

# 1.0 Factsheet – Malta

This factsheet analyses the situation regarding waste management policies and practices in Malta, the focus being on municipal solid waste (MSW). The basic aim of the factsheet is to identify potential deficiencies in waste management practice implemented in the country that could lead to non-compliance with EU waste legislation, in particular the waste hierarchy and the EU waste management targets.

The following table presents some basic data and information related to current waste generation and management in Malta, which the following analysis was based on.

**Table 1-1: Basic waste management data for Malta**

| Population / Households (National Statistics Office)                        |   |
|---|---|
| Total inhabitants (2011)  | 417,546   |
| Dwelling stock (2011)   | Total: 223,850<br>Occupancy rate 68.2%: 152,770<br>Plus secondary use / seasonal properties 13.3%: 29,848                     |
| Municipal Waste Generation (Source: National Statistics Office data)        |   |
| Total (tonnes in 2015)  | 246,251   |
| Total (kg/cap/annum, 2013)  | 579   |
| Household Waste Composition (Source: Waste Management plan)                 |   |
| Food  | 52%   |
| Paper & cardboard   | 18%   |
| Plastic containers  | 12%   |
| Glass   | 6%  |
| Metal   | 4%  |
| Textiles  | 2%  |
| Hazardous   | 0.5%  |
| Other   | 7%  |
| Municipal Waste Management (Eurostat 2013 data)                             |   |
| Recycling   | 19,425 tonnes or 7.9%   |
| Composting  | 12,092 tonnes or 4.9%   |
| Waste landfilled  | 196,354 tonnes or 79.7%   |
| Difference between waste generation and waste treatment                     | 17,690 tonnes or 7.2%   |
| Performance Against Targets   |   |
| Waste Framework Directive: Recycling accounted against calculation method 1 | 22% for 2013  |
| Landfill Directive  | 119,452 tonnes of biodegradable waste to landfill for 2013 against target of 106,019 tonnes biodegradable waste for that year |

| Existing Waste Management Infrastructure     |   |
|--|---|
| <b>Mechanical biological Treatment (MBT)</b> | Sant' Antnin:<br>Maximum permitted throughput: 71,000tpa<br>AD capacity: 35,000 tonnes/annum<br>A second similar (slightly larger) facility currently in development at Maghtab |
| <b>Engineered landfills</b>                  | Both within the Maghtab Environmental Complex:<br>Ta' Zwejra landfill operating since 2004<br>Ghallis landfill operating since 2006   |
| <b>Thermal treatment</b>                     | Marsa incinerator capacity 13,000tpa<br>currently used for clinical and hazardous waste   |
| <b>Bring sites for recycling</b>             | 400 sites operated by packaging complianceschemes plus 430 operated by private operators<br>(i.e. one per 500 inhabitants, or one per 184 occupied households)                  |
| <b>Civic amenity sites</b>                   | 6<br>(i.e. one per 69,600 inhabitants, or one per 25,500 occupied households)   |
| <b>Sorting facilities</b>                    | A 36,000 tpa sorting facility at Sant' Antnin operated by WasteServ plus currently 10 private sorting facilities for collected recyclables                                      |

From the data in Table 1-1, municipal waste<sup>1</sup> generation in Malta is rather high (580 kg/cap/y), though this may in part be due to the touristic nature of the country. In 2013 Malta received almost 1.6 million tourists to the islands, with a calculated average tourist population of around 23,000 at any one time (i.e. over 5% of the national population).<sup>2</sup>

Waste management relies heavily on waste disposal and this is not in line with the EC and national legislation and targets. There is currently only one waste management (MBT) facility in operation for municipal waste, while a second one is due to be operational by the end of the year. Untreated residual waste plus non-recycled outputs from MBT are disposed in Malta's managed landfill.

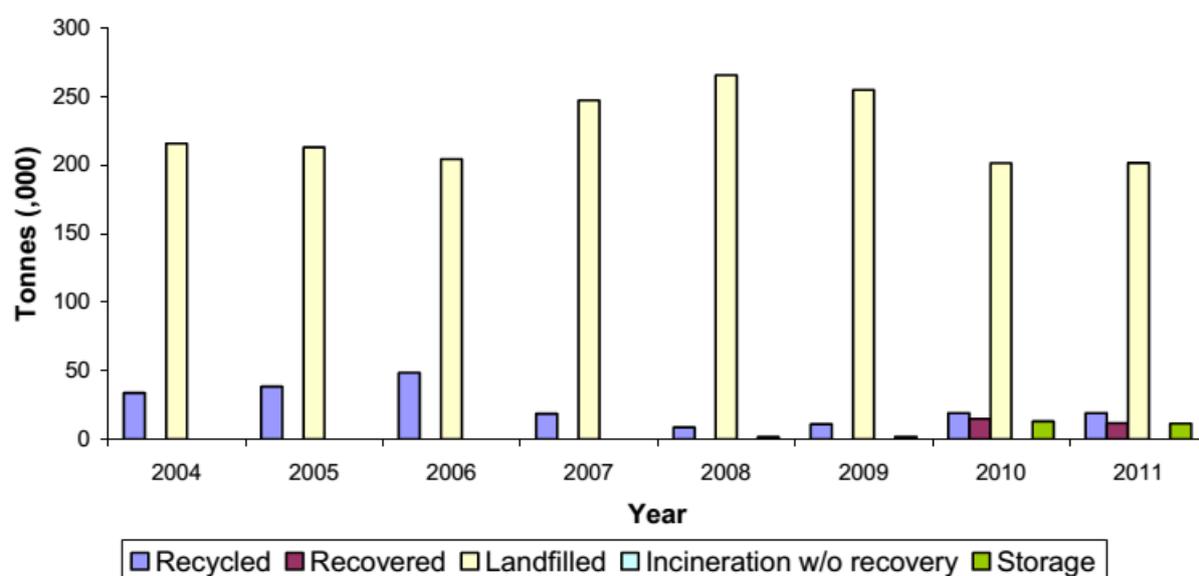
Figure 1.1 presents the evolution of waste management practices over time. The more recent data from 2012 and 2013 shows very little change from the situation in 2011.

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<sup>1</sup> The Maltese definition of MSW, and inclusion of specific waste sources, matches the current EU intended definition of MSW. The definition is laid down in Article 4 of the Waste Regulations 2011 (L.N. 184 of 2011), where Malta defines MSW as "waste from households, as well as other commercial, industrial and institutional wastes which, because of its nature or composition, is similar to waste from households".

<sup>2</sup> Malta Tourism Authority (2014) *Tourism in Malta – Edition 2014*,  
<http://www.mta.com.mt/loadfile.ashx?id=35826ea6-5e00-4f64-8ad7-c5de2cc2c31d>

**Figure 1.1: Evolution of Municipal Waste Management in Malta 2004 - 2011**



Source: Malta WMP 2014-2020

## 1.1 Roles and Responsibilities of Key Actors

The “Ministry for Sustainable Development, the Environment and Climate Change” (MSDEC) holds overall responsibility for waste policy. This remit has been transferred to MSDEC from the Ministry for Resources and Rural Affairs who previously produced the 2010 policy statement “*A Solid Waste Management Strategy for the Maltese Islands: First Update - December 2010*”. The MSDEC recently authored the “*Waste Management Plan for the Maltese Islands 2014 – 2020*” (WMP) declaring that this supersedes the previous strategy, and brings together the policy statement, waste management plan and prevention plan into the one document.<sup>3</sup> In addition to this, within the MSDEC, the Directorate for the Environment and Climate Change also plays a monitoring role in the implementation of environment and climate related strategies and action plans.

