also significantly short of expectations.

4.2.3. The performance portrayed by Table 5, compares Malta's performance up to 2017 with obligatory 2020 targets. Discussions with national entities confirmed that if the current state of affairs were to persist, it is unlikely that Malta's waste management performance could improve substantially to attain the 2020 targets. The status quo will further complicate matters in terms of environmental sustainability and legal obligations, as mandatory targets will become more stringent by 2030.

4.2.4. As discussed in the introductory Section of this Chapter, this performance audit showed that infrastructural gaps, operational inefficiencies and non-expedient implementation of strategic measures are the root cause of this situation. These factors will be discussed individually in the forthcoming sections.

### 4.3. Malta's waste infrastructure is insufficient

4.3.1. Competent authorities are fully aware that Malta's waste management infrastructure is subject to a number of critical gaps. Within this context, this performance audit seeks to contribute to the ongoing plans relating to the upgrading of the waste management infrastructure. The national waste management infrastructure can be discussed on two main levels. Firstly, the discussion revolves around the operational impact brought about by the fire at Sant'Antnin Waste Treatment Plant (SAWTP). Secondly, this Chapter evaluates the infrastructural gaps which need to be addressed to cater for the increases and diversity in waste management operations.

<sup>43</sup> As pointed out in 2.2.1., ERA has not yet computed Malta's waste management performance for 2018 and 2019, in terms of EU and national targets.

<sup>44</sup> Appendix I defines the different WEEE categories.

4.3.2. Prior to the fire at SAWTP, Malta's main waste management infrastructure as operated by WasteServ comprised of:

- Sant'Antnin Waste Treatment Plant which, until May 2017, consisted of two main areas - a Mechanical and Biological Treatment (MBT) Plant and a Materials Recovery Facility (MRF). In May 2017 a fierce fire destroyed the MRF. As a result, most of the material recovery operations were transferred to Malta North, in which a line was reconfigured to accommodate this unplanned operation.
- The ECOHIVE Complex houses a number of waste management facilities namely, a Civic Amenity site, the rehabilitated Magħtab old dump, the Żwejra engineered landfill, a gas plant, the Għallis engineered landfill and the Malta North Mechanical and Biological Treatment plant.
- Tal-Kus, in Gozo, hosts an MRF and a Transfer Station. Once compacted, MSW is taken to the MBT plant at Malta North and the organic waste from the organic bag collection is taken to the anaerobic digestion plant at SAWTP.

#### **4.4. Operational changes and new separation-at-source initiatives mitigated the impact of the loss of the MRF at SAWTP**

4.4.1. The fire at Sant'Antnin Waste Treatment Plant in 2017, destroyed Malta's only MRF. Investigations on the cause are still ongoing. This plant was key to the retrieval of plastic for recycling as its operations focused on sorting the various waste components. WasteServ incurred around €1.7 million in expenses related to the fire at SAWTP.<sup>45</sup> These related to written-off inventories, dismantling of shed and equipment, export of burnt materials as well as fire-fighting and other related costs.

4.4.2. Following the SAWTP incident, for a number of months, Malta's infrastructural set-up to treat recyclable waste was limited to Gozo's Tal-Kus plant, as the Malta North plant was solely processing Mixed Municipal Solid Waste (black bag) collected from households. As a temporary measure, the Malta North plant operations changed to the processing of the recyclable bag (green / grey bag). These arrangements remained in place until mid-2020, when the new temporary rudimentary line catering for the sorting of dry recyclables from households at SAWTP became operative.

4.4.3. Ceteris Paribus, one would expect that landfilling levels would increase following the SAWTP incident. Although not shown in Table 6, during the immediate months after the incident, there was a notable spike in landfilling which eventually stabilised following modifications at the Malta North plant. Table 6 refers.

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<sup>45</sup> 2018 Financial statements (WasteServ). 2017 Management accounts (WasteServ).

**Table 6: Landfilling of plastic waste (2016 - 2019)**

	2016		2017		2018		2019		Total	
	Tonnes	%	Tonnes	%	Tonnes	%	Tonnes	%	Tonnes	%
Total plastic waste	38,977.44	100	46,293.90	100	49,956.00	100	47,772.50	100	182,999.84	100
Landfilled	30,424.09	78	35,743.59	78	34,709.90	69	27,491.71	58	128,369.30	70

