

# WASTE MANAGEMENT PLAN FOR THE MALTESE ISLANDS

*A Resource Management Approach*

2014 - 2020

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MINISTRY FOR SUSTAINABLE DEVELOPMENT,  
THE ENVIRONMENT AND CLIMATE CHANGE

## Foreword

It is my pleasure to be able to present Malta's Waste Management Plan for the Maltese Islands which covers the period up till 2020. We have purposely given this Plan a resource management approach for we firmly believe that waste is increasingly becoming a resource from which we do not only derive recycled materials, that lengthen the life cycle of virgin resources, or embedded energy but also a greener economy and the creation of more green jobs in line with the architecture of modern economies.

I am proud at what we have been able to achieve in such a short time. Upon coming into office we found that we had a very tight deadline by when to submit Malta's Waste Management Plan and Waste Prevention Plan. I was firmly of the belief that success in this sector can only be achieved if society were to make the required commitment. To this effect the authors of this Plan agreed to undertake as wide a consultation exercise as possible during which we met interested stakeholders, initially, without any preconceived ideas and, later, put out a draft Plan for further consultation in parallel with an SEA which was being conducted *pari passu* with the development of this Plan.

On paper, I am confident that the Plan will find the approval of a wide majority of society whatever walk of life they come from. However, the proof of the pudding is in the eating and this Plan's success on the ground can only be achieved if every member of society assumes his and her responsibility in committing to the national waste management agenda. What we are proposing is not any different from success stories in other fellow European countries and which have come about through multi-stakeholder commitments. Malta is a very small country where the impacts of environmental problems can be felt throughout the islands. Therefore no one can be detached from this problem. It is now time to turn this challenge into an opportunity.

Better waste management practices, including minimizing our waste, will undoubtedly re-size the problem we are faced with, require less of an infrastructure and hence have a lower impact on the environment. An out of sight, out of mind approach can only lead to a more expensive waste management system and one where the cost of inaction is high. We have witnessed the concerns of those who live in the proximity of sites designated for waste management facilities. The consequence of inaction will mean that more of our limited land areas will have to be dedicated to such. This would clearly go against our obligation to bequeath to future generations an environment which is not undermined by the consequences of our irresponsible behavior.

Government is committed as much on this agenda as it is on other aspects within the national context. My appeal is for you to embark upon this journey with us with a mindset that realizes that your effort is an investment for yourself, your family and your future generations.

Leo Brincat

Minister for Sustainable Development, the Environment and Climate Change

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## Executive Summary

The core aim of this Plan is that of moving waste management in Malta up the waste hierarchy through increased prevention, re-use, recycling and recovery. This depends on a transformation of a variety of characteristics not least current population habits, waste volumes generated, waste collection practices, waste infrastructure and output markets. Malta's high population density, limited land space and lack of economies of scale coupled with the effects of its climatic conditions, proves challenging to achieve this aim.

### Consultation

This document has been underpinned by an all-inclusive and multi-phased consultation exercise.

- An Issues Paper was initially launched by the Ministry for Sustainable Development, the Environment and Climate Change on the 1 July and sought to identify the main issues characterising waste management in Malta with a view to eliciting feedback from stakeholders as to the potential solutions that may be adopted to address the identified issues.
- This consultation ran for a period of six weeks between July and August 2013.
- Subsequently, a second consultation exercise was conducted on the basis of the Draft Waste Management Plan for a period of 8 weeks between October and December 2013.
- Both consultation exercises gave the opportunities to interested parties to submit proposals and set up meetings in order to discuss further both their own as well as Government's proposals.

Moreover, through internal consultation within Government the Plan:

- presents a roadmap on the reform of the existing collection system which has been developed in consultation with the Secretariat for Local Government following discussions with the Local Councils Association and a special consultation session for Local Councils;
- takes on board the alignment of the Plan to the need of small and medium sized businesses as guided by the Ministry responsible for the economy.

## **Waste Prevention Plan**

The waste hierarchy ranks waste management options in an order commensurate with their environmental impact. Waste prevention sits at the top of the waste hierarchy and represents the most environmentally friendly option in that the absence of waste calls for no management thereof. Malta's Waste Prevention Plan hinges upon:

- heightening the awareness on the need to reduce waste arisings through appropriate behavioural changes;
- the reduction of municipal solid waste volumes;
- reducing food waste;
- increasing green public procurement to waste management;
- understanding in more detail promotional and unaddressed mail;
- undertaking efforts to limit construction and demolition waste.

Government has already issued an expression of interest for the provision of an information and awareness campaign to accompany the implementation of the Waste Management Plan.

## **Waste Management Plan**

Malta's wider waste management plan, on its part, recognizes the need to meet a series of targets not least to reduce the generation of waste and to increase source separation so as to promote recycling and reduce landfilling. Malta is obliged to reach the following targets:

- recycle 50% of paper, plastics, metal and glass waste from households by 2020;
- only 35% (based on 2002 levels) of biodegradable municipal waste will be allowed to landfill by 2020;
- recover 70% of C&D waste by 2020;
- collection of 65% of the average weight of electrical and electronic equipment placed on the national markets by 2021;
- for electrical and electronic equipment placed on the national markets achieve 55%, 70%, 80% and 85% re-use and recycling 75%, 80% and 85% recovery by 2018;
- collection rates for waste portable batteries to reach 45% by 2016;
- to re-use and recover 95 % of an average weight per vehicle per year by 2014.



In order to address such obligations the Plan proposes the following initiatives:

- undertake, in conjunction with the Secretariat for Local Government, a wholesome review of the existing collection system so as to provide the existing and upcoming MBT plants with source separated organic waste, promote further recycling of plastic, paper, metal and glass at a household level and discourage the generation of mixed waste. This on the basis of the discussions held during the formulation of the Plan itself;
- such restructuring needs to be completed by 2015 to coincide with the completion of the Malta North MBT;
- the introduction of a third collection of clear organic waste to improve the performance of the MBT plants in Malta and in terms of Malta's obligation to reduce biodegradable municipal waste (BMW) going to landfill;
- improve, at the earliest possible stage, the quality of waste to be directed to the Sant' Antrnin Waste Facility. This through piloting the separate collection of BMP in the south-eastern region;
- piloting in various localities may serve to prepare us better for the post 2015 scenario;
- regularize the position of those commercial entities who are obliged to have their own waste carrier but most of whom have, to date, rode on local council collection systems to the detriment of public finances;
- develop potential solutions that will prevent the generation of C&D waste in favour of maximizing the limestone resource;
- revise the eco-contribution legislative framework in order to make it more conducive to business, reduce administrative burden and encourage the setting up of more schemes;
- replicate the success of producer responsibility schemes by encouraging the development of new schemes in two other areas namely those related to waste from electrical and electronic equipment (WEEE and that related to batteries and accumulators);
- undertake 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;
- involve the private sector further in the waste management sector;
- consider 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;

- accompany plan implementation with an ongoing national information and awareness campaign;
- beef up the enforcement capability;
- independent auditing of schemes.

Sustainable waste management involves the identification of problem areas in the local waste management setup with a view to proposing a series of alternatives that would provide a net economic, social and environmental benefit. Compromising any of these three pillars of sustainable development would imply the compromising of sustainable waste management initiatives. The proposals being put forward in this Plan will prove futile unless society commits itself to investing some of its time to secure better waste management practices. This requires a collective effort that will make Malta more sustainable in its waste management practices. To this effect Government places a great deal of emphasis on the individual's need to alter existing behavioural patterns in order to reduce the amount of waste generated through more informed choices whilst separating the waste generated so as to maximize the amount of recyclables that are extracted therefrom.

Government has tried to steer away from the introduction of new charges for waste management services on the basis of:

- improved and more cost effective operations of waste management facilities;
- the opportunity to recover additional value from the recycling of various waste streams;
- greater involvement of the private sector in waste management operations.

Government intends to review the progress achieved from economic, social and environmental standpoints within the first three years of implementation of this plan. It is therefore in the hands of society to make a success out of this Plan as befits the Maltese islands. This is our chance towards safeguarding the limited resources of our islands and leave behind a better environment to the younger and future generations.

## Acronyms

**AD** – Anaerobic Digestion

**BMW** – Biodegradable Municipal Waste

**CHP** – Combined Heat and Power

**EfW** – Energy from Waste

**GDP** – Gross Domestic Product

**MBT** – Mechanical Biological Treatment

**MEPA** – Malta Environment and Planning Authority

**MRF** – Materials Recovery Facility

**MSDEC** – Ministry for Sustainable Development, the Environment and Climate Change

**MFIN** – Ministry for Finance

**MSW** – Municipal Solid Waste

**MTP** – Mechanical Treatment Plant

**rBMW** – residual Biodegradable Municipal Waste

**RDF** – Refuse Derived Fuel

**rMSW** – residual Municipal Solid Waste

## Terminology

**Anaerobic digestion** – the breakdown of organic material by bacteria in the absence of oxygen, to generate combustible bio-gas and a digestate.

**Biogas** - a mixture of methane (50-75%) and carbon dioxide (50-25%) used to generate heat and electricity.

**Biodegradable Municipal Waste** – Municipal waste that is capable of undergoing anaerobic or aerobic decomposition, such as food and garden waste, and paper and paperboard.

**Combined Heat and Power** – the use of heat energy to generate both electricity and useful heat.

**Composting** - the biodegradation of organic matter, by microorganisms such as bacteria, yeasts and fungi.

**Digestate** - a suspension of non biodegradable materials undigested organics, microbes and microbial remains and decomposition by-products which is dewatered into a solid and liquid fraction respectively known as digestate and liquor.

**Energy from waste facilities** - facilities that recover energy through thermal or biological treatment of waste to generate heat and power. Thermal processes include: incineration CHP, gasification and pyrolysis while biological processes include anaerobic digestion.

**Gasification** - Gasification involves the partial oxidation of waste at temperatures typically above 750°C to recover energy and is considered as mid-way between pyrolysis and incineration.

**Landfilling** – the disposal of waste onto or into land.

**Municipal Solid Waste** - Waste generated by households, as well as other waste which because of its nature or composition is similar to household waste.

**Materials Recovery Facility** – Manual and/or mechanical separation of dry recyclables, mainly paper, glass, plastics and metals collected separately or comingled, which are bailed and sent for recycling.

**Mechanical Biological Treatment** - the mechanical separation of mixed waste and biological treatment of the separated organic fraction.

**Mechanical Treatment Plant** – the mechanical separation of mixed waste.

**Pyrolysis** - Waste combusted in the absence of oxygen at temperatures of between 300°C to 800°C to recover energy.

**Recycling** – any recovery operation by which waste is reprocessed into products or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing of materials that are to be used as a fuel.

**Recovery** – any operation the principle result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy.

**Refuse Derived Fuel** - organic components of municipal waste such as plastics and biodegradable wastes that cannot be fermented are shredded and dehydrated to produce a high calorific fuel.

**residual Biodegradable Municipal Waste** – that fraction of biodegradable waste remaining following treatment.

**residual Municipal Solid Waste** – that fraction of municipal waste remaining following treatment.

**Waste** – any substance or object which the holder discards or intends of is required to discard.

# INTRODUCTION

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## Key Issues:

- Low rates of recycling
- High landfilling rates
- Unsustainable waste management

## Key Challenges:

- To break the link between economic growth and waste generation
- Moving waste up the waste hierarchy
- Moving towards sustainable waste management through waste prevention, increased recycling and recovery

## 1. Introduction

Malta has for long relied on disposal as the main waste treatment operation. Moving waste up the waste hierarchy through increased prevention, re-use, recycling and recovery depends on a variety of factors mainly: population habits, waste volumes, waste collection practices, waste infrastructure and output markets. Moreover Malta's high population density, limited land space and lack of economies of scale coupled with the effects of its climatic conditions, proves challenging to transform this small island state into a competitive player within the waste sector.

Waste prevention is considered to be at the highest level of the waste hierarchy for sustainable waste management. Through the minimisation of waste arisings as well as the sustainable management of eventual waste generated, the Maltese government aims to break the link between economic growth and waste production.

Although much more is yet to be done, to move away from excessive landfilling as well as to enhance separation and recycling rates, the shift from unsustainable dumpsites towards differentiated waste collection and treatment facilities clearly illustrates Malta's initial efforts towards the achievement of sustainable waste management.