As part of reforms to comply with requirements in joining the EU, the “Malta Environment and Planning Authority” (MEPA) (which falls under the remit of the Office of the Prime Minister) was established through the merger of the former Planning Authority and Environmental Protection Department in 2002, and operates under the mandate of Chapter 504 of the Laws of Malta (the Environment and Development Planning Act). MEPA is the competent authority responsible for environmental regulation and land use planning in Malta. Its responsibilities include land use planning, licensing, permitting, environmental monitoring, enforcement, as well as providing input to the Office of the Prime Minister and the MSDEC on waste plans and policies. The government has programmed to separate the planning and environmental protection remits of MEPA through splitting the organisation into two separate public authorities, though this has yet to be implemented.

<sup>3</sup> Ministry for Sustainable Development, the Environment and Climate Change (2014) Waste Management Plan for the Maltese Islands: A Resource Management Approach 2014-2020, Final Document January 2014

The separation of the planning and environmental protection remits of MEPA has been discussed and passed through Parliament in the last quarter of 2015. This separation also includes an administrative reconstruction which places the environmental protection authority under the same administrative remits of the MSDEC. This should alleviate resources issues and render the services more efficient, especially in their enforcement actions and data collection. The Ministry is confident that with the instruction of new measures and new MBT plants, performance will improve significantly in a relatively short period of time, given the size of the islands and its population.

In addition, under the responsibility of the MSDEC, "WasteServ Malta Limited" was set up as a private company in 2002 to provide facilities and services in relation to waste management. The Maltese Government owns 99.999% of the share-holding of the company (the balance is held by the Malta Investment Management Company Ltd), with management and administration of the company vested in an independent board of directors. The intention is thus to separate the government's function as legislator and regulator from its role as an operator.

WasteServ's remit is to organise, manage and operate integrated systems for waste management. This is intended to include minimisation, collection, transport, sorting, reuse, recycling, treatment and disposal of solid and hazardous waste, as well as operating systems for the export of waste. There is a current drive to outsource waste operations to the private sector as much as is possible, leaving WasteServ as an "operator of last resort". It was understood from discussions within the workshop that the company does not currently have the power to set the prices for treatment costs, although it is nonetheless expected that WasteServ should make a profit. Through its board of directors, WasteServ does, however, have the remit to make the necessary recommendations for pricing which take into account investment and potential profit margin.

The function of waste collection and street cleaning has been decentralised to local councils. The 68 councils in Malta and Gozo have individual responsibility for setting up separate collections in law, and in turn contract these services out to the private sector through publicly awarded contracts. Responsibility for delivery of the targets does not seem to have been devolved to councils in the legislative sense. However local councils are considered key to the success of the WMP by virtue of their role in collection and management of MSW. The WMP also encourages councils to band together into regions and to jointly procure waste services, though it is not clear how this will work in practice. Local councils have in many cases collaborated with WasteServ and the compliance schemes for the provision of "bring in" recycling sites. Representing the interests of local councils at the national level is the "Local Councils Association". The "Department for Local Government" under the "Ministry for Justice, Culture and Local Government" takes the centralised responsibility for local councils as well as offering management and administrative support together with statutory funding.

Additional public bodies with a remit which touches upon municipal waste include:

- The National Statistics Office (NSO), the Competent Authority responsible for the Waste Statistics Regulation, hence charged with compiling data and reporting on waste.<sup>4</sup>
- The Ministry for Finance, to whom all public administrations are answerable.
- The Ministry for European Affairs and Implementation of the Electoral Manifesto, who deal with relations with the European Union, as well as EU funds and programmes.
- The Managing Authority within the “Planning and Priorities Coordination Division” of the “Ministry for European Affairs and Implementation of the Electoral Manifesto” has a scope which includes EU funding for the waste sector.

In addition to WasteServ, the private sector is also involved with the delivery of waste collection and management services under contract with the local authorities.

The WMP confirms there are also responsibilities placed on householders, including the requirement to separate dry recyclables, separate biowaste, to co-operate with councils and to ensure that their waste is managed by a person in possession of a permit. The responsibility of the householder ends at the point of collection by the waste carrier.

No allocation of responsibility for meeting targets has been placed upon local authorities or other body, meaning that the national government (or the department with lead responsibility for waste - MSDEC) holds the responsibility for delivery of the targets set out at a European level.

## 1.2 Summary of Legislative Framework for Waste Management

The relevant laws implementing the European Directives in relation to MSW are:

- The Waste Framework Directive (WFD) is enacted through the Waste Regulations, 2011.
- The Landfill Directive is enacted through Waste Management (Landfill) Regulations 2002.

Related regulations include:

- The Packaging and Packaging Waste Directive is enacted through the Waste Management (Packaging and Packaging Waste) Regulations, 2006.
- The Eco-Contribution Act 2004 has also been enacted to encourage the separate collection and recycling / recovery of packaging waste. The Eco-Contribution is a charge intended to be paid to the VAT department when a product is sold, transferred, disposed of, or changes its nature (it is not clear how the charges are applied and returned to the VAT department in these latter cases).

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<sup>4</sup> NSO’s reporting obligations with Eurostat include the bi-annual reporting for the Waste Statistics Regulation and the annual reporting for the Municipal Waste Indicator. Other waste related reporting obligations fall under the remit of MEPA.

## 1.3 Status of Waste Management Plan(s)

The new national Waste Management Plan for the nation state of Malta was completed and legally adopted in January 2014. As identified above, this replaces the previous plan and also the previous strategy document (last updated in December 2010), thereby bringing the policy direction function of a strategy within one unified national waste management plan. The aim is that the 2014 plan is revisited and revised every three years (the plan states that it is to be evaluated and revised as appropriate and where relevant by 2016).

## 1.4 Summary of the Key Objectives of the Plans

### 1.4.1 Waste Management Plan(s)

The WMP proposes the following initiatives:

- A review of collection systems to increase recycling, provide source separated organic waste, and reduce residual waste. This was due in 2015 to coincide with the completion of the North MBT plant so that source separated organics can be treated as a clean stream within the anaerobic digestion element of the plant;
- The introduction of organic waste collection to improve Malta's MBT operations (where the 'biological' component of MBT is used for source separated waste) and to reduce biodegradable municipal waste to landfill. This is intended to be piloted in five localities in the first phase, followed by a further four localities in the second phase;
- The regulation of commercial entities, who are obliged to have their own waste carrier, but most of whom have, to date, illegally added waste to local council collection systems to the detriment of public finances;
- Removal of the eco-contribution legislative framework on EEE in order to reduce administrative burden and encourage the setting up of more producer responsibility schemes;
- Ongoing national information and awareness campaigns to accompany the implementation of the plan;
- Enhancing the enforcement capabilities;
- Independent auditing of producer compliance schemes.
- In addition, the following are also proposed:
  - A cost benefit analysis to establish the most economically and financially feasible option between local thermal treatment and the export of waste for energy recovery;
  - Increased involvement of the private sector further in the waste management sector;
  - Consideration of the setting up of a Waste Management Stakeholders Group in order for Government to regularly engage interested stakeholders on the achievements and proposals being contemplated such that constant feedback may be sought from those directly involved in the sector;

Aspects of the plan are thought to be dependent on a number of other documents or work programmes (some of which are expected to currently be in development), specifically the:

- Review of collection systems;
- Review of the strategy for the reduction of biodegradable waste from landfill;
- The regulation of commercial entities to counter the abuse of household collection systems;
- Review of polluter pays principle;
- Cost benefit assessment relating to thermal residual waste treatment.

Malta is small geographically and by population and as such there are no regional plans to consider.