Source: WasteServ

- 4.4.4.** A number of factors account for the situation portrayed in Table 6. The following refers:
- In absolute terms, plastic waste generation remained at par during the period 2016 to 2019, whereby the amount of plastic waste generated averaged 39,194 tonnes annually.
  - During this period 2016 to 2019, landfilling of plastic waste declined from 78 per cent to 58 per cent. In absolute terms this implies a total reduction of landfilling plastic waste of 2,932 tonnes.
  - This situation mainly materialised due to the introduction of the organic waste collection from households which had a positive impact on the collection of dry recyclables. During the period 2016 to 2019, the collection of plastic waste through the recyclable bag (green / grey bag) increased from 4,111 tonnes to 7,517 tonnes. Although not fully traceable, there is a high probability that most of this plastic was stored, recycled or processed into RDF rather than landfilled. The non-traceability of plastic waste is a result of waste management operations, where the treatment of waste entails the comingling of various waste collection sources.
  - Nonetheless, infrastructural gaps coupled with the loss of MRF resulted in a higher percentage of plastic waste being categorised as rejects and subsequently landfilled. During the period 2016 to 2019, on average 32 per cent of the waste collected was landfilled due to being rejected from the various waste management processes.

## **4.5. Separation-at-source opportunities are not being fully exploited**

**4.5.1.** Despite the recently introduced separation-at-source initiatives, namely relating to the separate collection of organic waste, which in turn, enhanced the quality and quantity of plastic waste collected through the recyclable bag (green / grey bag), a significant amount of potentially recyclable or reusable plastic waste is still being landfilled. This occurs as recyclable plastic waste, when disposed of, is contaminated when mixed with other non-recyclable Municipal Solid Waste. Three principle factors contribute to this situation:

- The Waste Framework Directive (WFD) obliges EU Member States to, as a minimum, organise separate collections of waste relating to dry recyclables namely paper, glass, plastic and metal. Moreover, the WFD and national legislation provide that the comingled collection of dry recyclables can take place provided that the recycling potential

is not diminished.<sup>46</sup> Local Councils were responsible for the setting up a separate collection system (including co-mingled collection) of dry recyclables by 2013.<sup>47</sup> The co-mingled collection of dry recyclables impairs the quality of potentially recyclable plastic as it becomes contaminated with other waste streams particularly wherein correctly disposed of in the recyclable (grey/green) bag. Consequently, the level of rejects emanating from waste management operations is higher than it would have been had the material been collected separately.

2. A WasteServ-commissioned characterisation survey carried out for the purpose of the Waste-to-Energy plant in 2017 identifies that 19.7 per cent of the Mixed Municipal Solid Waste relates to recyclable plastic waste. This implies that between 2016 and 2019, an estimated total of 131,624 tonnes of recyclable plastic waste were collected through Mixed Municipal Solid Waste (black bag). As in this case, plastic waste is collected co-mingled with other waste, the degree of contamination increases. This state of affairs influences the degree to which WasteServ can recycle this plastic.
3. Waste management operations at WasteServ are also rejecting plastic disposed of by households through the Mixed Municipal Solid Waste. Wasteserv estimates that the landfilling of plastic from non-treated Mixed Municipal Solid Waste ranged from 15,417 tonnes in 2016 to 17,417 tonnes in 2019. The opportunity cost of landfilling the Mixed Municipal Solid Waste without pre-treatment is the loss of potential RDF, avoidable landfilling cost and the depletion of available landfill space. Malta would be at a further disadvantage in view of the more stringent 2030 landfilling targets.

#### **4.6. A number of strategic measures are still to be implemented**

- 4.6.1. Recycling performance is also dependent on the completion of a number of measures listed in the national strategic documents. For the purpose of this audit, the NAO reviewed the progress registered regarding the measures listed in:
  - a. the Waste Management Plan for the Maltese Islands (WMP) (2014 – 2020);
  - b. the Green Public Procurement Action Plans; and
  - c. the Annual National Budget for the period 2017 to 2020.
- 4.6.2. The WMP for the period 2014 to 2020 contained 135 measures relating to plastic waste management. The main objectives of these measures are essentially preliminary work relating to Malta's waste infrastructure. As at June 2020, national entities fully implemented 74 (55 per cent) of the measures.
- 4.6.3. The First Green Public Procurement Strategy (2012 – 2014) contained five measures relating to plastic recycling. This Strategy outlines five measures all of which have been

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<sup>46</sup> Waste Regulations, Schedule 5, paragraph 8

<sup>47</sup> Waste Regulations, Article 10.

implemented by 2019. The Second Green Public Procurement National Action Plan (2021-2025) is expected to be approved in the last quarter of 2020.<sup>48</sup> It will address the reduction of single use plastics through a number of measures under the hospitality and catering industry.

4.6.4. During 2017 to 2020, the annual budget introduced ad hoc measures to supplement initiatives outlined in other national strategies. The aim of these budgetary measures mainly related to the elimination of single use plastics and the launching of new waste management infrastructure. To date, national entities are not in a position to estimate the financial allocation pertaining to the plastic waste related measures outlined in the annual budgetary speech. As at July 2020, three out of 11 of the budgetary measures relating to plastics have fallen behind their implementation schedule and are still in the process of being implemented.