The Sant' Antnin waste treatment facility will remain a pivot in Malta's waste management infrastructure. Intentions to move waste up the hierarchy, towards sustainable waste management practices, had prompted investment in a Mechanical Biological Treatment / Anaerobic Digestion (MBT/AD) plant in the South of Malta with an annual capacity of 36,000 tonnes of dry recyclables and 35,000 tonnes of organic waste from the Municipal Solid Waste (MSW) stream. However certain plant inefficiencies were not addressed and were the cause of certain operational deficiencies and inconveniences. The new Government commissioned a report to analyse the operations of the plant and which has pointed towards the importance of achieving greater efficiencies as the plant had failed to generate the anticipated renewable energy. One of the main causes for such was the quality of waste arriving from the 'black bag' which

contains a heavy load of non-organic material. Notwithstanding the plant will remain a pivot in Malta's waste management infrastructure. To this effect, improving the quality of the throughout to this plant will be one of the crucial strategies to be adopted as it will indirectly contribute to a better operation of the larger MBT plant at Ghallis which is expected to come on stream during 2015.

Recovering energy from waste within existing and future facilities plays an important role in sustainable waste management sector since it further values the concept of waste as a resource. Waste contributes towards the European Union's Renewable Directive targets, since, under this Directive, biodegradable waste qualifies as a renewable source.

Through public awareness campaigns and investing in the public and private sector, Government is committed to continue addressing the challenge of moving waste management options up the waste hierarchy.

## **1.1. Scope**

Malta's first comprehensive waste strategy was that of 2001 which set out Government's plans for upgrading the waste management sector. This plan was heavily influenced by the gaps that prevailed at the time between the status quo and the expectations of Malta as a future EU Member State. Thus the plan set out a roadmap which included measures for the introduction of new legislation, development of new administrative structures, economic measures, technical improvements and awareness raising initiatives.

The first revision to this strategy occurred in 2009, five years after Malta's accession to the EU. This revision was intended to be read in conjunction with the original strategy for its aim was to fine tune Malta's way forward in the sector on the basis of the experiences it had undergone to date. In addition Malta submitted its Waste Management Plan 2008-2012 to the Commission in November 2009. In 2012, the Commission had requested Malta to identify whether its Waste Management Plan was in



conformity with Article 28 of the Directive as part of its verification process. Malta recognised that its Waste Management Plan:

- addressed the analysis of the current waste management situation as well as the measures to be taken to improve environmentally sound preparing for re-use, recycling, recovery and disposal of waste and an evaluation of how the plan will support the implementation of the objectives and provisions of the Directive;
- addressed existing waste collection schemes and major disposal and recovery installations, including any special arrangements for waste oils, hazardous waste or waste streams;
- did not provide an evaluation of the development of waste streams in the future;
- required future work on future projections of MSW, C&D and C&I waste;
- required revision to address new problems encountered since the adoption of the plan in particular in respect of the need for new collection schemes, the closure of existing waste installations and additional waste installation infrastructure;
- did not include sufficient information on the location criteria for site identification and on the capacity of future disposal or major recovery installations;
- partially addressed general waste management policies, including planned waste management technologies and methods, or policies for waste posing specific management problems which were to be addressed in the revised plan;
- partially addressed the fact that the Plan could have contained information about the organisational aspects related to waste management including a description of the allocation of responsibilities between public and private actors carrying out waste management;
- did not address the possibility of having the evaluation of the usefulness and suitability of the use of economic instruments in tackling various waste problems;
- partially addressed the possibility of including the use of awareness campaigns and information provision directed at the general public or at a specific set of consumers;

- did not address the possibility of addressing historical contaminated waste disposal sites and measures for their rehabilitation.

Malta is obliged, under EU legislation, to submit a Waste Management Plan covering different waste streams as well as a Waste Prevention Plan. In order to avoid having a multitude of documents for the sector and to focus stakeholder attention, Government has decided to merge the previous concept of separate documents, a Strategy, intended for local policy guidance, and a Plan, intended for local policy guidance and compliance to the Directive, within one National Waste Management Plan which is updated to reflect the current scenario and project national interventions to achieve the 2020 targets. Moreover, within this Plan, the Waste Prevention Plan is also being included to further consolidate waste management policy within a single framework document.

This Plan represents government's planning document in respect of waste management. It is intended to set out a holistic strategic direction in which Government envisaged the sector to be taken forward. It is not the scope of this Plan to spell out each and every detail associated with the Plan initiatives but to set a framework in which these initiatives will be planned out in greater detail during the implementation phase and, during which, the same collaborative approach will prevail. The Plan covers the different waste streams in a holistic manner with a view to providing solutions which complement and reinforce one another.

The structure of this document follows that of the document "Preparing a Waste Management Plan" – A Methodological Guidance Note published by European Commission, in 2012 and aims at addressing the gaps identified in the previous Plan.

It is envisaged that whilst the vision spelt out in this document is aimed at the 2020 scenario, regular updates, ideally at three year intervals, will be made to fine tune the Plan.

## **1.2. Disclaimer**

The data presented in this document is based on that held by MEPA and the NSO. It is recognised 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. Notwithstanding, the data available is considered to be sufficient to enable the policy direction put forward in this document to be properly motivated.

The National Plan for PCB/PCT which has already been approved and published shall remain and shall be read in conjunction with this Plan.

## **1.3. EU policy and obligations**

The European Union has a framework for regulating waste management within the Community based upon the strategic objectives outlined in the Thematic Strategy<sup>1</sup>. The Thematic Strategy was reviewed and on 19 January 2011 the Commission adopted a Report on the Thematic Strategy on waste prevention and recycling (COM (2011) 13 Final). The report outlines the main forthcoming challenges and recommendations for future actions which are mainly targeted to limit the generation of waste within the Community as much as possible and particularly to decouple the increase in waste generation from the increase in the economic prosperity of the Community. In this context, EU waste management legislation is in the process of being updated to reflect the findings of the report.

The EU issues legislation in the form of Directives, Regulations and Decisions aimed at Member States, with the Waste Framework Directive 2008/98/EC being the most important legal instrument. The EU has also a wide ranging body of other Directives that address particular waste streams, such as packaging waste, end-of-life vehicles,

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<sup>1</sup> COM(2005) 666 final - Taking sustainable use of resources forward: A thematic Strategy on the prevention and recycling of waste.

batteries, waste electrical and electronic goods, and also other Directives addressing specific waste management options such as landfilling and incineration. The aim of each and every single piece of legislation may be grouped as one, that is, to safeguard human health and the environment for both present and future generations.

Compliance with such legislation led to:

- several dump sites and incinerators being shut down across Europe, including Malta, and subsequent cleaning of areas contaminated by such activities;
- development of new techniques for the treatment of waste;
- removal of hazardous substances from vehicles and electrical and electronic equipment; reduction of dioxins and other emissions from incinerators; and
- increased re-use, recycling and recovery of waste materials.

Moreover, European legislation led to a transition from waste being seen as a problem to it being considered as a resource. Whether one agrees or not, sooner or later a culture change needs to evolve where waste is not seen as a material intended primarily for disposal but that waste is effectively managed using a resource based approach. Waste has a value, as it can replace other materials which would have otherwise been used to fulfil a particular function, from consumables to energy. Therefore, one's lack of commitment and cooperation in separating his/her waste to recycle and recover materials may be vital to future generations.

## **1.4. National policy**

Malta's waste policy framework is guided by EU waste policy.

Malta's National Environment Policy (2012) states that in order to manage waste in an environmentally sustainable manner, Government needs to ensure that the three pillars

of sustainable development (environmental, social and economic aspects) are taken into consideration in decision-making in the waste sector.

The implementation of the EU waste Directives is in fact the principal aim for this sector during the period covered by the NEP. National policy in the waste management sector is based on four principles:

1. to reduce waste and to prevent waste occurring, with a view to achieving a zero-waste society by 2050
2. to manage waste in accordance with the waste hierarchy, whereby it is recognised that waste should be prevented or reduced, and that what is generated should be recovered by means of re-use, recycling or other recovery options, in order to reduce waste going to landfill, and to use the collection system to aid with achieving these goals
3. to cause the least possible environmental impacts in the management of waste
4. to ensure that the polluter-pays principle is incorporated in all waste management procedures.

## **1.5. EU and National legislation**

This section outlines the main legal instruments regulating waste applied both at European and national level. Other applicable legislation emanating from the main regulations is included together with a short description of the laws. This section is divided into three sections as follows:

1. **Framework Legislation** (overarching all waste legislation)
2. **Waste Treatment operations** (legislation regulating waste treatment facilities)
3. **Waste stream** (legislation regulating specific waste streams)

## Framework Legislation

**Waste Framework Directive**  
(Directive 2008/98/EC)



**The Waste Regulations, 2011**  
(L.N. 184 of 2011)

Other applicable legislation:

- Commission Decision 2000/532/EC establishing a European Waste List (EWC)
- Commission Decision 2011/753/EU for verifying compliance with WFD targets
- Council Regulation (EU) No 333/2011 on EoW scrap metal
- Commission Regulation (EU) No 715/2013 on EoW copper scrap

The Directive establishes a framework for the management of waste across the EU and incorporates provisions on the old directives on hazardous waste and on waste oils. It lays down some basic waste management principles such as the obligation to handle waste in a way that does not have a negative impact on the environment and human health by managing waste sustainably in accordance with the waste hierarchy.

A new concept which was introduced in the new Waste Framework Directive is the 'end-of-waste' status which means that if a specific waste stream undergoes a recovery operation, and fulfills specific criteria, it can cease to be waste, thus obtaining the status as a product.

The Directive also introduces the 'polluter pays principle' and the 'extended producer responsibility' approaches, which involves the producer or that person who put the product on the market to take care of the treatment of waste himself.

The Directive also stipulates a target of 50% re-use and recycling of household

waste and 70% recovery of C&D waste by 2020.

Furthermore, the new Waste Framework Directive integrated the provisions of the former Hazardous Waste Directive (91/689/EEC) and Waste Oils Directive (75/439/EEC) repealing them upon its entry into force.

The Waste Regulations of 2011, transposed from the Waste Framework Directive 2008/98/EC are the overarching national legislation on waste.

**Waste Shipment Regulations**  
(EC No. 1013/2006)



**Waste Management**  
**(Shipments of Waste) Regulations,**  
2011  
(L.N. 285 of 2011)

Other applicable legislation:

- Commission Regulation (EC) No 1418/2007 concerning the export for recovery of certain waste to certain countries to which the OECD Decision on the control of transboundary movements of wastes does not apply

## **Waste Shipments**

Waste can have economic value and can be a useful source of raw materials. Moreover, not all States can provide environmentally sound management of waste within their territory. This is particularly true of Malta, a small State that does not have the technical capacity and the necessary facilities, capacity or suitable disposal sites in order to dispose of certain categories of waste in an environmentally sound and efficient manner; hence the need to provide the possibility for the shipment of waste from one State to another. This is called waste shipment or transboundary movement of waste.

Waste shipment provides an option for valorising waste and for attaining environmentally sound management of waste. Nevertheless, such transboundary movements of waste from one State to another, often passing through other States in the process, pose a potential threat to human health and the environment, and therefore need to be controlled. There are many records of wastes being dumped in States that were not capable to handle the wastes in an environmentally sound manner.

For the purposes of shipment destined for recovery, waste is classified into two categories: **green**, and **red**, the former being the least hazardous and the latter referring to hazardous waste being the most hazardous. These two categories correspond to two levels of controls. Green list waste is least controlled, while hazardous waste is the most strictly controlled.

A basic requirement for waste shipment is a permit from the Competent Authority of dispatch. In Malta this competency lies within the Malta Environment and Planning Authority (MEPA). This permit is based on the prior notification, and in most cases prior consent from the recipient State and all the States of transit with respect to the particular waste entering their territory. Another requirement is for the consignment to be covered by a financial guarantee or equivalent insurance covering costs for shipment, including take-back where necessary, as well as costs for disposal or recovery, in the case the shipment has not been completed as planned or if it has been effected in violation of the EC Waste Shipment Regulation.

Shipment of **waste destined for disposal** from Malta are only allowed to EU Member States and EFTA countries which are also parties to the Basel Convention (Iceland, Liechtenstein, Norway and Switzerland).

Shipment of waste destined for disposal or recovery from Malta to ACP (Africa,



Caribbean, Pacific) States are prohibited.

Shipment of **hazardous waste destined for recovery** from Malta are only allowed to EU Member States and to countries belonging to the Organisation for Economic Co-operation and Development (OECD)

Shipment of **Green List waste destined for recovery** from Malta are allowed to EU Member States, OECD countries and certain non-OECD countries subject to some restrictions for the latter.