The WMP has been evaluated by BiPRO in a recent project for the European Commission where it is rated to be legally compliant with the minimum mandatory requirements included in the WFD.<sup>5</sup> Overall, the WMP is rated by the BiPRO report as follows, with a small number of strengths and weaknesses identified:

*“The WMP is generally well worked out and compliant with the WFD. Information about all waste streams is included, however some information could be elaborated in more detail. Therefore the WMP is rated as “Adequate”.*

Strengths:

- *WMP is complete in the sense of the WFD.*
- *MSW generation prognosis until 2020 included in the WMP based on average change in the waste generation of 0.33% and demographic growth of 0.41%.*
- *All waste streams are included.*

Deficiencies:

- *Information about targets/requirements is included for most issues, however not complete for biodegradable waste going to landfills.*
- *Some missing information for waste streams, e.g. trends of last years, specific collection system.”*

The WMP itself states that it will be evaluated and revised as appropriate and where relevant by 2016. Additionally, the WMP commits to annual (or periodic in the case of percentage biodegradability of MSW) monitoring the relevant waste streams, infrastructure capacities and performance so as to aid in determining the success of the plan.

## 1.4.2 Waste Prevention Plans

The waste prevention plan has been integrated within the 2014 WMP. It may be noted that within the national law, the 2011 Waste Regulations (L.N. 184 of 2011) allow for waste prevention programmes to be integrated into the waste management plans (no later than

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<sup>5</sup> BiPRO (2014) Detailed evaluation report for assessing the waste management plan of Malta – National, report the European Commission, 3 December 2014

12 December 2013) provided that prevention measures are clearly identified. The WMP was, however, issued slightly later than this in 2014.

The European Topic Centre on Sustainable Consumption and Production (ETCSCP) has completed a review of the waste prevention element of the WMP.<sup>6</sup> This confirms that the prevention programme describes specific targets, particularly in food waste prevention, including a specific target to lower food waste from 22% to 15% over a period of five years (these percentages relating to the amount of purchased food being wasted and sent to the solid waste stream).

Prevention measures include the following:

- Working with businesses to become waste champions;
- Discouraging unwanted mailings by encouraging operators to examine opportunities for using virtual marketing media, and encouraging catalogue companies to favour online distribution of catalogues;
- Various educational initiatives, including training for public administration employees and working with schools, and engagement of the media (including television programme producers) to develop television programmes on cooking with leftovers.

The waste prevention plan (within the WMP) concludes by stating that “Government is considering setting an appropriate governance framework for the implementation of this Plan”. In this regard, it can be considered that although a number of waste prevention areas and activities are identified, ownership of the initiatives and responsibility to deliver the objectives are not yet properly assigned.

## 1.5 Progress towards the Fulfilment of Targets

### 1.5.1 Landfill Directive Targets

Following accession to the EU in 2004, Malta closed its unmanaged landfills and, supported by EU funding, has put in place two engineered landfills within the one site in the north of the main island (the Magtab Environmental Complex), these being the Ta’ Zwejra and Ghallis landfills.

Malta has a four-year derogation on the due date for achievement of the biodegradable tonnage targets, so the relevant target years are 2010, 2013 and 2020. The 2014 WMP indicates that the reference year against which landfill tonnages are to be measured is 2002. The tonnage of biodegradable waste against which Malta’s performance is measured is 141,360 annual tonnes, meaning that the 2010, 2013 and 2020 targets are 106,019, 70,679 and 49,476 tonnes respectively.

The latest data from the NSO (in turn referenced to WasteServ) on the generated quantity of MSW was 246,251 tonnes for 2015. Eurostat data indicates that 196,354 tonnes of municipal waste were landfilled in 2013, confirming the current reliance on landfill in Malta.

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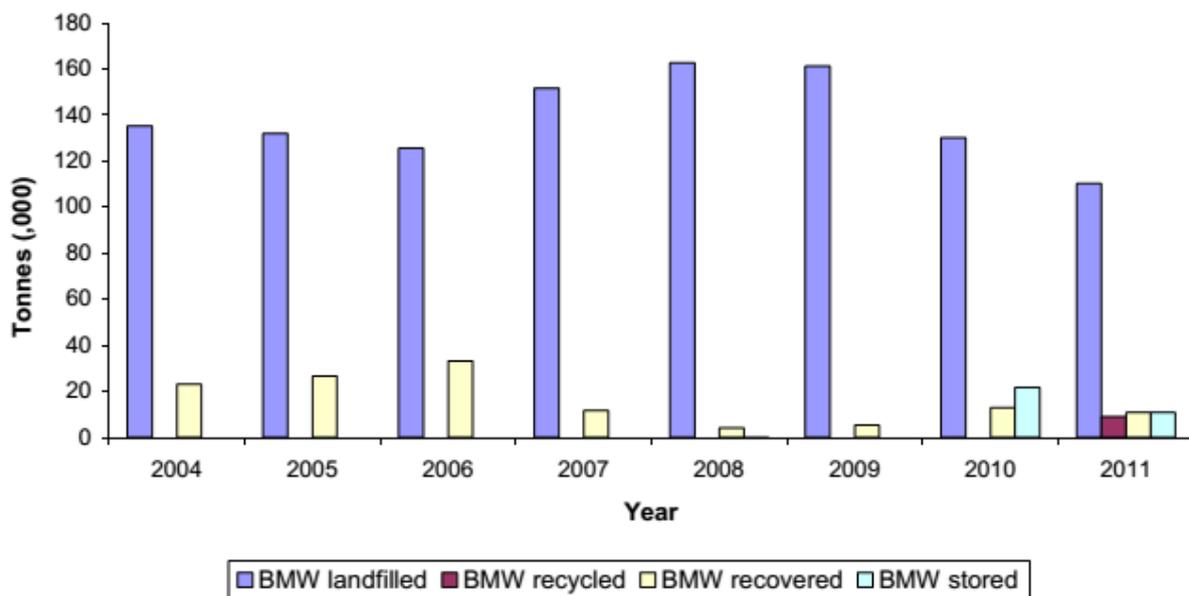
<sup>6</sup> ETCSCP (2014) *Full country abstracts on waste prevention programmes: Malta*, <http://scp.eionet.europa.eu/facts/WPP/malta>

The WMP suggests that 66% of mixed MSW is biodegradable (food waste alone represents 52% of the household waste composition). Data on biodegradable waste in the WMP (also shown in Figure 1-1) indicates that 130,198 and 110,253 tonnes of biodegradable waste were landfilled in 2010 and 2011, respectively, and additional data provided from an information request for this the current study suggests the quantities were 120,773 and 119,452 tonnes for 2012 and 2013, respectively.<sup>7</sup> This confirms that Malta has already contravened its obligations under the Directive for both the first and second target years.

Although the second MBT facility and any forthcoming improvements from separate collection reforms could help improve the situation, waste is projected in the WMP to grow by around 25,000 tonnes between 2013 and 2020 within the WMP presenting a further challenge to the upcoming targets.

Furthermore, the intention is effectively to split the MBT operations into effectively two separate components - anaerobic digestion of source separated organics and mechanical separation of residual waste (with non-recycled content to landfill). Given this, the biowaste diversion capability of the overall waste management systems are consequently reliant on very effective biowaste collection systems being put in place.