4.6.5. The non-implementation of key measures listed within the three main documents generally involves common factors. The following refers:

i. **Preparatory work** - within this context the preparatory work relating to the implementation of the measures listed in the three documents under review entailed the undertaking of feasibility studies and preparing the administrative, legal and technical groundwork. The following examples refer:

a. **WMP 2014 – 2020:** the implementation of six measures depended on the commissioning of further technical studies or surveys. These measures relate to the waste collection reforms, education and awareness, C&I waste and WEEE. The completion of these studies / surveys will amongst others enable national authorities to set sector specific fees, establish waste management behaviour as well as attain the EU targets.

b. **Annual budget:** the implementation of measures relating to the establishment of the Beverage Container Recycling Scheme as well as the ban by 1 January 2021 of importation and production of plastic bags, cutlery, straws and conventional single-use plastic plates was prolonged. This was mainly due to the more complex than anticipated legal issues involved in the transposition of EU legislation. Moreover, the prolonging of preparatory groundwork also impacted the implementation scheduling of these measures. Within this context, issues necessitating cross cutting action by national entities, such as Legal Notices being drafted by MECP and ERA, in consultation with various stakeholders as well as the finalisation of the Agreement on the establishment of the Bottle Container Refund Scheme between Government, represented by the Resource, Recovery and Recycling Agency (RRRA), and the BCRS Malta, further prolonged the implementation of the BCRS and the importation and production ban of SUPs.

ii. **Adoption of Strategies:** A number of strategic documents, prepared by the Ministry for the Environment, Climate Change and Planning (MECP), within the national strategic framework

<sup>48</sup> Green Public Procurement National Action Plan 2019-2025.

are yet to be formally adopted by Government. In such circumstances, it may become more problematic for national entities to secure resources and commence the implementation of measures to the detriment of existing EU and national targets. In situations where the adoption of strategies is prolonged, it becomes more difficult for Ministries and Departments to secure funds and other resources to enable them to proceed with the implementation of measures therein. Within the current WMP, the Construction and Demolition Strategy is still subject to Government approval. Moreover, the WMP itself is to be updated to reflect the new waste management targets up to 2030. Similarly, the Second Green Public Procurement National Action Plan is still awaiting Government's endorsement as is the Single Use Plastics Strategy. In cases, such as those relating to the Second Green Public Procurement National Action Plan, the delays in adopting the strategies arise due to developments at EU level.

- iii. **Securing human and financial resources:** the implementation of some measures within the WMP and as highlighted in recent budget measures is being prolonged as national entities are awaiting the conclusion of the administrative process concerning EU funding. Examples of such measures within the WMP relate to the undertaking of sustainable waste minimisation and management initiatives within Government. Similarly, the recently announced initiative regarding the measure to launch waste infrastructure projects is subject to the allocation of financial resources.

#### 4.7. Enforcement actions undertaken by the Regulator is generally reactive

- 4.7.1. ERA is the national Regulator entrusted with the enforcement function on waste management. ERA has a dedicated unit responsible for environmental enforcement, including waste management. The very broad scope and mandate of this section, however, limit enforcement capabilities from the personnel deployed therein.
- 4.7.2. While acknowledging the administrative capacity limitations, environmental enforcement action is either through proactive inspections planned and executed to ensure adherence to permit conditions or when cases are flagged by the enforcement section itself, or generally reactive to reports on irregularities received by this Unit. During 2016 to 2019, waste management inspections by this Unit at waste treatment facilities run by WasteServ Malta Ltd. totalled 36. Moreover, during between 2017 and 2019 inspections relating to Extended Producer Responsibility totalled 759. All inspections carried out targeted all waste streams rather than specific to plastic packaging and plastics within other waste streams. Moreover, in view of the general nature of the inspection at waste facilities, operational issues concerning landfilling of untreated Mixed Municipal Solid Waste were dealt with in a two-fold manner. Firstly routine/regulatory inspections were carried out accordingly, for which in the case of WasteServ Malta Ltd. Facilities would entail a minimum of one routine inspection per year for medium-risk facilities. Secondly, numerous additional inspections (i.e. over and above the regulatory inspections) were also dealt with in an incidental manner that is, such issues were not the specific concern of such regulatory inspections.