## Waste Treatment Operations

**Industrial emissions Directive (IED)**  
(Directive 2010/75/EU)



Industrial Emissions (Integrated  
Pollution Prevention and Control)  
Regulations, 2013  
(L.N. 10 of 2013)

Industrial Emissions (**Waste  
Incineration**) Regulations, 2013  
(L.N. 14 of 2013)

Industrial Emissions (**Titanium Dioxide**)  
Regulations, 2013  
(L.N. 13 of 2013)

## Incineration Regulations

The aim of the incineration regulations is to prevent or reduce the pollution generated by emissions into the air, soil, surface water and groundwater caused by incineration and co-incineration of waste. This is to be achieved through the application of operational conditions, technical requirements and emission limit values for incineration and co-incineration plants within the EU dust, nitrogen

oxides (NO<sub>x</sub>), sulphur dioxide (SO<sub>2</sub>), hydrogen chloride (HCl), hydrogen fluoride (HF), heavy metals and dioxins and furans.

### **Titanium Dioxide Regulations**

These regulations are intended to regulate wastes arising from the titanium dioxide industry. Even though there is no such industry locally, Malta as an EU Member State was still required to transpose the provisions laid down the IED into national legislation.

**Landfill Directive**  
(Directive 99/31/EC)



Waste Management (**Landfill**)  
Regulations, 2002  
(L.N. 168 of 2002)

Other applicable legislation:

- Council Decision 2003/33/EC establishing waste acceptance criteria at landfills.

### **Landfill Regulations**

The main objective of this regulation is to prevent landfilling, thus reducing the adverse effect of the landfill of waste on the environment and human health. Local regulations emanating from the EU Landfill Directive:

- require that all waste should be treated prior to landfilling;
- restrict the landfilling of certain waste streams;
- require full cost recovery of landfill operations, waste acceptance procedures and closure and after-care procedures.

In addition to all of this, Member States are required to set a national strategy for the diversion of biodegradable municipal waste (BMW) from landfills and sets the following targets for the reduction of biodegradable municipal waste sent to landfill:

- By 2010, 75% of the total amount (by weight) of biodegradable municipal waste produced in 1995 or the latest year before 1995 for which standardised Eurostat data is available.
- By 2013, 50% of the total amount (by weight) of biodegradable municipal waste produced in 1995 or the latest year before 1995 for which standardised Eurostat data is available.
- By 2020, 35% of the total amount (by weight) of biodegradable municipal waste produced in 1995 or the latest year before 1995 for which standardised Eurostat data is available.

Member States that landfilled more than 80% in 1995 or the latest year for which standardised EUROSTAT data is available, of their collected municipal waste were allowed to postpone the targets referred to above by a period not exceeding four years. This was the case for Malta, and therefore the targets are to be achieved by 2010, 2013 and 2020 respectively.

## Waste Streams

### Waste Batteries and Accumulators

**Batteries Directive**  
(Directive 2006/66/EC)



Waste Management  
**(Waste Batteries and Accumulators)**  
Regulations, 2010  
(L.N. 55 of 2010)

Other applicable legislation:

- Directive 2008/12/EC, as regards the implementing powers conferred on the Commission.
- Directive 2008/103/EC as regards placing batteries and accumulators on the market
- Commission Decision 2008/763/EC establishing, a common methodology for the calculation of annual sales of portable batteries and accumulators to end-users
- Commission Decision 2009/603/EC establishing requirements for registration of producers of batteries and accumulators
- Commission Decision 2009/851/EC establishing a questionnaire on the implementation of batteries and accumulators and waste batteries and accumulators Directive
- Commission Regulation (EU) No 1103/2010 establishing, rules as regards capacity labelling of portable secondary (rechargeable) and automotive batteries and accumulators

- Commission Regulation (EU) No 493/2012 of 11 June 2012 laying down, detailed rules regarding the calculation of recycling efficiencies of the recycling processes of waste batteries and accumulators

### **The batteries regulations**

The Batteries Directive aims to improve the environmental performance of batteries and accumulators, as well as the environmental performance of the activities of economic operators involved in the life cycle of batteries and accumulators. The Directive also sets limits to certain hazardous substances in certain batteries and accumulators namely mercury, cadmium and lead.

Malta is to achieve the following minimum collection rates for waste portable batteries:

- (a) 25 % by 26 September 2012;
- (b) 45 % by 26 September 2016

based on the amount of portable batteries sales in the previous 2 years and the target year.

Transitional arrangements could be laid down to postpone the targets if Member States face difficulties in achieving these targets.

Furthermore, the Directive requires that facilities recycling waste batteries achieve the following minimum recycling efficiencies:

- a. recycling of 65 % by average weight of lead-acid batteries and accumulators, including recycling of the lead content to the highest degree that is technically feasible while avoiding excessive costs;
- b. recycling of 75 % by average weight of nickel-cadmium batteries and

- accumulators, including recycling of the cadmium content to the highest degree that is technically feasible while avoiding excessive costs; and
- c. recycling of 50 % by average weight of other waste batteries and accumulators.

## Packaging and Packaging Waste

**Packaging and Packaging waste**  
Directive  
(Directive 94/62/EC )



Waste Management  
**(Packaging and Packaging Waste)**  
Regulations, 2006  
(L.N. 277 of 2006)

Other applicable legislation:

### Marking and identification

- Commission Decision 97/129/EC on the identification system for packaging materials

### Data and reporting

- Directive 91/692/EEC standardizing and rationalizing reports
- Commission Decision 97/622/EC on decisions relation to Directive 91/692/EEC
- Commission Decision 2005/270/EC establishing the formats relating to the database system

### Derogation for plastic crates and pallets from the heavy metal concentration limits

- Commission Decision 1999/177/EC establishing the conditions for a derogation for plastic crates and plastic pallets in relation to the heavy metal concentration levels
- Commission Decision 2009/292/EC establishing the conditions for a derogation for plastic crates and plastic pallets in relation to the heavy metal concentration levels

### **Derogation for glass packaging from the heavy metal concentration limits**

- Commission Decision 2001/171/EC establishing the conditions for a derogation for glass packaging in relation to the heavy metal concentration levels (& corrections)
- Derogation for glass packaging from the heavy metal concentration limits - revision of deadline
- Commission Decision 2006/340/EC amending Decision 2001/171/EC for the purpose of prolonging the validity of the conditions for a derogation for glass packaging in relation to the heavy metal concentration levels established in Directive 94/62/EC

### **Harmonised standards for packaging**

- Commission communication 2005/C 44/13 in the framework of the implementation of the Packaging and Packaging Waste Directive

### **The Packaging and Packaging Waste regulations**

The packaging and packaging waste directive transposed into national legislation by L.N. 277 of 2006 aims primarily to reduce the volume of packaging waste and to prevent the negative environmental impacts caused by improper disposal and covers all the packaging placed on the market within the EU. The producer responsibility approach results in accordance with this directive.

The following recycling and recovery targets were set.

### **Minimum overall recovery targets, overall recycling targets and material specific recycling targets for the period 2004 – 2013**

Deadline	Overall Recovery	Overall Recycling	Glass Recycling	Metals Recycling	Plastics Recycling	Paper and Board Recycling	Wood recycling
31 Dec 2009	50%	45%	35%	34%	15%	35%	9%
31 Dec 2010	53%	48%	43%	38%	17.5%	42%	11%

31 Dec 2011	56%	51%	50%	41%	19.5%	50%	13%
31 Dec 2012	58%	53%	55%	46%	21.5%	55%	14%
31 Dec 2013	60%	55%	60%	50%	22.5%	60%	15%

**Notes:**

- (i) The overall recovery includes recovery and thermal treatment at waste thermal treatment plants with energy recovery.
- (ii) There is no maximum target for the overall recovery.
- (iii) The maximum target for the overall recycling is 80%.
- (iv) For the recycling targets for plastics, exclusively material that is recycled back into plastics shall be counted.

**End-of life vehicles**

**End-of life vehicles Directive**  
(Directive 2000/53/EC)



Waste Management  
**(End-of life vehicles) Regulations,**  
2004  
(L.N. 99 of 2004)

Other applicable legislation:

- Commission Decision 2002/525/EC **amending Annex II** of Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles
- Council Decision 2005/673/EC **amending Annex II** of Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles
- Commission Decision 2008/689/EC **amending Annex II** of Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles
- Commission Decision 2010/115/EU of 23 February 2010 **amending Annex II** to Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles



- Commission Directive 2011/37/EU of 30 March 2011 **amending Annex II** to Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles
- Commission Decision 2005/63/EC **amending Annex II** of Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles (**spare parts**)
- Commission Decision 2005/438/EC **amending Annex II** to Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles (**spare parts**)
- Commission Decision 2003/138/EC establishing **component and material coding standards**
- Commission Decision 2001/753/EC concerning **a questionnaire for Member States reports on the implementation of Directive 2000/53/EC** of the European Parliament and of the Council on end-of-life vehicles
- Commission Decision 2002/151/EC **on minimum requirements for the certificate of destruction issued in accordance with Article 5(3) of Directive 2000/53/EC** of the European Parliament and of the Council on end-of-life vehicles
- Commission Decision 2005/293/EC establishing detailed **rules to monitor compliance with the ELV targets**

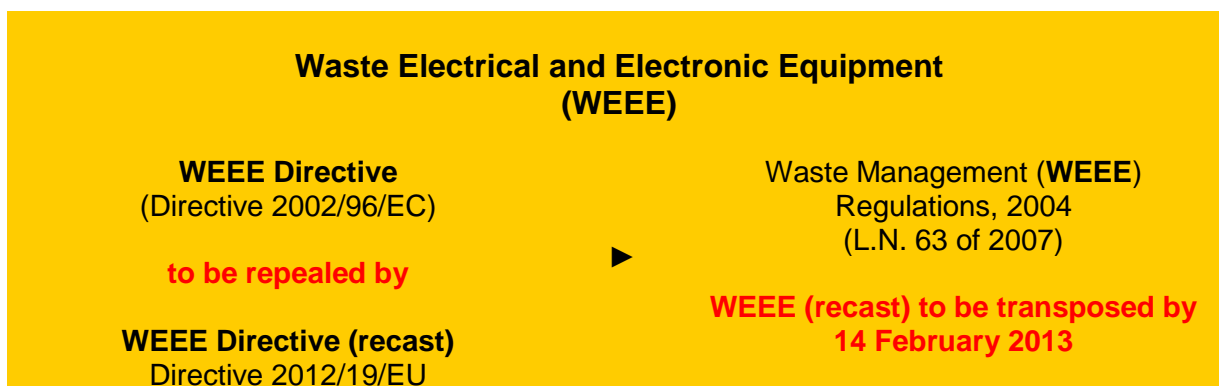
### **The End of Life Vehicles regulations**

The provisions of the end-of life vehicles regulations aim at the prevention, reuse, recycling and other forms of recovery of waste vehicles and their components. It also aims to improve in the environmental performance of economic operators

involved in the life cycle of vehicles, especially those involved in the treatment of an end-of life vehicle.

The regulations lay down provisions on the dismantling and recycling of waste vehicles and set the following targets for reuse, recycling and recovery of waste vehicles and their components:

- No later than 1 January 2006, for all end-of life vehicles, the reuse and recovery shall be increased to a minimum of 85 % by an average weight per vehicle and year. Within the same time limit the reuse and recycling shall be increased to a minimum of 80 % by an average weight per vehicle and year; for vehicles produced before 1 January 1980, the Competent Authority/Member State may lay down lower targets, but not lower than 75 % for reuse and recovery and not lower than 70 % for reuse and recycling.
- No later than 1 January 2015, for all end-of life vehicles, the reuse and recovery shall be increased to a minimum of 95 % by an average weight per vehicle and year. Within the same time limit, the re-use and recycling shall be increased to a minimum of 85 % by an average weight per vehicle and year.



Other applicable legislation:

- Commission Decision 2004/249/EC of 11 March 2004 **concerning a questionnaire on the implementation of the WEEE Directive**
- Commission Decision 2005/369/EC of 3 May 2005 laying down **rules for monitoring compliance of Member States and establishing data formats**
- Council Decision 2004/312/EC and Council Decision 2004/486/EC, as well as acts related to the accession of new Member States, provide for some derogations, limited in time, as concerns the targets set by Directive 2002/96/EC (WEEE)

### **The Waste Electrical and Electronic Equipment regulations**

The Waste of Electrical and Electronic Equipment (WEEE) Directive set collection, recycling and recovery targets for electrical and electronic equipment (EEE). Together with the ROHS directive (2002/95/EC), it restricts the use of hazardous substances in EEE. Currently, the WEEE Directive is in the process of its recast, and is in its second reading.