**Figure 1-1: Historic Biodegradable Waste Management in Malta**



Source: 2014 WMP

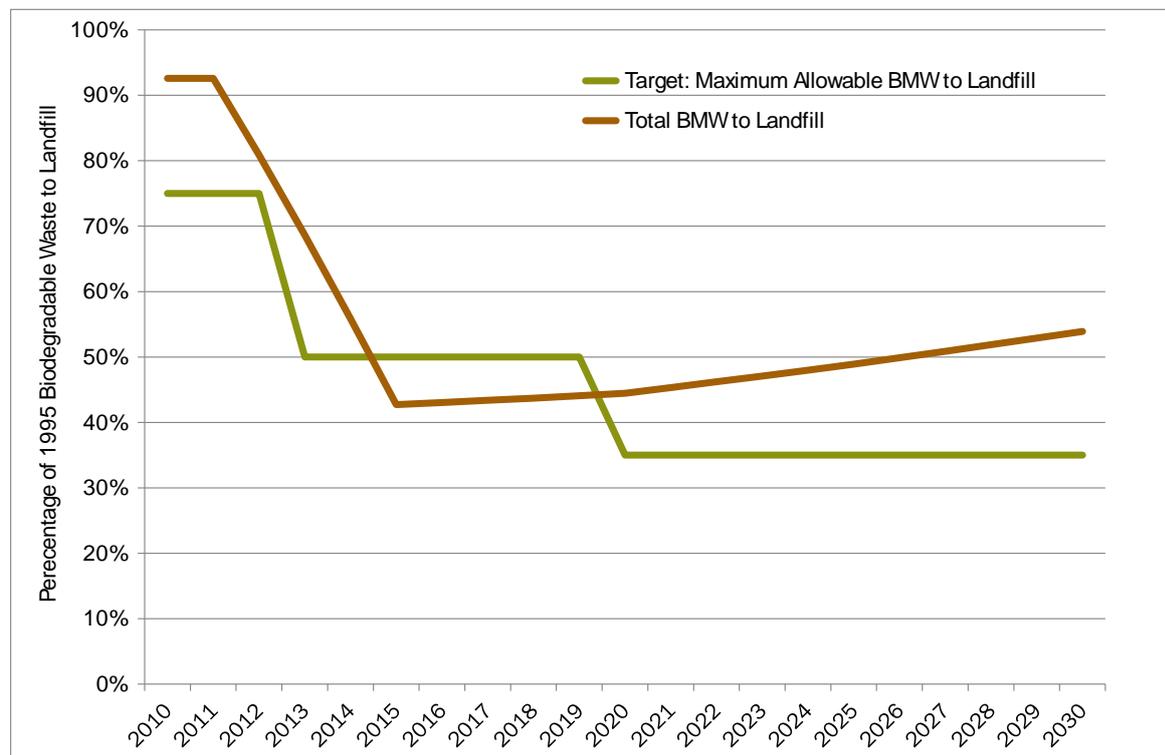
Concerning data quality, the tonnage to landfill quantities might be expected to be better than the wider data on waste (discussed further in Section 1.5.2) as they are compiled by landfill operators WasteServ.

Eunomia previously reviewed Malta’s performance against the LFD target for DG Environment during the development of the waste model. Two baselines were modelled,

<sup>7</sup> EU Secretariat for the Ministry For European Affairs And Implementation Of The Electoral Manifesto, personal communication, 8<sup>th</sup> June 2015

one assuming that the MBT North facility comes online in 2015. This projection is shown here in Figure 1-2, and suggests that the achievement of the highest (3<sup>rd</sup>) target will be problematic although the 50% target might be reached once the North treatment plant is operational. This projection was made before the launch of the WMP and the further detailed information gathered as part of this exercise, and assumed that take-up of bio-waste services is relatively low, and similarly poor performance for recycling collection. The situation could improve if the forthcoming collection reforms present binding and effective improvements to municipal waste management in the coming years. However, given that current proposals suggest the MBT facilities will not be performing a biological function on residual waste, if the non-recycled output stream is landfilled, this issue could worsen the outlook.

**Figure 1-2: Projection of Performance against Landfill Directive Obligations**



Source: Eunomia (2013) for European Commission as reported within: Eunomia Research & Consulting / Copenhagen Resource Institute (2014) Development of a Modelling Tool on Waste Generation and Management – Appendix 1: Baseline Report, Final Report under Framework Contract ENV.C.2/FRA/2011/0020

### 1.5.2 Waste Framework Directive Targets

Malta has opted for calculation method 1 (the proportion of reused and recycled paper, metal, plastic and glass to the generated quantity in household waste) to report progress against the WFD targets. Due to opting for calculation method 1, it is not possible to quantify performance directly from the data reported to Eurostat, but data in the WMP for 2011 and further data provided to us by MEPA and the NSO do reveal Malta’s recent performance.

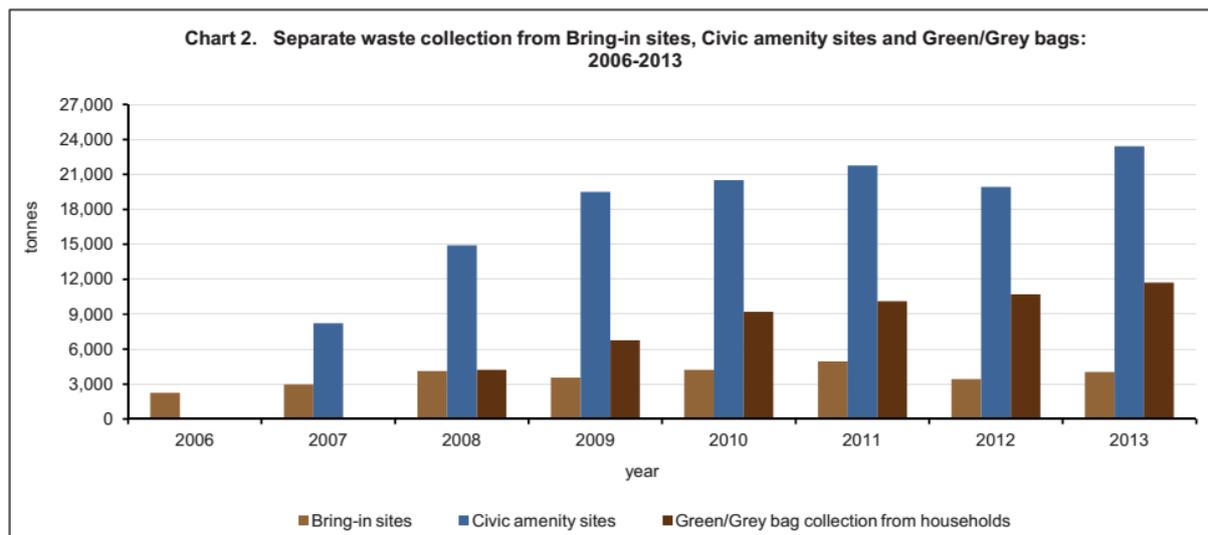
Although recycling has increased over the past decade due to the introduction of kerbside recycling and civic amenity sites (in addition to ‘bring-in’ recycling sites provided in previous years), information from the National Statistics Office, reproduced in Figure 1-3, reveals that

very little change in separately collected waste has occurred within the current decade. From information provided by MEPA following a data request as part of this project, the overall household waste recycling rate (as intended to be calculated for the 2020 Waste Framework Directive target) has stagnated at 23%, 23% and 22% for 2011, 2012 and 2013 respectively.<sup>6</sup> Malta thus continues to be some way from the 2020 target, with at least double this rate of recycling needed by 2020.

Concerning these statistics, we are also told that *“In the method used both the amount of waste generated and the amount of waste recycled include a percentage of commercial waste”*, indicating some issues inherent to the data collection and management. It was understood from the workshop that WasteServ and MEPA provide data on tonnages to the NSO. All waste facilities are required to report this information to MEPA as a condition of the operating permit. However, participants in the workshop indicated that not all facilities have weighbridges, reducing the quality of the information returns.