## 4.8. Conclusion

- 4.8.1. In many aspects, Malta is lagging behind with respect to its plastic recovery and recycling targets. These circumstances, at the outset imply that the use of plastics in Malta is still generating a considerable amount of waste and secondly, that national efforts are not fully exploiting opportunities to recycle plastics rather than landfilling. Four main factors contribute to this situation.
- 4.8.2. Various reports outlined that Malta's waste management infrastructure does not have the capacity to cope with the amount of waste generated. Matters have been further exacerbated by the SAWTP incident in 2017. As a consequence, national entities do not have the appropriate level of capacity to recover and recycle plastic waste. On the other hand, despite its obvious advantages, the success of investing in an upgraded waste management infrastructure remains also highly dependent on significant reductions of waste generation levels.
- 4.8.3. The benefits of separating waste at source are well-known and have been the subject of various national educational as well as awareness campaigns. Nonetheless, to date Malta has not fully exploited the benefits of separation at source since considerable amount of recyclable waste is still being disposed of within the Mixed Municipal Solid Waste (black bag). The amount of recyclable plastic within this waste stream is not contributing to Malta's recycling rate since its condition when collected impairs its quality and recyclable potential.
- 4.8.4. The non-attainment of obligatory plastic waste targets is also due to the prolonging of implementation of key measures. Three common factors led to this situation. Firstly, in some cases, the delay in completing the preparatory work in terms of political, administrative, legal and technical issues has influenced the implementation schedule.
- 4.8.5. Secondly, a number of key strategies which directly impact plastic waste management are still awaiting Government approval and their eventual adoption. The Ministry contends that it has been unable to secure funds to expedite the commissioning of such studies.
- 4.8.6. Thirdly, Government is still to allocate funds regarding the implementation of key measures. Unless, such resources are made available, national entities will not be in a position to implement the measures outlined in the strategic framework.
- 4.8.7. Fourthly, enforcement related to waste management is severely limited. The Regulator is hampered from adopting robust enforcement action due to administrative capacity issues.
- 4.8.8. The next Chapter discusses the cost-effectiveness of plastic waste management initiatives. In particular, the review therein compares the cost of plastic waste management initiatives leading to its recycling with landfilling.



# Chapter 5

## Financial costs of waste collection and treatment

### 5.1. Introduction

- 5.1.1. The polluter pays principle stipulates that waste generators are liable for the waste that they generate. Malta has adopted this principle with respect to the packaging producers even though this principle features in European Union (EU) Directives as a “may clause”. Moreover, producers of plastic packaging, electronic and electrical equipment as well as batteries and accumulators are also held financially accountable for the collection and treatment of the product’s residual waste. This audit has shown that Government is shouldering most of the costs involved in plastic waste management. Malta’s microstate characteristics, together with the socio-economic impact, are the major factors influencing the complex financial arrangements in place.
- 5.1.2. Transferring these costs to polluters, including producers, would have an inflationary effect on the economy. Mitigating the disadvantages associated with diseconomies of scale and to satisfy EU regulations entailed that national authorities enter into agreements with the EU mainly in terms of Entrustment Acts relating to WasteServ’s Mechanical and Biological Treatment (MBT) and Multi-Material Recovery Facility (MMRF) plants.<sup>49</sup> On the other hand, the risks exist that the long-term shouldering of waste management costs by Government does not motivate waste generators from reducing the use of plastics and increasing qualitative sorting at source practices, which would eventually translate into higher recycling and recovery levels of waste.
- 5.1.3. Within this context, this Chapter discusses the variables involved in determining the cost and responsibilities of plastic waste management. The following refers:
- a. Government’s financial role in waste management;
  - b. Compensating producers of packaging plastic;
  - c. Cost of managing other plastic waste; and
  - d. The real cost of landfilling waste.

<sup>49</sup> The MBT plant consists of a mechanical treatment plant, and a biological plant with anaerobic digestion facilities, used for the treatment of the organic waste stream. The MMRF is used for the processing of electrical and electronic equipment (WEEE) as well as tyres, wood, mattresses, flat glass, expanded polystyrene, textiles and gypsum products, which are prepared for export.

## 5.2. Government is shouldering most of the costs involved in plastic waste management

- 5.2.1. Despite the intention that Government's role in waste management would be that of an operator of last resort<sup>50</sup>, in practice market conditions constrain Government in assuming responsibility for most of the waste management operations related to Municipal Solid Waste. The main exception to this relates to the collection of packaging waste which is legally the responsibility of producers in terms of the packaging waste regulations.
- 5.2.2. Government remains the main stakeholder with a 100 per cent share of WasteServ, which is a Malta Financial Services Authority - listed private company. WasteServ's role entails organising, managing and operating integrated systems for waste management. Furthermore, WasteServ receives an annual Government subvention, which in 2018 stood at €27.6 million. This implies that Government is directly assuming responsibility for 86 per cent of the waste treatment operations in terms of their financial costs.
- 5.2.3. WasteServ's 2018 management accounts highlight that the additional revenue generated by this company amounts to €7,026,465. This figure includes the income derived from gate fees. These fees in 2018 amounted to €1.4 million. Gate fees are determined by SL 549.07. The foregoing implies that there is no relationship between the actual operational costs incurred by WasteServ and the gate fees charged. The Ministry for the Environment, Climate Change and Planning (MECP), acknowledges the significant variance between the legally stipulated fees and actual costs. To this effect, measures outlined in the Waste Management Plan (WMP) (2014 – 2020) are being carried forward to the latest WMP (2021 – 2030).
- 5.2.4. At least in the medium term, the Ministry's quest to revise gate fees is still subject to complications brought about by the inherent diseconomies of scale associated with waste treatment operations which ultimately reflect themselves in abnormally high operational costs. This would have negative socio-economic repercussions namely brought about by the inflationary effect of reflecting operational costs in chargeable gate fees.
- 5.2.5. At this juncture, the forthcoming sections discuss Government's financial role in waste management with respect to plastic packaging waste and the plastic fractions within other waste streams.