The Directive is based on the principle of producer responsibility, which implies that the costs of waste management are to be borne by the producer of the

product from which the waste came. It also obliges Member States to maintain a registry of producers placing EEE on the market. The Directive also provides for the creation of collection schemes where consumers return their used WEEE free of charge. The objective of these schemes is to increase the recycling and/or re-use of such products.

Member States shall ensure that, by 31 December 2006, producers meet the following targets:

(a) a rate of separate collection of at least 4kg on average per inhabitant per year of WEEE from private households.

(b) for WEEE falling under categories 1 and 10 of Annex IA,

- the rate of recovery shall be increased to a minimum of 80 % by an average weight per appliance, and
- component, material and substance reuse and recycling shall be increased to a minimum of 75 % by an average weight per appliance;

(c) for WEEE falling under categories 3 and 4 of Annex IA,

- the rate of recovery shall be increased to a minimum of 75 % by an average weight per appliance, and
- component, material and substance reuse and recycling shall be increased to a minimum of 65 % by an average weight per appliance;

(d) for WEEE falling under categories 2, 5, 6, 7 and 9 of Annex IA,

- the rate of recovery shall be increased to a minimum of 70 % by an average weight per appliance, and
- component, material and substance reuse and recycling shall be increased to a minimum of 50 % by an average weight per appliance;

(e) for gas discharge lamps, the rate of component, material and substance reuse and recycling shall reach a minimum of 80 % by weight of the lamps.

Malta's derogation

In accordance with Council Decision 2004/486/EC granting Cyprus, Malta and Poland certain temporary derogations from Directive 2002/96/EC on waste electrical and electronic equipment, the above targets for Malta were postponed to 2008.

The WEEE recast has resulted in changes to the above targets together with the collection rate of 4kg of WEEE per person every year. Through the WEEE recast Malta is to achieve:

- as from 14 August 2016, a collection rate that is lower than 45 % but higher than 40 % of the average weight of EEE placed on the market in the three preceding years; and
- a collection rate of 65 % of the average weight of EEE placed on the market in the three preceding years by not later than 14 August 2021.

## Management of waste from Extractive Industries and Backfilling

**Extractive Waste Directive**  
(Directive 2006/21/EC)



Waste Management  
**(Management of waste from  
Extractive Industries and Backfilling)**  
Regulations, 2009  
(L.N. 22 of 2009)

Other applicable legislation:

- Commission Decision 2009/337/EC on the **criteria for the classification of waste facilities in accordance with Annex III**
- Commission Decision 2009/335/EC on the **technical guidelines for the establishment of the financial guarantee**
- Commission Decision 2009/360/EC **completing the technical requirements for waste characterisation**
- Commission Decision 2009/359/EC **on the Definition of inert waste in implementation of Article 22 (1)(f)**
- Commission Decision 2009/358/EC **on the harmonisation, the regular transmission of the information and the questionnaire referred to in Articles 22(1) (a) and 18**

### Mining waste regulation

This Directive deals with waste coming from extraction and processing of mineral resources and gives measures, procedures and guidance to prevent or reduce any possible effects on the environment and any risks to human health. In Malta this Directive was transposed by The Waste Management (Management of Waste from Extractive Industries and Backfilling) Regulations, 2009 (L.N. 22 of 2009). These Regulations address waste generated from the extraction of limestone from quarries for the construction industry and the backfilling of the waste into spent quarries for rehabilitation purposes.

## **Polychlorinated Biphenyls and Polychlorinated Terphenyls (PCBs/PCTs)**

**PCB/PCT Directive**  
Directive 96/59/EC



Waste Management  
**(Polychlorinated Biphenyls and  
Polychlorinated Terphenyls)**  
Regulations, 2002  
(L.N. 166 of 2002)

### **PCB/PCT regulations**

PCBs are regulated by Council Directive 96/59/EC of 16 September 1996 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls ("PCB Directive"). The PCB Directive provides, inter alia, that Member States must take the necessary measures to ensure that used PCBs are disposed of and PCBs and equipment containing PCBs are decontaminated or disposed of. Equipment with PCB volumes of more than 5 dm<sup>3</sup> had to be decontaminated or disposed of by 31 December 2010 at the latest and a plan had to be prepared in this regards.

The national PCB/PCT Waste Management Plan was published in 2007 and was intended for the decontamination and/or safe disposal of inventoried equipment containing PCB/PCT and the PCB/PCT contained therein and for the collection and subsequent disposal of equipment which is not subject to inventory. Limited quantities of polychlorinated biphenyls (PCB) and polychlorinated terphenyls (PCT) have been identified in the Maltese Islands. The volumes and storage locations of equipment containing more than 5 dm<sup>3</sup> of PCB/PCT contaminated oil became known through an inventorisation process conducted in 2001. As there are no on island facilities for the treatment and/or disposal of PCB/PCT, such waste had to be exported for treatment. The last stock was exported to mainland Europe in April 2010. In this context, there are no more PCB stocks in Malta.

## Sewage Sludge

Sewage Sludge Directive  
(Directive 86/278/EEC)



The Sludge (**Use in Agriculture**)  
Regulations, 2001  
(L.N. 212 of 2001)

### Sewage sludge regulations

The purpose of this legislation is to regulate the use of sewage sludge in agriculture in such a way as to prevent harmful effects on soil, vegetation, animals and man, thereby encouraging the correct use of such sewage sludge.

The Regulation lays down limit values for concentrations of heavy metals in the soil, in sludge and for the maximum annual quantities of heavy metals which may be introduced into the soil. The use of sewage sludge is prohibited if the concentration of one or more heavy metals in the soil exceeds the stipulated limit values.

The use of sludge is prohibited:

- on grassland or forage crops if the grassland is to be grazed or the forage crops to be harvested before a certain period has elapsed (this period, fixed by the Member States, may not be less than three weeks);
- on fruit and vegetable crops during the growing season, with the exception of fruit trees;
- on ground intended for the cultivation of fruit and vegetable crops which are normally in direct contact with the soil and normally eaten raw, for a period of ten months preceding the harvest and during the harvest itself.

No spreading of sewage sludge on Maltese soils or any other application of sludge on and in the soil is known to take place at present.



## 1.6. Guiding principles

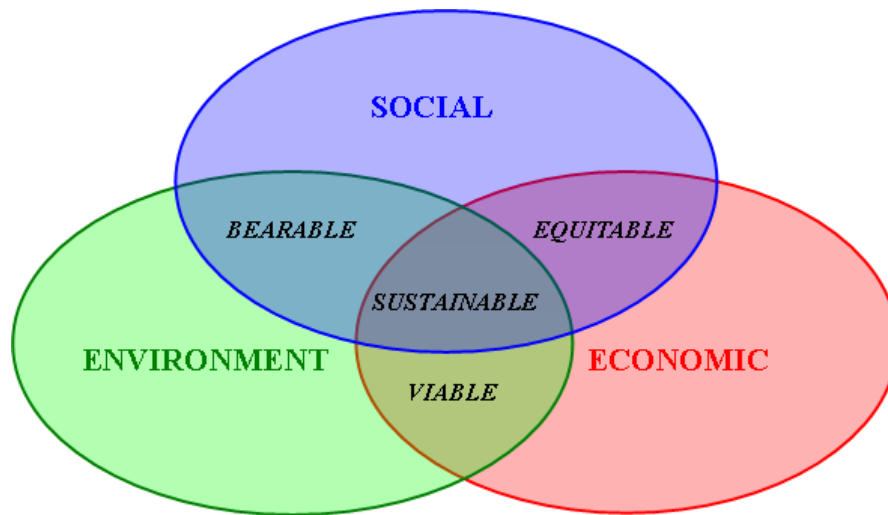
The policy guiding principles set out in the 2001 Strategy remain valid and are being reconfirmed hereunder. This is in addition to the overarching principle of sustainable development.

### 1.6.1. Sustainable development

According to the Brundtland Commission report of 1987, sustainable development is defined as:

*“Development that meets the needs of the present generations without compromising the ability of future generations to meet their own needs”*

The principle of sustainable development implies that any development is sustainable when positive **SOCIAL**, **ECONOMIC** and **ENVIRONMENTAL** outcomes are achieved.



**Factors of sustainable development**

The overarching principle of sustainable development was the backbone of this plan, by addressing the social, economic and environmental impacts of the options proposed towards improved waste management within the Maltese Islands.

### **1.6.2. The waste hierarchy**

The waste hierarchy is a concept laid down in the Waste Framework Directive which ranks waste management options according to what is best for the environment. Schedule 5 of the Waste Regulations gives waste prevention as the top priority. After this, preparing for re-use, recycling and other recovery e.g. energy recovery are preferred. Disposal is classified at the bottom of the hierarchy as it is the least preferred waste management option.

**Waste Prevention:** includes those measures taken before a substance, material or a product has become waste. These measures aim to reduce the quantity of waste, the adverse impacts of the generated waste on the environment and human health or the harmful substances in a product.

**Preparing for re-use;** includes checking, cleaning or repairing products that has become waste so that they can be re-used without any other pre-processing.

**Recycling:** involves any recovery operation by which waste is reprocessed into products, materials or substances for the original or other purposes.

**Recovery:** This involves any operation the principal result of which waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy.

**Disposal:** any operation which is not recovery even where the operation has a secondary consequence the reclamation of substances or energy.

Together with the life-cycle and 'best available techniques approaches, this hierarchy can significantly reduce negative impacts on the environment and human health. In accordance with Article 4(2), laid down in the Waste Framework Directive, specific waste streams may depart from the hierarchy, that is, may undergo recovery or disposal rather than recycling, if it is proved by life-cycle thinking that the overall impacts of the generation and management of such waste would be less than that for recycling or any other higher ranked option.

### **1.6.3. Subsidiarity and Proximity**

This principle requires that waste should be treated or disposed of as close as possible to the point at which it is generated. This creates a more responsible and hence sustainable approach to the management of wastes by limiting the adverse environmental effects from transporting waste over long distances. The distance that waste should travel will vary according to the particular circumstances. Although it should normally be practicable to dispose of municipal waste reasonably close to the source of arisings, longer distances may be justified for other wastes, such as healthcare wastes, for which specialised facilities may be required.

Malta is highly self-sufficient when it comes to waste disposal, with over 99% of the total waste requiring disposal being disposed locally. Less than 1%, which due to its hazardous nature, cannot be disposed locally, as there are no hazardous waste landfills, is disposed of outside of Malta.

#### **Data for year 2011**

Total waste requiring disposal generated in Malta: 759,818 tonnes

Total waste disposed of in Malta: 757,612 tonnes (99.7%)

Total waste disposed of outside Malta: 2,206 tonnes (0.3%)

#### **Data for year 2012<sup>2</sup>**

Total waste requiring disposal generated in Malta: 1,500,777 tonnes<sup>3</sup>

Total waste disposed of in Malta: 1,147,230 tonnes (99.8%)

Total waste disposed of outside Malta: 3,547 tonnes (0.2%)

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<sup>2</sup> Preliminary estimate as data for 2012 was still being compiled at the time of writing.

<sup>3</sup> The increase is due to an increase in C&D waste only.

The overall objective of the proximity principle is for waste to be disposed of within the area of its generation. The proximity principle suggests that local solutions should be sought wherever possible. However, this principle strongly advocated by the EU is of more relevance to larger countries than island states, such as Malta. On account of the quantities of waste generated and the size and land availability on the Maltese Islands it is recognised that the provision of a large number of local waste management facilities for the handling, treatment and safe disposal of waste close to where it arises may not be appropriate.

Malta, with an area of approximately 316km<sup>2</sup> and a population of around 417,617, is the smallest EU Member State both geographically and population-wise. Furthermore, Malta has an inflow of approximately one million tourists a year. For such a small country, we generate large volumes of waste. In 2010, 595.5kg of municipal waste were generated per capita, which is 50.8kg less municipal waste per capita than in 2009 but still relatively high in comparison with the EU average, which was 505kg per capita in 2010<sup>4</sup>.