The WMP identifies that commercial businesses are known to put waste out for collection by household collection services in spite of being obliged to contract for the service separately. To what extent this practice also occurs for recycling is not known. With such practices occurring, the calculated statistics for household recycling lose some accuracy.

**Figure 1-3: Separate Waste Collection Data**



Source: NSO (January 2015) News Release: Solid Waste Management 2013, [https://nso.gov.mt/en/News\\_Releases/View\\_by\\_Unit/Unit\\_B3/Agricultural\\_and\\_Environment\\_Statistics/Pages/Solid-Waste-Management-in-Malta.aspx](https://nso.gov.mt/en/News_Releases/View_by_Unit/Unit_B3/Agricultural_and_Environment_Statistics/Pages/Solid-Waste-Management-in-Malta.aspx)

Indeed, there appears to be limited certainty with regards to the national waste statistics. The BiPRO evaluation report identifies that data from the WMP and EUROSTAT do not compare, with data for recycling and recovery showing discrepancies greater than 20%.<sup>8</sup>

<sup>8</sup> It is understood that differences in definitions and methodologies which arise from the different European reporting obligations are the main reason why there seems to be a discrepancy in results; NSO and MEPA apparently use the same source data for their respective reporting obligations.

There are also discrepancies in the data within the WMP with the data provided in the NSO annual statistical release on solid waste management, making it difficult to have good certainty on the real situation in Malta.

A number of data quality deficiencies were identified in the (repealed) 2010 waste strategy:

*“The scope and quality of data and information about wastes and waste management activities have improved to some extent in recent years, but there are still some major gaps and weaknesses, notably:*

- insufficient or inadequate data and information about some waste streams e.g. the quantities and types of hazardous wastes; the composition of MSW;*
- insufficient or inadequate data and information about some waste producers, transporters and facilities; and*
- the lack of a comprehensive system and procedures for classifying, collecting, processing, analysing and disseminating data and information on wastes and waste management activities in a consistent and standardised format.*

*[...] The Malta Environment and Planning Authority is responsible for developing and managing a national waste management information system. This entails a high level of cooperation and input from the National Statistics Office (NSO) [...]. Implementation requires the establishment of a national computerised database for data storage, processing and retrieval, supported by integrated systems and procedures for data gathering, verification and reporting. This information system should also cater for dissemination to the public of waste management information and data. MEPA shall also compile a Waste Management Register, which would provide the public with information about all permitted waste facilities and activities. This register shall be made available online on the MEPA website.*

*[...] Little progress has been registered on actually developing waste management data and information systems. This issue needs to be given higher priority during the lifetime of the revised strategy.*

*The NSO has a major role to play in advising on the methodologies that need to be employed for data collection as well as to identify the best way in which the data can be collected. The NSO also has a determining role in transmitting and making that data available to all interested parties.*

An accessible waste register remains unavailable at MEPA (or NSO). However, the National Statistics Office 2014 Annual Report states that *“In the past year, the [Agriculture and Environment] Unit improved the existing data collection programmes in respect of specific requirements for waste statistics and energy statistics.”*<sup>9</sup> Feedback provided by the authorities during the development of this factsheet indicates that waste management data has improved considerably in recent years with the consolidation of existing administrative data sources (e.g. WasteServ, trans-frontier shipments of waste) and the development of new data sources (e.g. private facilities).

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<sup>9</sup> National Statistics Office (2015) Annual Report 2014, ISBN: 978-99957-29-53-0, [nso.gov.mt/en/nso/About\\_NS0/Documents/Annual\\_Reports/AnnualReport2014.pdf](http://nso.gov.mt/en/nso/About_NS0/Documents/Annual_Reports/AnnualReport2014.pdf)

The WMP notes that there is currently no requirement for local authorities (charged with collecting the waste) to record and report collected waste quantities, although, as was indicated above, facility operators are charged with reporting this information. Further progress is thus needed on allocation of responsibilities for collecting and reporting waste data, as well as advancement in accessible systems for data management to more conveniently and robustly compile waste data. There are also difficulties in obtaining data in a timely fashion from the operators.

The new plan has only recently been adopted, and collection system reforms (discussed further in Section 1.6.3) are yet to be finalised, so the full influence of forthcoming changes are yet to be felt. There remains a risk that intentions announced through the collection reform package will take some time to be implemented, and that changes in performance may be slow to occur.

Additionally, compliance and enforcement activity has been identified in the WMP to have been particularly weak and ineffective in Malta. The WMP announces the intention to review the existing enforcement resources and also to strengthen enforcement activity to ensure waste systems operate as intended. The identified measures include financial penalties for delayed reporting of waste activity/data, certification against free-riders (anticipated to tackle businesses not paying for waste), a shift away from enforcement reports triggered only in writing, and Local Councils to be the legal holders of waste collected from their communities. A strong focus on specific issues and the intended enforcement measures to tackle them, backed by sufficient resources, will be necessary in the coming years.

Further aspects relevant to collection systems and hence the impact on achievement of targets is discussed in Section 1.6.3.

## **1.6 Implementation of Specific Waste Framework Directive Articles**

### **1.6.1 Article 4: Application of the Waste Hierarchy**

The waste hierarchy is implemented through Schedule 5 of the Waste Regulations in Malta which stipulates the priority order to be followed as is contained in the Directive (the WMP refers to the Regulations to confirm this). The Regulations state this is to be applied by the “competent authority”. It is not entirely clear which body has ultimate responsibility for this: the Regulations direct the reader to the Environment and Development Planning Act for the definition of the “competent authority” which, in turn, suggests the body to be MEPA (in its current form, though the planning function is programmed to be split from the environmental protection one) or another authority to which power has been delegated. The latter could therefore presumably include local councils although this is not explicitly stated.

Malta’s response in the implementation report for the Directive on this issue does not explicitly indicate that this responsibility has been devolved to either local authorities or waste collectors; it indicates that the Maltese government has, through WasteServ, established the infrastructure necessary to meet the requirements stipulated by application of the hierarchy but does not provide further details. It is difficult to accept this as a sound justification for application of the waste hierarchy since establishment of infrastructure does

not in itself facilitate activities at the top of the hierarchy (prevention, recycling etc.). Furthermore, as noted above, the intention is for WasteServ to become less prominent over time as activities are delivered, progressively, by independent private sector companies.

Current recycling rates in Malta are relatively low and with very low landfill gate fees (€20/tonne as identified in Section 1.6.4 below) there is still a strong reliance on landfill, indicating that the waste hierarchy is not respected at present. The authorities signalled at the workshop that there were national constraints to significantly increase the charges associated with landfilling, although the Commission understands that there is a desire to establish inter-municipality services so as to reduce costs and increase efficiency.

## 1.6.2 Article 10: Recovery

Article 10 of the Waste Framework Directive (requiring Member States to take measures to ensure that waste undergoes recovery operations) does not appear to have been directly transposed into the Waste Regulations. However, the implementation report for Malta on the WFD says the following on the subject:

*In accordance with paragraph 11 of Schedule 5 laid down in the Waste Regulations (LN184/11; as amended), measures to ensure that waste undergoes recovery operations in accordance with the waste hierarchy and to safeguard human health and the environment are to be addressed in Malta's National Waste Management Plan, which is currently under review.*

*Having said so, dry recyclables such as metal, plastic, paper/cardboard and glass are collected separately, either through the use of bring-in sites or through door-to-door collection of comingled paper, plastic and metal. Dry recyclables are then sent to local material recovery facilities. These waste streams are sorted both mechanically and manually. The latter operation is intended to remove contaminants and to separate recyclable streams collected together.*

Door-to-door collection of dry recyclables now takes place across all Malta at least one day per week, and in certain localities even two days per week. These collection systems complement the network of bring-in recycling sites. However, in spite of this, and with food waste collection not introduced, the national recycling rates are low and the rate of landfilling is very high, suggesting that the measures taken to ensure recovery are not sufficiently effective.