<sup>50</sup> Ministry for Sustainable Development, the Environment and Climate Change, 2014. "Waste Management Plan for the Maltese Islands – A Resource Management Approach 2014 – 2020", p. 51.

### **5.3. Government is also shouldering significant costs associated with the treatment of packaging waste**

- 5.3.1. Extended Producers' Responsibility (EPR) relates to the obligation to be borne by the entities placing packaging including plastics on the market. The EPR is regulated by the Waste Regulations (SL 549.63).<sup>51</sup> Moreover, the Waste Management (Packaging and Packaging Waste) Regulations, S.L. 549.43<sup>52</sup>, puts responsibilities on producers of packaging or packaging material, including the attainment of recovery and recycling targets for the packaging waste resulting from the packaging they put on the market.
- 5.3.2. This audit evaluated the degree to which producers were satisfying these obligations in terms of their financial responsibility for collection and treatment. This review mainly considered WasteServ's audited financial statements (2017 – 2018) and management accounts (2016 – 2019) reflecting operations during 2016 to 2019. The main limitation of this evaluation relates to the absence of operational and financial information pertaining to specific waste streams. As discussed in Chapter 2, WasteServ is not legally obliged to maintain information in this format. This prohibited the exercise from focusing solely on plastic waste. Consequently, this performance audit was constrained to assume that the conclusions relating to the total waste streams also apply to plastic waste.

### **WasteServ is compensating producers more than the amount of revenue it generates from plastic waste recycling**

- 5.3.3. The compensation contracts between WasteServ and the two producers' Schemes signed during 2012 were negotiated between the parties shortly after the enactment of waste management regulations in 2011. These agreements state that the producers' Schemes are to be compensated for incoming co-mingled dry recyclables at €48 per tonne and for waste collected from Bring in Sites at €53 per tonne.<sup>53</sup>
- 5.3.4. This performance audit did not elicit any workings relating to these rates. Nonetheless, a number of factors must have contributed to the establishment of the rates. The following refers:
- The two Schemes are not solely collecting packaging waste within the recyclable bag (grey / green bag). A WasteServ-commissioned study estimated that the proportion of packaging within, including plastics, approximates 39 per cent. This implies that the Schemes are collecting other waste including recyclables which goes beyond their packaging waste legal obligations. The Ministry contended that the compensating fees agreed with the packaging waste producers consider these issues.

<sup>51</sup> SL 549.63, Regulation 8.

<sup>52</sup> SL 549.43, Regulation 8 and Schedule 3.

<sup>53</sup> WasteServ subtracts an adjustment rate of 7.5 per cent and 5 per cent to cover rejects from the recyclable bag and Bring in Sites respectively

- The agreement between the two Schemes and WasteServ ultimately results in the latter procuring packaging and other recyclable waste, including plastic, from the producers' Schemes at the rates indicated in paragraph 5.3.3.
- Despite the law stipulating that the packaging producers remain responsible for the collection and treatment operations including recycling, as well the attainment of national recycling targets, WasteServ and the two Packaging Waste Recovery Schemes entered into an agreement, in 2012, whereby the recyclable material deposited at the former's facilities becomes its property. At this point, WasteServ becomes the owner of the recyclable waste deposited in its facilities against the fees outlined in paragraph 5.3.3. which are paid to the producers' Schemes. Consequently, WasteServ generates its revenue through the sale of this recyclable material.
- It can be argued that Government would be shouldering the costs for the treatment and attainment of packaging waste targets, including plastics, in the event that revenue generated through the sale of recyclables does not offset the cost of treating waste. This argument also assumes that Government would also be shouldering the financial costs relating to any of WasteServ's operational inefficiencies.