Waste is composed of a wide variety of materials. Construction and demolition waste accounted for 68% of the total waste generated in Malta in 2011, while municipal solid waste, which is composed of a variety of materials many of which are recyclable, constituted only 22% of the total waste in that year. Although the generation of 1 million tonnes of waste might seem to point towards the feasibility of the setting up of recycling facilities, the amount of recyclable glass, plastics, paper/cardboard, metals collected from all waste streams is relatively low (approximately 80,911 tonnes collected in 2011), rendering it less economically viable to undertake recycling at a local scale.

A recent study carried out by the Malta National Statistics Office in 2011 provides a breakdown of the composition of household waste, which is a good indicator for MSW composition as municipal solid waste is composed of household waste and other similar

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<sup>4</sup> The Environment Report, Indicators 2010-2011, MEPA, 2011. The per capita figure was calculated by dividing total municipal solid waste generated (including that generated by tourists) over the Maltese population. The Maltese population does not include annual number of tourists visiting Malta.

waste. This study suggests that mixed municipal waste consists of 40.7% recyclable materials such as plastics, paper and cardboard, glass, metal and textiles. As at 2011, this would translate to some 70,000 tonnes of recyclable materials in mixed municipal waste which in addition to 15,000 tonnes of separately collected glass, plastic, metal, paper and cardboard, the total potential recyclable materials generated by households would total 85,000 tonnes.

Recyclable materials, including paper and cardboard, metals, glass and plastics generated from the C&D and C&I sectors amounted to 10,775 and 55,625 tonnes respectively in 2011. In this context, the generation of these waste materials does not exceed 200,000 tonnes<sup>5</sup>. That is, the total waste paper/cardboard, metal, glass and plastic generated in Malta as at 2011 does exceed 20% of the total waste generated.

Although EU waste legislation promotes principles of self-sufficiency and proximity, the above explains Malta's existing waste management practices of landfilling, disposal at sea of inert wastes<sup>6</sup> and recovery of dry recyclables for export towards recycling into new products abroad. In this context, recycling Maltese waste comes at a high price as the distances between Malta and mainland Europe and other countries make waste transport relatively expensive.

In this context, Malta's specificities call for subsidiarity in those areas not governed by EU legislation, that is, tailored made policies and measures not addressed at EU level taking into consideration local challenges.

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<sup>5</sup> 85,000 tonnes of recyclables in MSW, 55,625 tonnes in C&I and 10,775 tonnes in C&D – total 151,400 tonnes.

<sup>6</sup> The following waste streams are disposed of at sea: inert geological material, inert C& D waste and dredged material.

#### **1.6.4. Polluter pays**

The polluter pays-principle (PPP) is legally established in the EU in Article 191(2) of the Treaty on the Functioning of the European Union (TFEU), which stipulates that:

*“2. Union policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Union. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay.”*

This principle is enshrined in Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage (ELD), which establishes a framework based on the polluter pays principle to prevent and remedy environmental damage. The Directive defines "environmental damage" as damage to protected species and natural habitats, damage to water and damage to soil. Operators carrying out dangerous activities listed in Annex III of the Directive fall under strict liability (no need to prove fault). Such activities include waste management operations, including the collection, transport, recovery and disposal of waste and hazardous waste, including the supervision of such operations and after-care of disposal sites.

Specifically on waste management, Article 14 of the Waste Framework Directive (2008/98/EC) stipulates that in accordance with the polluter-pays principle (hereafter referred to as PPP) the costs of waste management shall be borne by the:

- original waste producer, or
- current waste holder, or
- previous waste holder.

Furthermore, the said article also established the 'extended producer responsibility' principle by stating that Member States may decide that the costs of waste management are to be borne partly or wholly by the

- producer of the product from which the waste came, and

- distributors of such products may share these costs.

In order to better understand who is responsible for the costs of waste management in accordance with Article 14 one is to refer to the definitions of “waste producer” and “waste holder” laid down in Article 3 of the Waste Framework Directive. A waste producer is defined as:

*“anyone whose activities produce waste (original waste producer) or anyone who carries out pre-processing, mixing or other operations resulting in a change in the nature or composition of this waste;”*,

whereas a waste holder is defined as:

*“the waste producer or the natural or legal person who is in possession of the waste;”*

### **The current situation in Malta**

Translating the PPP to waste management, the implementation of this principle implies that producers of products and producers or holders of waste are liable to pay the full costs for the management of the particular waste stream that they are generating. This payment is usually implemented by means of a gate-fee charged at authorised waste management facilities.

In fact, Article 10 of the Landfill Directive (1999/31/EC) states that:

*“Member States shall take measures to ensure that all of the costs involved in the setting up and operation of a landfill site, including as far as possible the cost of the financial security or its equivalent referred to in Article 8(a)(iv), and the estimated costs of the*



*closure and after-care of the site for a period of at least 30 years shall be covered by the price to be charged by the operator for the disposal of any type of waste in that site.”*

Malta has already introduced a gate fee at the Ghallis landfill to, as far as possible, be representative of the actual cost of the operation itself.

#### Producers obliged under producer responsibility directives:

Directives that require the application of Producer Responsibility allow the Member States to place the obligation of payment for the management of waste on the original producer of a particular product rather than on the end consumer. There are four main Directives that are implemented in Malta using this extended producer responsibility principle. These are the Directives regulating, Packaging, Waste Electrical and Electronic Equipment (WEEE), Batteries and Accumulators and End-of-life Vehicles (ELV).

The PPP is well implemented in Malta from a legal perspective by means of the enactment of legal notices that transpose the respective Directives. However it is recognised that increased efforts, over and above those made to date, are required to implement these legal provisions on the ground. Government also recognises that eco-contribution legislation required review, and is currently being reviewed to take into account the experiences registered by the operations of schemes in the packaging and packaging waste sector. This review is at an advanced stage.

#### Householders

As regards to household and municipal solid waste, it is the Local Councils who manage the costs for waste management through public funds allocated by Government. In this context, such a system is indirectly funded by the general public through the income tax regime. Local Councils set up agreements with contractors for the collection of solid

waste from their locality and also pay the gate fees stipulated by private waste facilities and those stipulated by The Deposit of Wastes and Rubble (Fees) Regulations (L.N. 128 of 1997 as amended) for public facilities.

Currently it is not the producer of household waste who bears the direct cost for waste collection and management but Local Councils. This with the exception of the collection and management of dry recyclables which is funded by packaging producers and for which, one may argue, that households are indirectly financing such an operation. In this context, one is to determine whether local councils classify as the current holder of the waste once the waste is collected from the kerb. The definition of waste holder laid down in Article 3 of the Waste Framework Directive provides that s/he must be in possession of the waste; however the Directive fails to define possession. There is no legal definition in national waste regulations that defines possession of waste, nor do they identify local councils as the legal possessor of waste once collected.

## **1.7. Situation analysis**

### **1.7.1. Current waste facilities**

Government through WasteServ Malta Limited (WSM) has throughout these years developed basic infrastructure to deal with the various waste streams generated in the Maltese Islands with the main emphasis on MSW. These public facilities are coupled with additional infrastructure and services developed and operated by the private sector.

Details of existing public facilities which have been developed by WasteServ are as provided below.

**Bring-in sites:** Some 400 bring-in sites have been established in public areas and in schools. These are intended for the deposit of at source segregated recyclables namely plastic, paper, metal and glass. Recyclables collected through these facilities are transported to the Materials Recovery Facility at Marsascala for further sorting, baling and export. There are around another 430 bring-in sites managed by private operators, making a total number of 830 bring-in sites across Malta and Gozo. In order to improve

upon separation rates achieved solely through bring-in-sites, producer responsibility schemes have also accompanied this measure by a kerb side collection of dry recyclables which has yielded a better return.

**Civic amenity sites:** WSM developed five civic amenity sites, four in Malta and one in Gozo. These are supervised facilities where members of the public can bring and discard a variety of household bulky waste. These sites cater for separate disposal of domestic bulky waste such as tyres, refrigerators, electronic products, waste from DIY activities and garden waste. The purpose of these centres is to establish service facilities to optimise the collection of certain types of waste and increase the recovery of secondary materials. These facilities are manned by a trained workforce and have particular opening hours where people can enter with their car to deposit wastes separately in specific containers.

**Materials Recovery Facility, Sant Antnin Plant, Marsascala:** This facility was commissioned in February 2008 and is intended for the sorting of dry recyclable waste recovered through the various initiatives currently implemented including the kerb-side collection of recyclables, bring-in sites and other at source segregation initiatives. The facility has a permitted capacity to treat 36,000 tonnes of incoming material. Products from this facility are sold to registered brokers/authorised facilities for further processing/export. Efforts to identify how the operations of this plant may be improved have been published in a recent report<sup>7</sup>.

**Mechanical Biological Treatment Plant, Sant Antnin Plant, Marsascala:** This facility consists of the following components (1) Mechanical Treatment Plant (MTP) for the mechanical separation of municipal solid waste to prepare the organic fraction for further processing; (2) Digestion and Stabilising (Composting) Plant for the treatment of source-separated biodegradable waste and mechanically sorted biodegradable waste from the MTP in order to produce biogas and digested material to be used as Compost; (3) Combined Heat and Power Plant (CHP), which runs on the biogas produced; (4) Regenerative Thermal Oxidiser (RTO) to treat gases and odours generated within the closed compartments before being released into the atmosphere. The facility has a capacity of to treat 35,000 tonnes of organic material. Efforts to identify how the operations of this plant may be improved have been published in a recent report.

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<sup>7</sup> <https://msdeccms.gov.mt/en/Documents/Downloads/Exec%20+%20Full%20Report.pdf>

**WEEE storage facility:** This facility is used for the storage of WEEE and batteries/accumulators pending export for treatment.

**Engineered landfills for non-hazardous wastes:** Landfill at Ta' Zwejra commenced operations in May 2004 and that at Ghallis commenced operations in 2006.

**Thermal treatment facility:** The Marsa facility is intended for the treatment of animal by-products, clinical waste and other hazardous waste streams including sludges and solvents. This facility commenced operations in December 2007 and was funded through the 5th Italo-Maltese Financial Protocol. It has a treatment capacity of around 13,000 tonnes per annum. This is Malta's first experience of thermal treatment operations and due consideration must be given to these operational experiences as well as to the public's perception towards the acceptance of such installations.

**Private facilities:** In addition to the facilities operated by WasteServ, there are some 37 private facilities authorised by the Malta Environment and Planning Authority for the treatment and storage of a number of waste streams. The main waste streams handled by private facilities are:

- Waste Electrical and Electronic Equipment (WEEE)
- End of Life Vehicles (ELVs)
- Metals
- Recyclables
- Waste Lead Acid Batteries
- Other Hazardous Waste
- Tyres
- Other Non-Hazardous Waste
- Container Storage Yards

The list of permitted private facilities is available on the Malta Environment and Planning Authority website, which list is updated regularly. The list may be accessed via the following link: <http://www.mepa.org.mt/wastemanagementfacilities>

### **1.7.2. Facilities in the planning/design/construction phase**

In addition to the current facilities already in operation, there are a number of facilities that are in the planning, design or construction phase. These include:

1. A Waste Transfer Station in Gozo for the receipt, sorting, processing, interim storage and transfer of wastes originating from Gozo and Comino. Dry recyclables will be sorted and baled prior to further treatment or export (Cohesion Fund 2007-2013).
2. Mechanical Biological Treatment (MTP-AD) Plant for the North of Malta for treatment of MSW and animal manure. At this facility waste shall be processed to have the organic fraction and the Refuse Derived Fuel (RDF) extracted from the remaining waste which shall be directed from the landfill. The digestion plant shall treat the organic fraction resulting from MSW and will also include a potential for the treatment of the animal manure not managed directly by farmers (Cohesion Fund 2007-2013).
3. A sixth civic amenity site in Ta' Qali which shall also cater for waste generated by the vegetable market (Pitkalija) (Cohesion Fund 2007-2013).
4. Rehabilitation of the former Maghtab and Qortin dumps (Cohesion Fund 2007-2013).
5. Rehabilitation of the former Zwejra landfill.
6. Upgrading of the Marsa Thermal Treatment Facility to optimize operations. This project would comprise: the extension of the facility boundary to include the area currently occupied by a neighbouring waste management facility; introduction of dedicated storage for clinical waste; installation of a wheel washing facility; consolidation of bin washing facilities; creation of a storage area for clean bins; establishment of a shredder area and storage area for shredded wood and Refuse Derived Fuel (RDF); establishment of a paints storage area; introduction of a fly ash silo; establishment of a sodium bicarbonate storage area; establishment of a dedicated storage area for pharmaceutical waste; establishment for an area to be used for the cooling of bottom ash generated by the facility; establishment of a wastewater treatment plant; creation of organised parking facilities; installation of an autoclave plant which will allow for the rendering of category 1, 2 and 3 animal tissue waste and thereby a reduction in the quantity of raw animal waste treated by incineration. The latter will, in turn, increase the capacity for the treatment of other

high calorific value which requires thermal destruction as the only possible way of destruction (Cohesion Fund 2007-2013)."