More information is needed to understand the extent to which separately collected and sorted materials reach reprocessors for recycling, and which are managed by other means (i.e. energy generation, secondary market applications or landfill disposal).

Concerning the residual treatment infrastructure, until this time the Sant' Antnin MBT facility has used a mechanical treatment plant to separate organic waste for treatment in an anaerobic digestion facility, where other source separated biodegradable waste is also digested. Some recovery of metals etc. is achieved from the remaining residual waste, with the remainder being landfilled. Operational issues and a mechanical breakdown of the AD component of the Sant Antnin MBT facility has prompted the plan for source separation of biodegradable waste (which appears a crucial development for better integrated waste management), though this is currently set to be put in place only slowly, following trials in one region only in the first instance. A second, larger, MBT plant at Maghtab is expected to

come on stream during 2015 (as indicated within the 2014-20 WMP), intended to follow the same modified approach as for Sant' Antnin (i.e. a materials sorting facility for residual waste with outputs to recycling and landfill, and a separate biological treatment facility for source separated wastes only). However, in the absence of established separate food waste collection systems, how this is intended to operate from the outset is not clear.

A small incinerator (13,000tpa capacity, recent annual average 6,600tpa) is also present, though this has so far been used almost exclusively for waste from animal by-products, clinical and hazardous waste. The NWP announces the intention to undertake a cost benefit analysis to decide between local thermal treatment and export of waste for energy recovery.

### 1.6.3 Article 11: Reuse and Recycling

The separate collection requirement is laid down in national law within the 2011 Waste Regulations, where it is stated that local councils should *“set up separate collection (which includes comingled collection) for at least (a) paper, (b) metal, (c) plastic and (d) glass, in order to promote high quality recycling.”* The duties in the regulation are said to apply only where they are technically, environmentally and economically practicable, and appropriate to meet quality standards necessary for recycling.

Local councils in Malta are charged with organising waste collection. In collaboration with local councils, the packaging waste compliance schemes manage networks of bring sites for recycling, as well as a number of civic amenity sites around the islands. Within recent years kerbside recycling has been introduced widely across the country, with financing provided by packaging compliance schemes (it appears that the intention is that the full costs of this service are funded by the compliance schemes: further detail is provided in Section 1.6.4). Waste collection has been transitioning from a daily residual collection to less frequent residual, and recycling collection on certain days of the week.

The door to door recycling collection systems are a bag collection for mixed paper, plastic and metal containers. This complements the bring-in recycling networks where those materials can also be deposited alongside glass (in some instances glass is also collected door-to-door on a monthly basis). In this respect Malta appears to be complying with the separate collection requirement, though we do not have compiled information on recycling collection frequencies across the 68 local councils.

With levels of household waste recycling having stagnated at just over 20% in this decade, there is a recognition that improvements in waste collection and separation are needed. The WMP states, for instance, *“It cannot be overemphasized enough that the success of the implementation of this Plan and the correct operation of current and projected facilities will depend upon a heightened separation of waste generated at source.”*

Refinements to collection systems are identified in the plan, though these are generally quite weak with no binding obligations made (e.g. *“The frequency of collection of mixed waste can be reduced also as a disincentive towards those who do not commit themselves to separating their waste at source.”*). The WMP describes a *“possible measure that will be considered to improve the existing waste collection systems”*, this being a once weekly residual waste collection, a twice weekly ‘where feasible’ recycling collection, and a two to three times weekly collection of organic waste. Such an approach would be a good step

forwards, but government needs to take decisive action to ensure this is put into place in practice in a sensible timeframe, rather than considering it merely as a possibility.

As is discussed further in Section 1.6.5, the proposed introduction of household food waste collection is intended to tie in with delivery of the second MBT facility at Maghtab. This is to be trialled in 5 localities in the south of Malta and subsequently extended to a further 4 localities, with collected food sent to the anaerobic digester within the Sant' Antnin MBT facility.<sup>6</sup> It was noted in the workshop that the first set of trials are to be rolled out shortly and that WasteServ is now in charge of the project that will take this forward. It would be preferable to de-couple, as far as possible, the move to high quality separate collection systems from the development of facilities designed, in essence, to treat residual waste, rather than seeing separate collection simply as a means to make residual waste treatment facilities operate more smoothly.

The plan suggests that the grouping of local councils into a more regional approach could create better economies of scale. Aggregated collection catchments, together with reforms related to frequency and timing of collections (more evening and night time collection to alleviate congestion issues) are suggested as means to generate savings (presumably in addition to intended recycling performance improvements).

A specific problem identified in the plan is the abuse of the household waste collection system by commercial entities: *“Whilst municipal waste collection is aimed to serve only households, it is known that small commercial and industrial establishments, who are not entitled to have their waste collected under current local council contracts, are inherently abusing the system by ‘piling’ their waste along that of nearby residents.”* This is also stated to cause an issue for councils as their waste budgets are set based on expected levels of household waste generation, so any commercial waste in the system risks being landfilled by WasteServ without the disposal cost being covered from appropriate fees from the commercial companies using the service. The WMP outlines measures that *“will be considered”* including co-collection of commercial and industrial waste with household waste against a fee reflecting the waste arisings, and separate collection of biowaste from restaurants / caterers / retail premises / food processing plants – possibly in colour coded bags to differentiate between commercial and household waste.

The plan states that government will also consider the potential for introduction of a deposit refund scheme on selected recyclables. The latest update on this is that government intends to issue a request for proposals to develop schemes and incentives to recover packaging waste through deposit refund systems. In line with the 2015 budget commitments, Government is also committed to issue a request for proposals for the introduction of a deposit refund scheme for plastic bottles. Preparations on this matter are still underway.

It is not possible to anticipate the effect of the collection system reforms currently intended since there is an absence of certainty and detail as to what will happen (if anything), how they are to be enacted (i.e. within binding regulations), if and when schemes will go national and be implemented on the ground (i.e. through revision to existing collection contracts etc.) and also what enforcement measures will be used.

#### **1.6.4 Article 14: Costs of Waste Management**

##### **Liabilities for the Costs of Waste Management**

There is no PAYT legislation in place at present in Malta and there appear to be no plans to introduce it, although the WMP does state that waste charging is under review. Under the current system, local councils pay for costs for waste management through public funds allocated by Government, these funds being provided, in turn, through general taxation. The collection and management of dry recyclables is funded by packaging producers (as discussed below). Civic amenity sites and bulky waste collection services are also available and free of charge at the point of delivery for households (with WasteServ operating the civic amenity sites, and local councils providing bulky collection services).

Information collected from the authorities during the development of Eunomia's waste model suggests that householders could be dis-incentivised from participating in dry recycling collections as in some areas, a charge is levied for the sacks (it is not clear by whom), but no charge is levied for disposal.

The WMP itself does confirm that small commercial and industrial establishments are adding their waste to that of householders, despite the local councils having no obligation to collect this waste. WasteServ covers the costs where the councils do not have the money to fund the cost of collecting this waste, and thus these costs are ultimately passed back on to government.

Similarly, the plan also talks about the issue of hotel waste. Hotels are obliged to have their own contractor. In general, the local authority is not responsible for collecting this waste, but the need for specific arrangements in areas deemed as tourism areas with large numbers of hotels is foreseen, and under such circumstances the local authority is identified as having a role to play in organising collection of these wastes, provided it is not responsible for funding it.