### *The sale of recyclable plastics did not offset treatment operations*

5.3.5. An evaluation of the audited financial statements and management accounts for 2016 to 2019 shows that WasteServ operations were not self-financing and necessitated an annual subvention of around €25 million to ensure all ongoing operations. In line with this performance audit's objective, this review focused on the financial responsibilities relating to the plastic waste treatment and recycling collected through the recyclable bag and bring-in sites. Table 7 shows the difference between the fees payable to the Schemes for depositing recyclable waste at WasteServ and the revenue generated from the sale of this material. The Table includes a prudent estimate of the operational costs of treating this waste at the WasteServ plant.<sup>54</sup>

<sup>54</sup> To avoid the risk of double counting due to the format of information maintained by WasteServ, it is not possible to extract operational information on the treatment of plastic waste. At the very least, the cost of treating waste amounts to €7 per tonne. This relates to the cost of landfilling which is the least expensive waste treatment process. In practice, the cost of the various processes, during the period 2016 to 2019 ranged from €7 to €140. Furthermore, these costs do not consider operational overheads, investment, infrastructural and maintenance costs. Consequently, the balances shown in Table 7 portray a very prudent picture which one would expect to increase significantly had the actual costs of treatment at the various plants been fully considered.

Table 7: WasteServ's financial implications of recycling plastic waste (2016 - 2019)

	2016	2017	2018	2019
Plastics retrieved from the recyclable bag (Tonnes)	4,111.28	4,793.48	5,671.93	7,517.44
Allocation for rejects for recyclable bag (Tonnes)	308.35	359.51	425.40	563.81
Compensation by WasteServ to Schemes re recyclable bag (€) / tonne	48	48	48	48
Total compensation paid by WasteServ to Schemes (€)	182,540.98	212,830.50	251,833.89	333,774.22
Wasteserv charge to schemes for rejects (€) / tonne	20	20	20	20
Total charge by WasteServ to Schemes re rejects (€)	6,166.93	7,190.22	8,507.90	11,276.16
Plastics retrieved from Bring in Sites (Tonnes)	480.76	458.54	512.84	512.79
Allocation for rejects from Bring in Sites (Tonnes)	24.04	22.93	25.64	25.64
Compensation by WasteServ to Schemes re Bring in Sites waste (€) / Tonne	53.00	53.00	53.00	53.00
Total compensation paid by WasteServ to Schemes (€)	24,206.27	23,087.49	25,821.49	25,818.98
WasteServ charge to Schemes for rejects (€) / tonne	20.00	20.00	20.00	20.00
Total charge by WasteServ re rejects (€)	480.76	458.54	512.84	512.79
<b>Net outflow by WasteServ (€)</b>	<b>200,099.56</b>	<b>228,269.23</b>	<b>268,634.64</b>	<b>347,804.25</b>
Income received by WasteServ – gatefees	2,296.02	2,626.01	3,092.39	4,015.11
Income received by WasteServ from recycling plastic including that from the co-mingled bag	447,320.37	160,251.78	50,334.12	31,146.68
<b>Difference between WasteServ net outflow and income (€)</b>	<b>249,516.83</b>	<b>(65,391.44)</b>	<b>(215,208.13)</b>	<b>(312,642.46)</b>
Cost of landfilling (€) per tonne	15.00	8.00	9.00	7.00
Cost of treating plastic (€)	68,880.65	42,016.16	55,662.97	56,211.59
<b>WasteServ total surplus / deficit from the management of plastic waste (€)</b>	<b>180,636.18</b>	<b>(107,407.60)</b>	<b>(270,871.10)</b>	<b>(368,854.05)</b>

5.3.6. The figures for 2016 depicted in Table 7 show that WasteServ had a €180,636 balance after settling gate fees with the Schemes and selling recyclable plastics. Nonetheless, this figure does not include WasteServ's operational cost to treat waste. This is crudely estimated at €15 per tonne. The negative balances in subsequent years are mainly due to the cumulative impact of the following:

- The international market for recyclable plastics was subject to significant changes since 2017. The price for this material decreased substantially from €221 per tonne in 2016 to €65 per tonne in 2019 due to a decline in demand from major markets such as China and Malaysia. The negative fluctuations in price are also evident in the tender bids received by WasteServ.
- WasteServ was not able to secure a higher price for its recyclable waste due to:
  - A decrease in the quality of recyclable plastic brought about by the non-availability of the Material Recovery Facility (MRF) at Sant'Antnin Waste Treatment Plan (SAWTP) following the incident of 2017. The latter influenced the degree to which WasteServ could sort plastic waste while ensuring that it remained uncontaminated.
  - The quality of recyclable plastic became further compromised due to the unavailability of covered storage facilities.
  - Diseconomies of scale arising out of the relatively small volumes of recyclable plastics available for export which were reflected in the lower prices being secured.
  - The entity being rendered as a price taker due to the quality and volumes of recyclable plastic available for export, which constrains WasteServ to accept any price offered.