### **1.7.3. Latest campaigns**

**Batterina:** A nationwide environmental initiative aimed at raising awareness amongst primary and secondary school children about the need for the proper disposal of used batteries.

**Collect and Win:** Launched in August 2012, the campaign entices citizens to recycle their plastic bottles. Participants have the chance of winning prizes every quarter.

**European Week for Waste Reduction:** The aim of the EWWR is to organise multiple actions during a single week across European countries to raise awareness about waste prevention. The EWWR started off in 2009 as a 3-year project supported by the EC's LIFE+ Programme, but its success year after year led to the extension of this project. WasteServ has been involved annually since 2010, both as a participant and also as the national coordinator for Malta. Malta has always had a substantial number of participants during each edition and actions carried out included initiatives by schools, hotels, NGOs as well as individuals. Most notably, during the 2010 edition, architect Elisa Andretti put Malta's name on the winners list after her creation of a website for the reuse of construction and demolition waste was selected as a winner during the European Waste Reduction Awards. These prestigious awards aim to recognise the most effective and innovative entries submitted from all participating countries.

**Waste Minimisation Awards:** For two consecutive years, WasteServ has collaborated with the University of Malta's Cleaner Technology Centre (CTC) as a sponsor of the Waste Minimisation Awards, part of the established Environment Awards for Enterprise organised by CTC. In the 2012 edition, these local awards were linked to the EWWR and hence the scheme was extended to schools and NGOs in addition to commercial enterprises. Similar to the EWWR, the aim of this award scheme is to encourage local

entities to implement waste reduction measures and recognise the efforts of those considered exemplary.

**Pre-Waste project:** Pre-Waste was a 3-year project funded by the INTERREG IVC programme, an EU funding instrument to help share knowledge and transfer experiences across the EU. WasteServ implemented the Pre-Waste project in partnership with another nine entities from eight EU countries, with the Marche Region of Italy being the Lead Partner. The project aimed to improve the effectiveness of waste prevention policies in EU territories so as to significantly reduce waste generation and its degree of hazardousness.

Implemented between 2010 and 2013, this project developed guidelines for planning, implementing and monitoring regional waste prevention policies. One of the key deliverables was a web tool to allow the assessment of waste prevention actions' efficiency and monitoring. On a national level each partner was responsible for implementing activities to promote the importance of waste prevention, with food waste reduction being the focus of the local campaign implemented by WasteServ. Each partner was also responsible for commissioning a feasibility study to select best practices on waste reduction.

**www.reuse.com.mt:** During the 2012 edition of the European Week for Waste Reduction, WasteServ launched a new website, [www.reuse.com.mt](http://www.reuse.com.mt), also funded through the Pre-Waste project. The website offers members of the public the opportunity to give away any unwanted items such as furniture, electronics, clothing, books and much more in order to extend the life of these items before they become waste. Likewise, the public can also take advantage of items given away by other users. The aim of this initiative is twofold: firstly, to reduce waste and reuse items which might otherwise be thrown away; at the same time, the project also has a social dimension in that all items are donated rather than sold, while website users are also encouraged to make a small donation to charity for every item they obtain free of charge.

**Educating People about Waste Management:** WasteServ and authorised compliance schemes already carry out educational campaigns targeted at waste producers. Targeted educational initiatives include talks and educational games in schools and waste management training for companies and government departments. Furthermore, they participate regularly in local community events with stands to promote sustainable waste management practices.

#### **1.7.4. SWOT analysis**

A SWOT analysis is thought appropriate at the outset with a view to examining the internal strengths and weaknesses of the waste sector as well as the external opportunities and threats the sector offers. Identifying existing strengths and weaknesses is important at the outset of any new or revised Plan with a view towards ensuring that existing strengths are consolidated whilst prevailing weaknesses are addressed. Similarly external opportunities can provide the momentum to capitalise upon with a view towards accelerating progress in the sector and fostering a positive climate towards securing that such opportunities are seized by all those involved. The identification of threats can be a precursor in order to identify areas of concern with a view towards providing mitigating measures thereto. The SWOT analysis is summarised in point form in Table 1 and is based on the consultations that have been carried out with interested stakeholders as well as through internal knowledge.

##### **Strengths**

There is no doubt that over the past years the awareness on waste management has been heightened. This has resulted both from the structures that have been set up as well as a result of the initiatives undertaken in the sector. A regulatory framework exists through MEPA whilst WasteServ was set up as an operator of last resort. The waste management sector has also seen the development of a number of private organisations in the sector making it more robust and dynamic. MEPA has a small yet dedicated structure focused on waste management whilst WasteServ is not a small entity which has spread its wings to cover various aspects of the waste management cycle. Malta's accession to the European Union brought with it a myriad of legal obligations in the waste sector which have been transposed into Maltese legislation and which



necessitated a new approach to waste management. This has also contributed to a change in the mentality of the Maltese population towards waste management, in particular waste separation within households, although it has been a catalyst to the development of a number of private sector led economic operations. The steep learning curve that Malta has had to undertake was not an easy one but it permitted the adoption of a comprehensive regulatory regime from the outset.

The decentralisation of the waste collection function to Local Councils has also had positive results not least due to their collaboration with WasteServ to house a number of bring in sites in their locality to separate waste more effectively as well as with the packaging schemes that have financed a separate kerbside collection of dry recyclables. WasteServ, on its part, has heightened an increased awareness on appropriate waste management through the construction of facilities such as the engineered landfill, the Sant' Antnin Waste Treatment Facility, the Marsa Thermal Treatment Facility, a number of Civic Amenity Sites for the collection of other forms of waste that may be recycled, over and above plastic, paper, glass and metal, as well as the multitude of education and awareness raising initiatives it has launched. These facilities have enabled the closure of non-compliant incinerators, the Maghtab, Fulija and Qortin waste dumps. The newly permitted Malta North Waste Treatment Facility will continue to contribute towards increasing Malta's capacity to treat waste. This is not to say that operations have been perfect and there is a continuous drive to ensure that operational efficiencies are improved through interventions which may related to better design, infrastructure, operations and methods. Within the public administration, government has set up a network of green leaders and green focal points within Ministries and departments whom, amongst other things, are charged with promoting better waste separation practices within their respective offices.

Educational and awareness initiatives may be described as having penetrated most of Maltese society. These had been initially piloted by WasteServ through media communications, door to door based projects, leaflets and other awareness raising initiatives. This awareness has been intensified as the schemes set up in terms of securing producer responsibility obligations have also made a strong presence on the ground in order to encourage and assist people to separate their waste more effectively.

School based initiatives have also been permeated and waste management features regularly in school-based curricular activities revolving around waste separation and composting.

Through these developments one needs to acknowledge that an increased number of green jobs have been created, either through new or retrained workers who have taken advantage of the employment opportunities offered by the waste sector. This has set the benchmark for others who may be interested in pursuing a career in the environmental sector. Furthermore, the experience in waste management has fostered an increased capacity in policy making, regulation and waste management operations as the local expertise has been heightened and can act as a showcase for an increased interest in science and technology as a career and subsequent pursuit of employment within the sector.

The obligation on producers to recover established targets of packaging that is placed on the market has also been accompanied by an increased awareness on the need to recycle and which has society to increasingly appreciate waste as being a resource in itself and hence contributing to increased recycling volumes. This is not to say that we have matched our targets as we are still a considerable distance away from our 2020 targets. This culture change from an out of sight – out of mind mentality to one which valorises the various components of waste can set the tempo for an increased appreciation of the inherent resource embedded value and that far from disposing at the first possible opportunity to move towards separating the various fractions and extracting the resultant value there from. This also applies to the energy that may be derived from the digestion of waste which shows, once again, the value it possesses and which needs to be addressed properly in order to overcome the problem identified in Malta's currently only MBT plant. This is considered to be the first step in fostering increased recycling rates which have been noted but which still fall short of the mandatory targets that Malta has to achieve in terms of its EU-related obligations.

The Maghtab dump site is a practical demonstration of the impact that construction and demolition waste can have on the management of waste arisings. Construction and demolition waste has been managed in privately owned quarries for the past years. This has contributed to the backfilling of disused quarries and the restoration of the visual impact that was caused as a result of their operation. Moreover, it has also converted former quarry sites which were of potential nuisance to the neighbouring community in terms of dust generated, increased heavy vehicular traffic and noise, to an open green space.

The development of a Code of Good Agricultural Practice has also contributed towards the better management of animal manure.

### **Weaknesses**

As is normal in any SWOT analysis a particular aspect of the waste management process may offer both a positive aspect, in terms of the progress achieved, as well as a negative aspect in terms of the gaps that still have to be met. Hence, the discussion of the same issue under both headings should not be interpreted as being contradictory but rather as recognising what has been achieved and what still needs to be achieved.

Despite the regulatory framework that has been set up in the field of waste management, the compliance and enforcement functions still need to be strengthened further. Moreover the private sector is of the opinion that a weak enforcement regime goes counter/conflicts with a level playing field amongst economic operators. This is also related to an insufficient human resource capacity within the regulator to effectively permeate the desired regulatory and compliance regime. The private schemes have identified that there are still a number of so called 'free riders' that are seen to be compromising the regulatory framework and where enforcement to ensure compliance is required.

The current eco-contribution framework has also been seen as a barrier to the development of other schemes required to implement producer responsibility legislation

as it presents what is often termed as a 'double whammy'. Government has already embarked on a review of the current provisions which is at an advanced stage.

From an operations perspective, the private sector considers WasteServ to be a competing entity. This is seen as a means to being able to penetrate the sector more effectively, whereas it was intended to operate only in such cases where the market would have failed or is unable to penetrate. WasteServ is seen to be stifling the further development of the private sector's operations in the sector and it has even been claimed that certain private sector operations have been terminated due to WasteServ's presence in the market. At the same time there are mixed perceptions as to whether regulatory demands on WasteServ are more onerous than those on the private sector or not. This calls for a better understanding of current regulator-operator relationships so as to secure that a level playing field prevails. The private sector also claims that it is confident that it can run WasteServ's operations at a cheaper cost to government. Such issues are compounded further by Malta's small market size which mitigates against the prevalence of the economies of scales required for supporting multiple players operating within the sector.

From a waste management perspective, Malta's performance is still seen as being low on the waste hierarchy. Malta's waste treatment still relies on extensive landfilling without any form of pre-treatment. This may be attributed to a lack of commitment by a significant portion of Maltese households to commit themselves to recycling at source thereby producing a lower amount of recyclables and directing higher volumes of waste to landfill. This may also be due to a lack of understanding by households on the extent of separation that can be achieved. This has been compounded by a slower than anticipated development of the relevant waste facilities aimed to treat waste and minimise the volume of waste directed to landfill. In this context, it is important to realise that Malta's small size does not permit the luxury of a multitude of sites that may be identified for landfilling purposes. Together with the NIMBY syndrome that prevails locally, the problem is exacerbated further. This points towards a gap in the population's understanding that waste is today considered as a resource and that appropriate separation can lead to enhanced volumes of recycling and a lower resource intensity of production. This has been proven at the Sant' Antnin Waste Facility where the

anticipated energy expected to be generated from the plant has not been met. It is also important to realise that a cleaner organic feedstock to the digestors in the waste treatment plants should give a better energy return whilst excessive consumption of landfill space does little to put a true value on the national land resource. This is further compounded by the fact that Malta's per capita rate of waste generation continues to be high and that being an island it is relatively expensive to ship/transfer waste. Furthermore, the quality of refuse derived fuel is not always of sufficient quality to fetch the best market prices and, at times, RDF ends up being landfilled as its export is not cost effective. This further contributes to the need of landfill space for its disposal as well as management considerations to mitigate against the inherent fire risks associated therewith. The lack of proper separation has also been a cause of concern in the operation of the Sant' Antnin Plant and contributes to a lower rate of material recovery, a less productive environment for the anaerobic digestion of organic waste which in turn leads to lower energy levels generated as well as increasing the risk of damage to the plant itself. The attitude of the Maltese population towards separation is also reflected at the place of work. In the case of employees within the public administration there is a feeling that not enough is being done to set the right example on waste separation which may be perceived to be a waste of time when compared to their mainstream duties. It is in this context that society needs to realise that our efforts on waste separation ultimately characterise the operation of, and need for new, facilities.