### **Cost Levels**

It is noted in the WMP that the true cost of waste management is not known, and that *"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 known."* Relatively little information on costs is provided in the WMP.

The cost of disposal to landfill is currently €20/tonne plus VAT (18%) – this being at the lower end of disposal fees in Europe. This fee is a government set figure with no landfill tax currently applied; the cost is laid down in The Deposit of Wastes and Rubbles (Fees) Regulations and is adjusted periodically only to reflect changes to the retail prices index. It may also be noted that the same 'Fees' Regulations fix the MBT gate fee also at €20/tonne, and the charge levied for recyclables is €0.50/tonne. This charge for sorting recyclables may have given rise to the reasonably large number of private sorting facilities in Malta (currently 10).

The WMP proposes that in order to implement the polluter pays principle there will be a review of *"existing landfill gate fees at public facilities to determine whether they are fully reflective of the real cost of operating the landfill (including environmental costs)"*. It is not clear how soon any proposed modification to disposal fees will be enacted, nor what the rates may be. This should be considered a priority as waste will continue to gravitate to disposal so long as the costs are low compared to the economics associated with recycling.

It should be noted that significant increases in disposal cost can have unintended consequences if not backed by effective monitoring and enforcement systems. Efforts will need to be made to prevent disposal in inappropriate locations. Enforcement activities should ensure businesses are subscribing to waste services, incidents of fly tipping are investigated, and relevant waste operators are inspected regularly.

### Producer Responsibility Systems

Work previously undertaken by Eunomia in 2011 considered the costs associated with managing metal packaging. This confirmed that the EPR schemes in Malta were operated at the time by Greenpak and Green.mt (the latter being a subsidiary of the Maltese Chamber of Commerce, and, at the time of writing, operating mainly a bring bank based system). Two separate compliance schemes can be seen as an advantage as this allows for competition in the market. The country also had a separate charge imposed by the Maltese authorities for products (including packaging) placed on the market – the Eco-Contribution. Businesses producing packaging were exempt from the Eco-Contribution if they were contracted to a recycling scheme that met its recovery targets (they can apply for a refund). Local authorities were required to register with Greenpak or Green.mt.

The review of Eco-Contribution is now complete and it is currently intended that other waste streams will follow the same approach now established for packaging – this being that self-complying producers or those subscribing to producer responsibility schemes will be exempt from the eco-contribution (the next sector to be exempt is electronic and white goods, by September 2015, in order for local businesses to compete on a level playing field with other EU Member States).<sup>5</sup>

Greenpak and Green.mt charge fees for their members to support the recycling service. Only fees for the Greenpak scheme were publicly available; these are presented in Table 1-2.

**Table 1-2: Membership fees for Greenpak**

| Material  | Fees €/tonne (excluding VAT)                    |  |
|-----------|---|--|
|           | Consumer packaging (household waste collection) | Store and transport packaging (commercial / industrial waste collection) |
| Steel     | 133.00  | 64.60  |
| Aluminium | 61.75   | 28.50  |

**Note: There is a minimum charge of €150**

Source: PRO Europe (2011) Participation Costs Overview, January 2011

Although PRO Europe has since published more recent information, the later version of the document does not provide a breakdown of the costs of managing the waste broken down by the tonnage of material; instead, the total annual participation cost is provided.<sup>10</sup>

The WMP indicates that the full costs of collection (via bring-in sites or through door-to-door collections) is charged to the producer responsibility organisations. The costs of

<sup>10</sup> PRO Europe (2013) Participation Costs Overview, January 2013

collection services may be charged according to the proportion of time spent collecting recyclables compared to that collecting residual waste (i.e. on 'Recycling Tuesdays' as opposed to other days of the week when residual waste is collected). It is possible that this could act as a barrier to more frequent and widespread recycling collection if there is insufficient money in the system.

The WMP confirms that the private sector is of the opinion that enforcement of the EPR system is relatively weak, with a large number of free riders being seen to compromise the system. It is understood that the regulator currently has limited resources to ensure enforcement of the regime. Workshop participants confirmed that it is intended that MEPA's capacity to enforce the system will be strengthened in future years- EPR measures are being rolled out to cover waste streams like WEEE, batteries and packaging. The authorities explained that there is no recycling re-processing treatment capacity on the islands and that all waste separately collected is exported for recovery.

### 1.6.5 Article 22: Encouraging the Separate Collection of Biowaste

Historically bio-waste has not been separately collected at kerbside, although some collection of garden waste through CA sites occurs.

At present there are no confirmed plans to introduce specific regulations regarding the separate collection of food waste. Although only limited details on the intended reforms to collection services are included within the WMP, the intention to introduce separate collection of biowaste three times weekly is identified as an objective, and these "*may be accompanied by legislative measures*". The implementation report for the WFD similarly confirms there will be introduction of a separate collection system for household biowaste. The WMP itself confirms there will be a responsibility placed on householders to separate bio-waste, though how this is to be enacted and what the consequences of non-compliance will be, are not identified.

The Malta National Reform Programme describes a separate waste collection bag which will cater for the collection of household organic waste. It was confirmed in the workshop that this is intended to be piloted during the latter part of 2015, before being rolled-out nationwide in advance of the launching of the North Mechanical Biological Treatment (MBT) plant<sup>11</sup> (where construction is expected to be completed October 2015<sup>12</sup> and the facility operational by the end of 2015<sup>5</sup>). Alongside this, the frequency of collection of mixed household waste will be reduced from four times a week to twice a week. The pilots will be accompanied with education campaigns on food waste. The necessary infrastructure (mainly anaerobic digestion) to treat the waste will soon be available (see Section 1.8).

There is no evidence of other actions and legislation supporting separate biowaste collection, such as standards for compost and / or digestion residues. Malta's limited land mass is noted in the plan, and this may act, to a certain extent, to limit the development of

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<sup>11</sup> Malta Ministry for Finance (April 2015) *Malta National Reform Programme*, [ec.europa.eu/europe2020/pdf/csr2015/nrp2015\\_malta\\_en.pdf](http://ec.europa.eu/europe2020/pdf/csr2015/nrp2015_malta_en.pdf)

<sup>12</sup> [http://ec.europa.eu/regional\\_policy/en/projects/malta/mechanical-and-biological-treatment-plant-to-treat-mixed-municipal-waste](http://ec.europa.eu/regional_policy/en/projects/malta/mechanical-and-biological-treatment-plant-to-treat-mixed-municipal-waste)

the use of compost, although this is not identified as a threat in the SWOT analysis. The outputs from the anaerobic digestion facilities (once treating source segregated biowastes) are intended to be used on land.

A recent Ministry for Finance document stated that MSDEC launched an education and communications campaign in 2014 to addressing priorities outlined in the Waste Prevention Plan, including prevention, handling and management of food waste.<sup>9</sup>

## 1.7 Summary of Policy Mechanisms and Instruments to Meet Targets

### Economic instruments

There is a differential between cost of landfill, and fee charged on recycling (presumably intended as a sorting facility gate fee at the Sant' Antnin facility); this is stated in the implementation document. These fees are applied to the waste contractor who is, in turn, employed by the local authority. Fees are €0.50 / tonne for recycling plant and €20 / tonne (plus VAT) for landfill. The cost differential is unlikely to be sufficient to stimulate recycling. Consultation undertaken with private sector representatives during the project confirmed there is strong support from this quarter for an increase in the cost of landfilling as the fees do not cover the full cost, although there was resistance from workshop participants to the introduction of a landfill tax. There is also no cost differential between waste treated at the MBT plant in comparison with that directly disposed to landfill.