5.3.7. The cumulative impact brought about by the SAWTP incident, the collapse of the international market for recyclables, and the diseconomies of scale disadvantages which are characteristics of many microstates has had a disproportionate effect on WasteServ finances.

5.3.8. Nonetheless, the situation presented in this Section goes counter to the provisions outlined in the Waste Management Plan (2014 -2020). Therein it is acknowledged that Malta must ultimately aim towards ensuring full cost recovery of all its existing and new waste management facilities without causing any significant social or economic disturbances. WasteServ Malta Limited was created with the main objective of providing waste management facilities and services. The foregoing implies that Malta is still a long way from balancing its waste management costs with socio-economic interests.

## 5.4. Cost of managing other plastic waste

5.4.1. Thus far, the discussion in this Chapter showed how Government is shouldering substantial costs relating to the recycling of plastics derived from packaging waste. This Section focuses

on the financial burden borne by Government with respect to waste categorised as Refuse Derived Fuel (RDF).<sup>55</sup>

5.4.2. Plastic RDF is prominently derived from rejects in the mixed municipal bag (black bag), the recyclable bag (green / grey bag) and Bring-In Sites. WasteServ estimated that the proportion of plastic in the total RDF generated annually amounts between 33 and 35 per cent. In absolute terms, applying the prudence concept, this percentage resulted in the generation of 30,943 tonnes of plastic RDF during the period 2016 to 2019.

5.4.3. The financial implications for WasteServ when deriving RDF relate to the treatment of waste, storage of derived RDF, landfilling and the export of this material. Similarly, to the discussion concerning packaging waste, WasteServ's operational and financial information does not readily lend itself to discern the cost of extracting and exporting RDF. Within this context, this performance audit was constrained to assume that WasteServ was deriving RDF from two main sources, namely SAWTP and Malta North plant. This practice continued until the SAWTP incident. This implies that during 2016 and May 2017 the total operational cost of these two plants was in the region of €70 per tonne. Following the incident at SAWTP, operations were transferred to Malta North. Following the upgrading of the latter plant its operational costs averaged €95 per tonne during 2018 and 2019. In extreme cases, such as those following the incident at SAWTP, WasteServ would be constrained to landfill plastic based RDF. The cost of such a process ranged from €7 to €15 per tonne. Table 8 refers.

Table 8: Cost of managing plastic RDF

Year	Plastic RDF	Cost of operations (plants)	Cost of landfilling	Cost of storing	Cost of exporting	Total costs
	Tonnes	€	€	€	€	€
2016	5,514.01	386,037.76	24.97	N/A	-	386,062.73
2017	5,981.30	418,752.53	20,947.78	N/A	164,193.75	603,894.06
2018	9,005.28	850,643.43	36,774.96	N/A	801,234.35	1,688,652.74
2019	10,442.29	986,384.44	774.11	N/A	2,276,708.00	3,263,866.54
<b>Total</b>	<b>30,942.87</b>	<b>2,641,818.15</b>	<b>58,521.83</b>	-	<b>3,242,136.10</b>	<b>5,942,476.08</b>

<sup>55</sup> The scope of this Chapter will not extend to discussing the financial implications of WEEE and ELVs as these waste streams are treated by other private waste facilities. Thus, Government is not shouldering the financial burden emanating from the treatment and recycling of these waste streams.



5.4.4. Table 8 shows the following:

- During 2016 to 2019, WasteServ has incurred costs ranging between €386,062 and €3.3 million for deriving and exporting RDF. In part, the difference is mainly due to the volume of RDF exported in each year within this period.
- WasteServ did not offset its operational costs for deriving and exporting RDF at any point during the period under review. This is attributed to the quality of the derived RDF.
- The exporting of RDF is also subject to diseconomies of scale disadvantages since it is not cost-effective to ship this material abroad.

5.4.5. It is evident that Government, through the WasteServ subvention, is incurring significant costs regarding the extraction and exportation of RDF. Similarly, to the recycling of plastic waste, the shouldering of waste management costs by Government deviates from the provisions of WMP (2014 – 2020) and the new WMP (2021 – 2030), whereby it is stated that the polluter pays principle should be, as far as possible, upheld.<sup>56</sup>

## 5.5. Landfilling is the costliest process within waste management

5.5.1. A WasteServ-commissioned report estimates that the full operational costs of landfilling at the ECOHIVE Complex as at March 2018, amounted to €73.71 per tonne. This cost comprises operational, infrastructural, maintenance as well as the internalised environmental costs. Table 9 refers.