The municipal waste collection system is seen to have inherited a degree of abuse by some of the actors involved. 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 increases Local Councils' expenditure and whose budgets are determined on the amount of waste that is expected to be generated from the resident population. Hence any extra waste transferred to the Local Councils is charged to their accounts which, if not paid in full, present a problem to WasteServ. Standards for operations regarding waste collection are also thought to require substantial improvement as low priced contracts secured through the current tendering procedures often leave waste collectors with no other real option but to look at other avenues to make ends meet. From an environmental

perspective, most of the current waste collection takes place during daytime when traffic volumes are higher. Such an approach leads to increased traffic congestion, higher emissions from vehicular traffic and a higher turnaround time.

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 known.

Overall there is a predominant resistance to change at all levels. From behavioural to financial issues, people still feel comfortable in permeating the *status quo*. This mitigates against the development of a more efficient system which apportions costs to those who pollute more.

### **Opportunities**

There are a number of emerging principles which are finding higher acceptance rates amongst the prime actors and other stakeholders. The waste management sector is seen as an emerging market which can offer greater opportunities for the private sector to operate in so long as market conditions permit such. Industry has also realised that it is time to up our standards further. Furthermore, the construction sector is increasingly recognising that Maltese stone is a limited resource and that, where possible, all efforts should be undertaken to avoid the generation of construction and demolition waste in favour for a more resource friendly extraction of the stone.

The concept that proper waste management may be conducive towards the recovery of embedded energy is slowly permeating within society. The issues surrounding the operations of the Sant Antnin Plan, from its inception to its current day operations, have continued to heighten this awareness. This offers the opportunity for driving this message ever closer to home and to seize the moment as being the opportune one to introduce a third collection of waste aimed at collecting the separated organic fraction

which would enhance the performance of MBT plants. Coupled with further emphasis of the benefits associated with waste minimisation, both in terms of resource intensity and financial well-being, Malta's waste generation may make the desired leap in quality.

There is also a much pronounced feeling in the need for a better infrastructure for waste management operations starting with an upgrade in the current fleet of refuse collection vehicles, their upkeep and operations associated with them, to that of creating better economies of scale by looking at waste management from a regional perspective where the grouping of local councils may lead to better management practices. This could represent a saving in costs from aggregated collection catchments as well as from a reformed frequency and timing of collection that could permit local councils and operators to invest such savings in additional capacity aimed at securing better waste management practices.

The private sector has recognised the waste sector as an emerging business opportunity and has therefore lined up plans for capital to be made available for investment therein. This needs to be encouraged by creating the right market conditions for government to limit itself to being the operator of last resort and allowing the private sector to flourish in areas where it can deliver more efficiently. The private sector has always claimed that it can deliver government services at a cheaper cost to society and perhaps this is the right moment to start testing this hypothesis. This will provide the framework for the generation of increased business to business (B2B) services and further opportunities for the creation of employment within the sector, an environment that will create an increased appetite for students to following science and technology learning. The market may be further enhanced by ensuring that government interventions are limited to being that of last resort with any spare capacity directed to strengthening the policy, regulatory, educational and communication functions related to waste management.

Such an improved framework should foster the opportunity for increased pre-treatment of waste thereby maximising available landfill void space and energy recovered from waste. Such a nexus would also make the case for increased focus on the educational

system as a vehicle to promote waste management from a knowledge as well as a career perspective.

### **Threats**

The threats associated with the waste sector are related to the external factors that would impede the necessary and desired developments within the sector itself. In other words these threats would be foreseen to lead to a scenario where the country fails to manage its waste sustainably, and thus also fails to achieve national and EU targets of re-use, recycling and recovery.

It is acknowledged that these threats are compounded by Malta's limited land mass and small population (thus a limited market) where diseconomies of scale determine the feasibility of nearly all commercially driven operations. Deficiencies in the legal, administrative and enforcement set up also contribute to further jeopardise the establishment and growth of business opportunities in this sector.

Another realistic and current threat to the increased penetration of the private businesses in this sector is the possibility that the state-funded waste operator out-competes smaller, privately run operations in some areas and thus limits the opportunity for participation of the private sector in the delivery of waste management services. This is important to note as WasteServ was initially set up as the operator of last resort. However, it is often accused of having positioned itself in areas which are usually associated with private sector management. Hence WasteServ operations need to be reviewed to ensure that it starts shedding as much of the non-core operations which can be managed by the private sector.

The status quo on the current eco-contribution legislation threatens to stifle the development of additional waste management schemes aimed at the management of specific waste streams such as batteries and WEEE. Malta is cognisant of such a threat and has in fact commissioned a wholesome review of this legislation in order to chart the way forward in this respect which has reached an advanced stage.



Other important but perhaps less significant threats are associated with the way society responds to developments in technology, to information and awareness raising campaigns, and to measures that aim to influence their behaviour. In other words, the threat is that society is not sufficiently prepared for the necessary changes that would enable improvement in this sector, and fails to acknowledge that waste management is not simply a government's job, but rather an individual's responsibility.

**Table 1:** SWOT Analysis for the Waste Sector in Malta

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>• Awareness raising on the waste problems and community actions required</li> <li>• Setting up of operator of last resort to pilot waste management facilities</li> <li>• Decentralisation of responsibilities for waste collection to Local Councils</li> <li>• Involvement of private sector in the setting up of waste schemes</li> <li>• Regulatory framework present</li> <li>• Introduction of civic amenity sites and bring in sites</li> <li>• Civic Amenity sites permit disposal of certain categories of waste over and above plastic, glass, paper and plastic</li> <li>• Introduction of kerbside collection dedicated for recyclables</li> <li>• Valorisation of waste as a resource</li> <li>• Creation of local expertise in waste management</li> <li>• Contribution towards the creation of green jobs</li> <li>• Increased education in the field of waste management Increased awareness through various initiatives taken by WasteServ</li> <li>• Closure of non-compliant incinerators</li> <li>• Closure of waste dumps (Maghtab, Fulija, Qortin)</li> </ul>	<ul style="list-style-type: none"> <li>• WasteServ seen as stifling private sector involvement in waste management operations</li> <li>• Weak enforcement</li> <li>• Weak implementation of legislation implementing EU acquis</li> <li>• Level playing field between WasteServ and private operators and amongst regulated and unregulated private operators compromised</li> <li>• Low recycling rates</li> <li>• Not possible to achieve certain economies of scale</li> <li>• Still reliant on extensive landfilling without pre-treatment</li> <li>• Slow progress in the development of facilities to manage waste</li> <li>• Eco-contribution seen as a barrier to further development of schemes particularly for the implementation of producer responsibility legislation</li> <li>• Lack of full commitment by all households to recycle</li> <li>• A number of free riders on the system prevail</li> <li>• Waste seen as an expense rather than a resource</li> <li>• Local Council contracts seen as being an avenue to abuse by commercial and industrial establishments</li> </ul>

<ul style="list-style-type: none"> <li>• Enhanced producer responsibility with a carrot and stick system possibly being appropriate in this case to incentivise further</li> <li>• Construction of Sant' Antnin Waste Facility</li> <li>• Permitting of Malta North Waste Facility</li> <li>• First thermal treatment facility for treatment of abattoir, clinical and certain hazardous waste</li> <li>• Increase in recycling rates</li> <li>• Better management of construction and demolition waste</li> <li>• Code of Good Agricultural Practice contributes to better waste management of animal manure</li> <li>• Malta put in place all necessary legislation to comply with EU acquis</li> <li>• Substantial improvement in overall waste management in Malta</li> <li>• Start of a shift in mentality towards increased waste separation by households</li> <li>• Developing a recycling industry as a new economic area</li> <li>• Green focal points within the Government Ministries and Departments to monitor waste separation in the offices.</li> </ul>	<ul style="list-style-type: none"> <li>• Still low on the waste hierarchy</li> <li>• Capacity to regulate is still insufficient</li> <li>• Energy from waste treatment plant at Sant' Antnin lower than expected and better operational efficiency required</li> <li>• Too much mixed waste</li> <li>• RDF quality is not always good enough to fetch the best market prices</li> <li>• RDF disposal requires landfill space and has an increased fire risk</li> <li>• Lack of precise quantitative data on wastes produced and their composition</li> <li>• Landfill consumed in shorter timeline</li> <li>• Landfill consumption rate will require allocation of more land for landfilling</li> <li>• True cost of waste operations may not be known precisely</li> <li>• High volume of waste generated per capita</li> <li>• Waste exports are expensive</li> <li>• PPP principle not implemented in Waste Management</li> <li>• Waste collection still takes place in the morning, at times where traffic congestion is the highest</li> <li>• There may not be enough clear information on how household waste has to be separated.</li> <li>• Employees within Ministries and Departments who do not comply with certain measures imposed on them since waste separation may be perceived as waste of time.</li> <li>• Resistance to change</li> </ul>
<p><b>Opportunities</b></p>	<p><b>Threats</b></p>
<ul style="list-style-type: none"> <li>• New business opportunities for private operators in waste management schemes</li> <li>• Realisation by certain quarters of industry that we need to up our standards</li> <li>• Greater involvement of the private sector in waste management operations</li> </ul>	<ul style="list-style-type: none"> <li>• Increase in fuel prices that would hurt transport and shipment of waste operations.</li> <li>• Shipping lines not willing to transport hazardous wastes.</li> <li>• Changes in cost-opportunity of land</li> <li>• Deficiencies in the legal, administrative</li> </ul>

- Opportunity to introduce new collection for organic waste for better feedstock to MBT plans
  - Understanding how minimisation can contribute to lowering waste volumes generated
  - More graduates in science
  - Focus WasteServ to its role as operator of last resort thereby giving more space to private sector
  - Investment capital from private sector seems to be available for investment in waste management operations
  - Working towards the retention of building fabrics to avoid demolition
  - Private sector claims it can deliver services currently delivered by Government at a cheaper cost to society
  - Development of more B2B services
  - Opportunity for next wave of reforms in the sector
  - Regionalisation of waste management collection
  - Modernisation of vehicle fleet
  - Opportunity to reduce landfill void space requirements by pre-treating waste in line with the Waste Hierarchy
  - Opportunity to recover energy from waste
  - Opportunity to minimise collection costs by regionalisation of collection contracts
  - Opportunity to minimise costs by reassessing collection frequencies
  - Opportunity to address disruption to traffic by waste collection services by addressing RDV vehicle size and reallocation of collection times to night hours.
  - Creation of new green jobs
  - Waste Collection in the evening to reduce traffic congestion
  - Include a subject specifically on Waste Management at all levels of the compulsory, post secondary and tertiary level
- and enforcement set up
- State-funded waste operator outcompeting smaller privately run businesses when its mandate was that of being the operator of last resort
  - Status quo of eco-contribution legislation could be a threat to the development of waste management schemes for WEEE and batteries streams
  - Lack of preparedness, participation and response of society to developments, information and awareness raising.

## 1.8. Input from public consultation

Effective consultation is the one of the foundations of good governance. Effective consultation gives stakeholders the earliest possible possibility for participation in the decision making process. The Issues Paper launched by the Ministry for Sustainable Development, the Environment and Climate Change on the 1 July sought to identify the main issues characterising waste management in Malta. This, with a view to eliciting feedback from stakeholders as to the potential solutions that may be adopted to address the identified issues.

The consultation process was intended to run from the 1-22 July 2013, however due to the level of interest manifested and the need for additional meetings, the consultation process was ongoing till the 14 August 2013.

A second round of consultations was also conducted in response to the publication of the Draft Plan for Consultation on the 22 October 2013. This consultation exercise extended till the 20 December 2013. This consultation served the dual purpose of obtaining stakeholder reactions to the proposals put forward in the draft Plan as well as to take on board feedback in connection with the Strategic Environmental Assessment's Environmental Report, the process of which ran *pari passu* with the development of the Plan.

During this period one to one meetings were held with representatives of the following sectoral stakeholders:

- Government (MEPA, WasteServ, FSWS, LCA, Parliamentary Secretariat responsible for Culture, Local Councils);
- Private sector (MDA, Greenpak, Green MT, GRTU, Malta Chamber of Commerce, Enterprise and Industry, MHRA, MBB, GTA, Gozo Business Chamber, Malta Waste Facilities, Assocjazzjoni Operaturi Ndata Pubblika, individual private sector operators who requested a meeting);

- Non-governmental organisations (UHM, Din I-Art Helwa, Kummissjoni Ambjent).