As was discussed previously, the authorities are reluctant to introduce a landfill tax.

### Legal instruments

Extended producer responsibility ensures some packaging is recycled; there are legally binding targets in the Packaging and Packaging Waste Regulations for recycling packaging out to 2013. Some detail on the current scheme is provided in Section 1.6.4. The review of Eco-Contribution is now complete and it is currently intended that other waste streams (e.g. WEEE) will follow the same approach now established for packaging – this being that self-complying producers or those subscribing to producer responsibility schemes will be exempt from the eco-contribution and this scheme is due to be removed.<sup>13</sup>

The WMP confirms responsibility for delivering household collection is with the local authority. Previous work by Eunomia confirmed through interview with the Ministry that dry recycling collection is funded by authorised recovery schemes which are funded in turn via an agreement between the scheme and the council for the relative cost contribution – it is not clear how this operates in practice. It is intended that this is 100% of the recycling collection cost, potentially with this system sharing vehicles and staff with the residual collection on the other days of the week. This suggests there should be a financial incentive to local authorities for recycling (since recycling days do not incur collection costs to local authorities and all collected recyclables reduce the need for waste disposal); however, given the above cost structures (€20 for disposal against €0.50 for sorting of recycling in public facilities), the incentive is not thought to be a very strong one.

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<sup>13</sup> Plastic bags are also due to be removed from the Eco-contribution scheme

There do not appear to be any sanctions aimed at local authorities in the event that the targets are not reached. In addition, the WMP also confirms there are currently no reporting requirements on local councils, although it is suggested these may be introduced in future.

The WMP suggests a key focus of enforcement activity is on ensuring there are no free riders in the EPR system. Throughout the document though it is confirmed that there is currently a very weak enforcement regime due to insufficient human resource capacity.

### **Information**

The need for education is identified in the plan; the imperative to work with local councils is stated and there is identification of the educational tools that might be required. The intention to undertake further work on education was confirmed by MSDEC in the workshop. It is clear then, that responsibility for this lies with the government; it is not clear how information will cascade down to the councils and others involved in collection / implementation.

A certification scheme for collectors is also proposed in the WMP. This is intended to involve formal training by a competent educational institution. It is noted that MEPA has drafted a syllabus although there is no indication of when this might be put into place.

### **Data**

The plan notes there is currently a lack of precise quantitative and qualitative data on waste and its composition. There appear to be no plans at present to introduce a centralised data reporting system.

### **Compliance with LFD**

Malta has failed to achieve its LFD targets to date according to Eunomia's previous assessment undertaken as part of the European Waste Model project, although it has potential to achieve the second (2013) target shortly when the MBT North becomes operational, so long as effective stabilisation of the biowaste content is achieved.

## **1.8 Investment in Waste Management Infrastructure**

In addition to Malta's two operational landfills at the Maghtab complex, Malta currently operates the Sant' Antnin Solid Waste Treatment Plant in the south of the island of Malta, originally commissioned in 1993.<sup>14</sup> This mechanical and biological treatment facility has historically attempted to separate the biological fraction of MSW from mixed waste (maximum input of 71ktpa) and treat this in an anaerobic digester. Due to ineffective separation and incompatibility of the AD with mixed waste, the digestion plant has suffered mechanical breakdowns, and operates with a much reduced annual throughput (averaging 17ktpa for 2011 and 2012). A composting plant / shed is also present at Sant' Antnin for processing the output from the anaerobic digester, though currently, practically all of this ends up as landfill-cover material (in some years this material has been landfilled). Of the remaining residual waste not sent to the digester, some metals are extracted and a refuse

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<sup>14</sup> Malia E. et. al. (2013) The Sant' Antnin Waste Treatment Plant in Marsascala - Review of operations, July 2013, <https://environment.gov.mt/en/Documents/Downloads/WBRU/Exec%20+%20Full%20Report.pdf>

derived fuel (RDF) output is produced. Although this RDF is said to have good energy potential that may be used as a fuel in waste to energy plants, this material is currently also landfilled. The intention going forwards is to dedicate the AD capacity to source separated organic waste. The intention for the mechanical part of the plant is not clear, though it could tie in with any future options on thermal utilisation of residual waste.

A small existing incinerator, capacity 13,000 tonnes per annum, with no energy recovery is in operation in Marsa. This facility is labelled a hazardous waste incinerator, and is primarily used for animal by-products.

On 22 April 2013, the Malta Environment and Planning Authority approved the planning permits for the development of a new MBT / anaerobic digestion plant in the north of Malta. The facility is expected to be completed and operational in October 2015. It broadly follows the same design of the Sant' Antnin facility, with a mechanical treatment plant and a separate AD based biological treatment plant. The permitted capacity of the plant is:

- 100,000 tonnes per annum of mixed MSW; and
- 47,000 tonnes per annum of bulky waste.
- 39,000 tonnes per annum of organic waste for anaerobic digestion – intended to be source separated organic waste from households plus cow and chicken manure.

Facilities in planning include a waste transfer station in Gozo. Future infrastructure plans noted in the WMP also include the rehabilitation of several landfills and upgrading of the Marsa thermal facility to include RDF capacity.

A sorting facility at Sant' Antnin, Marsascala, is used for sorting, processing and sale of kerbside collected, bring site and other segregated recyclables. The part of the wider Sant' Antnin site is permitted for 36,000 tonnes per annum of mixed recyclables. A public register available at the MEPA website identifies a number of additional facilities permitted for the sorting and bailing of separately collected recyclables.<sup>15</sup>

It is understood that Malta is also considering whether there is a need to develop an incineration facility, or whether additional treatment requirements can be met through the export of RDF.

## 2.0 Summary

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Malta may be commended for putting in place the legal frameworks for waste according to the EU Aquis, for closing its non-compliant landfills replaced by engineered facilities, and starting the journey of putting in place integrated systems for effective waste management. However, the slow pace of service development, disjointed interaction between the waste systems, and lack of regulations and economic drivers mean that these systems are not performing to their potential and Malta is in real risk of continuing to miss the primary targets of the main European Directives on waste.

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<sup>15</sup> <https://www.mepa.org.mt/wastemanagementfacilities>

The strengths of the policies and plans announced to date, together with the effective institutional arrangements for waste management include:

- An existing regulatory framework enshrining the EU law into the national legislation;
- A widespread network of bring-in recycling facilities. Door-to-door recycling collection in place. Civic amenity sites available with opportunities for recycling of materials not collected through door-to-door / bring-in services;
- An 'operator of last resort' (WasteServ) and compliant facilities for the treatment and disposal of residual waste in place. A second MBT facility due to be delivered in the coming months. Non-compliant incinerators and dump sites closed;
- A general intention to reform collection systems, though a lack of firm actions, policies and progress on this issue is a concern;
- Producer responsibility systems in place, though the issue of free-riders appears to be an ongoing problem.

Issues hampering waste management in Malta appear to relate to the following:

- Financial incentives poorly aligned with the waste hierarchy;
- Low cost of waste disposal;
- No food waste collection systems currently being operated, and no current regulations to oblige it to be collected (although trials of collection systems are now taking place);
- Fragmentation of the collection systems with 68 local councils with individual responsibility for waste collection.
- No targets placed on local authorities or collectors currently.
- 'MBT' infrastructure which does not appear to be functioning well;
- Lack of enforcement resources, capabilities and obligations. This is giving rise to the polluter pays principle not being upheld:
  - Free-riders within producer responsibility systems;
  - Businesses free-riding on local authority waste collection systems;
  - Fly tipping of waste.
- Deficiencies in the data on waste.
- Institutional and administrative arrangements convoluted and can impede progress to reforming waste systems and policies.

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