Table 9: Cost of landfilling at the ECOHIVE Complex (March 2018)

<b>Costs over lifetime (€)</b>	<b>Physical Quantity</b>	<b>Unit</b>	<b>Price per Unit</b>	<b>Total (€)</b>
Land	128,000	m <sup>2</sup>	1,205.98	154,365,755
Excavation Costs	2,248,379	m <sup>3</sup>	13.81	31,050,110
Lining and Installation	164,767	m <sup>2</sup>	16.12	2,655,719
Certification	1			600,000
Additional Costs				265,572
Pipework and after-care				15,500,000
End-of-life capping				5,000,000
<b>Total Infrastructural Costs (€)</b>				<b>209,437,156</b>
<b>Costs (€/t)</b>				
Total Infrastructural Costs (€/t)				66.41
Total O&M costs (€/t)				7.30
<b>Cost per tonne disposed (€)</b>				<b>73.71</b>
<b>Cost per m<sup>3</sup> available (€)</b>				
Average density of waste (t/m <sup>3</sup> )				0.85
<b>Cost per m<sup>3</sup> available (€)</b>				<b>86.72</b>

Source: Derivation of Cost Recovery Rates for Unseparated Waste Streams, p. 7.



- 5.5.2. The €73.71 rate ensures that all financial costs including the costs of land are covered. Table 9 shows that the internalised environmental costs, which include the cost of land, lining and installation, pipe-work and after-care as well as end-of-life capping amount to €177,521,474 or 85 per cent of the total infrastructural costs contributing to the landfill recovery rate.
- 5.5.3. Alternatively, the recovery rate may be expressed in terms of every cubic meter of volume taken up. From an operational perspective, this may be more implementable as the rate could be potentially charged according to the volume of the truck entering the landfill to dispose of waste. The recovery rate per cubic metre is equal to €86.72.
- 5.5.4. These results indicate that the costs associated with landfilling exceed those of the Malta North Waste Treatment Facilities. This is primarily attributed to the extensive use of land space that is involved. The full cost recovery rate for landfills is €73.71 per tonne of landfill waste, thus 10 per cent higher than the cost recovery rate of Malta North Mechanical and Biological Treatment Plant and that of the Malta North Bulky Waste Facility. Therefore, the resulting recovery rates clearly indicated in Table 9 show that behaviour should be in the direction of source separation and recycling. Not only is the disposal of waste in landfills considered to be the waste management option that is most harmful to the environment, but the landfill cost highly exceeds that of directing waste to the Malta North Waste Treatment Facilities.

## 5.6. Conclusion

- 5.6.1. The financial evaluation of waste management operations elicited a number of critical issues. Firstly, Malta is still not in a position to fully implement the polluters' pays principle as advocated in the WMP (2014 – 2020). Admittedly, socio-economic factors play an important role within this state of affairs. On the other hand, Government's long-term shouldering of waste management responsibilities, namely in terms of attaining obligatory EU and national targets, deviates from encouraging stakeholders from reducing and recycling waste, including plastics.
- 5.6.2. The issue of a more qualitative approach towards separation at source surfaces again through a financial evaluation of WasteServ operations. This private entity, which is practically fully Government-owned, has not managed to offset operational costs through the sale of recyclables and RDF. Indeed, with respect to the latter, the poor quality of the material constrained WasteServ to incur substantial costs for its export. In part, this situation was not abetted by prevailing recyclables and RDF international markets.
- 5.6.3. This financial evaluation also raised the point concerning the financial and environmental implications of continued landfilling at the current levels at the ECOHIVE Complex. A WasteServ commissioned report categorically concludes that landfilling is the costliest option within the waste management process.

5.6.4. It is clear that the current state of affairs is not contributing to enable Malta to adopt further principles of the circular economy. The €0.5 billion investment in the waste management infrastructure is in itself a more than needed injection in this sector. However, exploiting the full potential of such an investment necessitates behavioural changes by all waste generators, who in turn, depend on the coordination of the political, administrative and stakeholders' efforts and their collective goodwill.

# Appendix I – WEEE categories

## **S.L.549.89**

Regulation 2(3): These regulations shall apply to electrical and electronic equipment (EEE) as follows:

- (a) from the coming into force of these regulations until 14 August 2018 subject to sub-regulation (1) of regulation 4, to EEE falling within the categories set out in Schedule 1. Schedule 2 contains an indicative list of EEE which falls within the categories set out in Schedule 1 [...]

## **Schedule 1**

(Regulation 2(3)(a))

Categories of EEE covered by these regulations during the transitional period as provided for in regulation 2(3)(a)

1. Large household appliances
2. Small household appliances
3. IT and telecommunications equipment
4. Consumer equipment and photovoltaic panels
5. Lighting equipment
6. Electrical and electronic tools (with the exception of large-scale stationary industrial tools)
7. Toys, leisure and sports equipment
8. Medical devices (with the exception of all implanted and infected products)
9. Monitoring and control instruments
10. Automatic dispensers