These one to one meetings were the result of a number of invitations that were sent to identified stakeholders or as the result of specific requests for meetings, the list of which was wider than those who actually responded. Despite being sent several reminders certain organisations failed to take up the invitation.

In addition, written submissions were also encouraged through adverts in the newspaper and through social media. These were forthcoming in appreciable numbers. In particular, through the Principal Permanent Secretary, all Ministries were requested to provide their written feedback which was also forthcoming.

All in all, over 40 submissions ensued in the first round of consultations together with a further 32 during the second consultation phase. These provided a valuable insight into various perspectives held by the different actors. This consultation process also served as an input to the Strategic Environmental Assessment which was undertaken in respect of the revised Waste Plan. The main issues that have emerged from the public consultation are summarized hereunder.

WasteServ	The private sector has complained that WasteServ's operations are in direct competition with their own and as such a level playing field is not present.
MEPA	More emphasis should be made on enforcement so as to ensure that a level playing field prevails.
Eco-contribution	Deemed to be a barrier to the development of schemes related to WEEE and Batteries as producers will have to pay twice.
C&D waste	Various issues mentioned such as the need to minimise such waste through reprocessing as well as through avoidance by changing certain work practices.
C&I waste	Commercial 'free riders' who should have their waste collected by their own private contractor are depositing such waste with domestic waste. This is costing WasteServ loss of revenue.

Hospitality and Commercial sectors	Proposal for local councils to have such operators registered with them such that they may pay the Local Council for a co-ordinated collection process.
Collection	Need to reform collection system and introduce a separate collection for organic waste. Need to upgrade existing fleet and to ensure proper enforcement as well as realistic contract prices. Uniform vehicle sizes not recommended so as to allow contractor flexibility and knowledge to prevail for better service to localities.
Schemes	Need to foster a market environment that permits schemes to develop critical mass and contribute to Malta's recycling targets.
Facilities	End of pipe-solutions.
Sant' Antrnin Plant	Avoid expansion of existing plant.
Collection jurisdiction	Local Councils not in favour of regionalization in order to ensure that contact with the citizen is kept. Moreover, piloting of collection reforms suggested.

# BACKGROUND & STATUS

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## Key Issues

- Landfilling remains the preferred option for MSW and C&D waste, 83% and 59% of total waste managed in 2011 respectively
- Recycling 23% of paper, plastic, glass and metal generated by households
- Recycling 67% of C&I waste as at 2011
- Compliance with Producer Responsibility Directives remains an issue
- The lack of a full range of treatment facilities results in shipments of waste
- High volumes of dredged material and clean inert geological material disposed at sea

## **2. Background and status**

### **2.1. Municipal Solid Waste**

Municipal solid waste (MSW) consists of waste produced from households, and other waste which because of its nature and composition makes it similar to household waste. Other waste may be composed of commercial and industrial waste namely from hotels and restaurants, non-hazardous hospital waste and bulky refuse.

There is no one specific EU or national target for MSW, however, the Waste Framework Directive and the Landfill Directive set out specific targets for fractions falling within this waste stream. The WFD requires that by 2020, at least 50% of paper, plastics, metal and glass generated by households are prepared for re-use and recycled, whereas the Landfill Directive necessitates the diversion of biodegradable municipal waste from landfills towards recycling and recovery facilities. Over and above these targets, Malta aims to increase its efforts to breaking the link between economic growth and MSW generation by proposing waste prevention measures, which are discussed in Chapter 4 of this plan. Moreover due cognizance needs to be given to the ongoing debate at a European level on the drive towards reducing the amount of plastic waste in the environment and which may lead to new developments in the light of the ongoing reviews that the Commission is undertaking on the landfill directive, the packaging directive and the waste framework directive.

In this context, Malta aims to:

- minimise the generation of MSW,
- prepare for re-use and recycle 50% of paper, plastics, metal and glass generated by households and
- divert biodegradable municipal waste from landfills as a measure to reduce land use impacts as well as to fulfill its EU and national obligations.

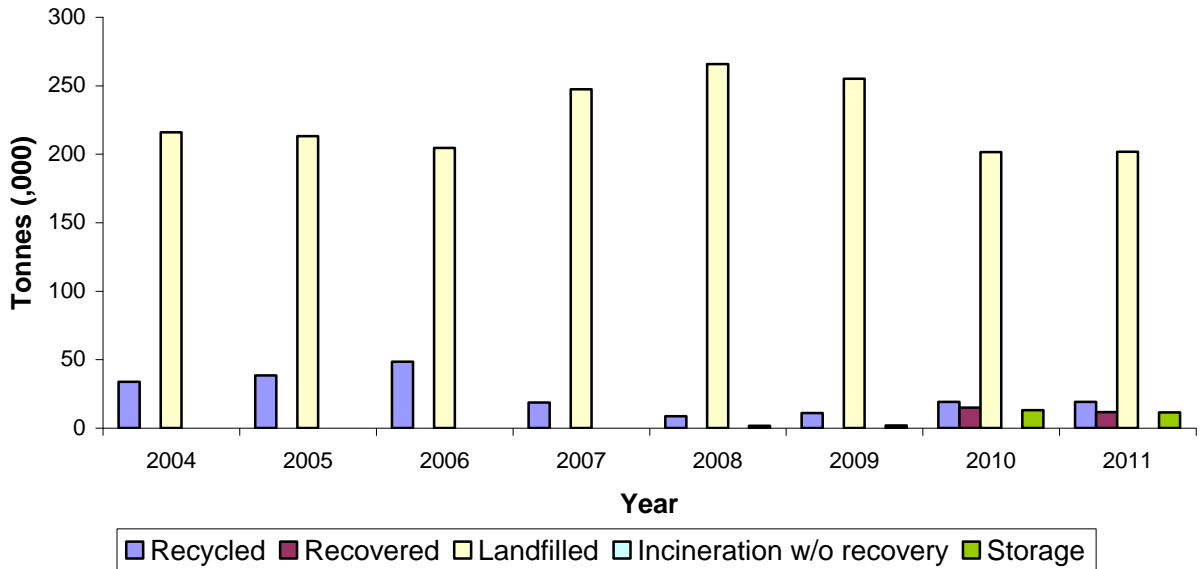


### 2.1.1. Current situation

Data for municipal solid waste recorded over the period 2004 to 2011 as laid down in table 2 suggests Malta's reliance on landfills as the main treatment option for this waste stream. The levels of recycling were quite steady throughout this period, with a decrease registered in 2008 and 2009 which may be attributed to the upgrading of the Sant Antnin Solid Waste Treatment Plant in Marsascula. With the latter treatment facility nearing its full operational capacity in 2011, it is evident that existing infrastructure does not suffice to divert MSW from landfills and thus the need for new waste infrastructure in this sector. Increased knowledge sharing and cooperation between waste facilities, brokers and MEPA, resulted in better data management over the past two years even though further efforts are required. This has allowed for a better break down of the waste management options adopted in 2011.

	Recycled	Recovered	Landfilled	Incinerated w/o recovery	Storage	Total
<b>2004</b>	33,734		215,976		12	<b>249,722</b>
<b>2005</b>	38,406		213,041		13	<b>251,460</b>
<b>2006</b>	48,447		204,387		16	<b>252,849</b>
<b>2007</b>	18,628		247,312		8	<b>265,948</b>
<b>2008</b>	8,678		265,708		1,623	<b>276,008</b>
<b>2009</b>	10,959		255,025		1,791	<b>267,774</b>
<b>2010</b>	19,121	14,954	201,555		13,042	<b>248,672</b>
<b>2011</b>	19,076	11,723	205,138	43	11,405	<b>247,386</b>

**Table 2:** MSW management over the period 2004 to 2011



**Graph 1:** Graphical representation of MSW management over the period 2004 - 2011

Graph 1 highlights Malta’s striking dependence on landfill. It is evident that Malta needs action to introduce various measures so as to move waste up the waste hierarchy.

### 2.1.2. Biodegradable waste

#### (i) Biodegradable municipal waste (BMW)

Paragraph (m) of Article 2 of Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste, defines "biodegradable waste" as follows:

*“Any waste that is capable of undergoing anaerobic or aerobic decomposition, such as food- and garden waste, and paper and paperboard”.*

In this context, biodegradable municipal waste is taken to be any fraction of municipal solid waste that is able to undergo anaerobic or aerobic decomposition. The following percentage biodegradability factors are applied to determine the biodegradable content of waste:

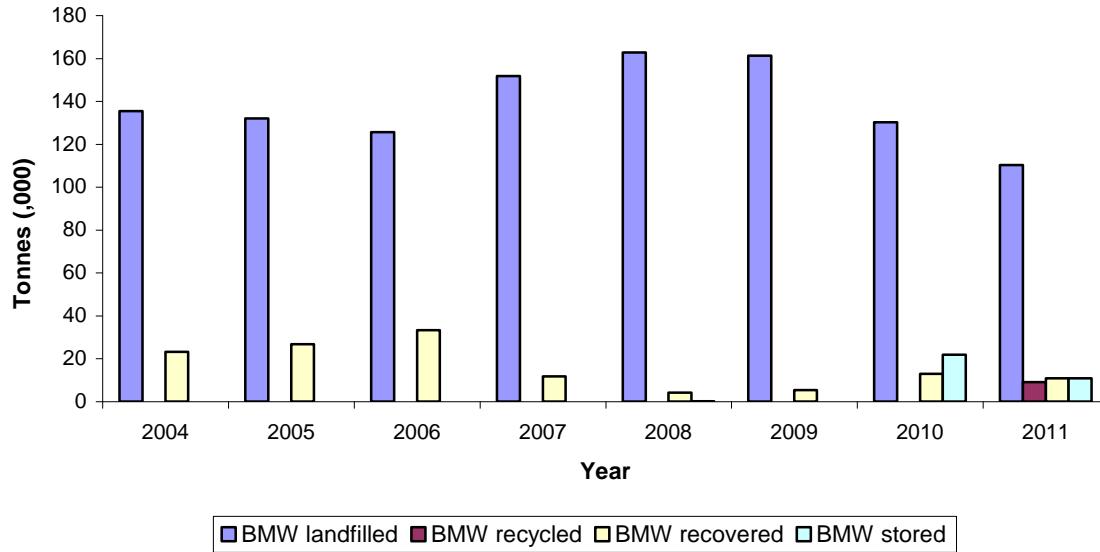
<b>Waste stream</b>	<b>Percentage Biodegradability</b>
Biodegradable waste	100%
Paper and Cardboard	100%
Wood	100%
Mixed MSW	66%
Textiles	50%
Street-cleaning residues	50%
Wastes from markets	50%
RDF	45%
Rejects	23%
Bulky waste	20%

**Table 3:** Percentage biodegradability of biodegradable wastes

Table 4 and graph 2 provide an overview of the total biodegradable municipal waste generated and managed over the period 2004 to 2011. It is evident that in 2011 the country still relied on landfills as the main disposal route for this fraction.

<b>Year</b>	<b>BMW landfilled</b>	<b>BMW recycled</b>	<b>BMW recovered</b>	<b>BMW stored</b>	<b>BMW generated</b>
<b>2004</b>	135,338	-	23,219	0	<b>158,557</b>
<b>2005</b>	131,995	-	26,818	0	<b>158,813</b>
<b>2006</b>	125,661	-	33,341	0	<b>159,003</b>
<b>2007</b>	151,821	-	11,803	0	<b>163,624</b>
<b>2008</b>	162,742	-	4,144	119	<b>167,005</b>
<b>2009</b>	161,262	-	5,349	15	<b>166,625</b>
<b>2010</b>	130,198	-	12,982	21,878	<b>165,058</b>
<b>2011</b>	110,253	9,138	10,861	10,908	<b>150,241</b>

**Table 4:** BMW management over the period 2004 to 2011



**Graph 2:** Graphical representation of MSW management over the period 2004 - 2011

In accordance with the obligations laid down in Article 5(1) of the Landfill Directive, Malta has adopted a national strategy for the reduction of biodegradable waste from landfills and includes measures on how the country is to achieve the targets set out in the Landfill Directive by means of prevention, biogas and compost production and materials/energy recovery. The provisions laid down in this plan shall prevail in regards to the management of biodegradable municipal waste. In this context, the strategy for the reduction of biodegradable waste from landfills shall be revised in light of the measures adopted in this plan.

### (ii) Other bio-waste management issues

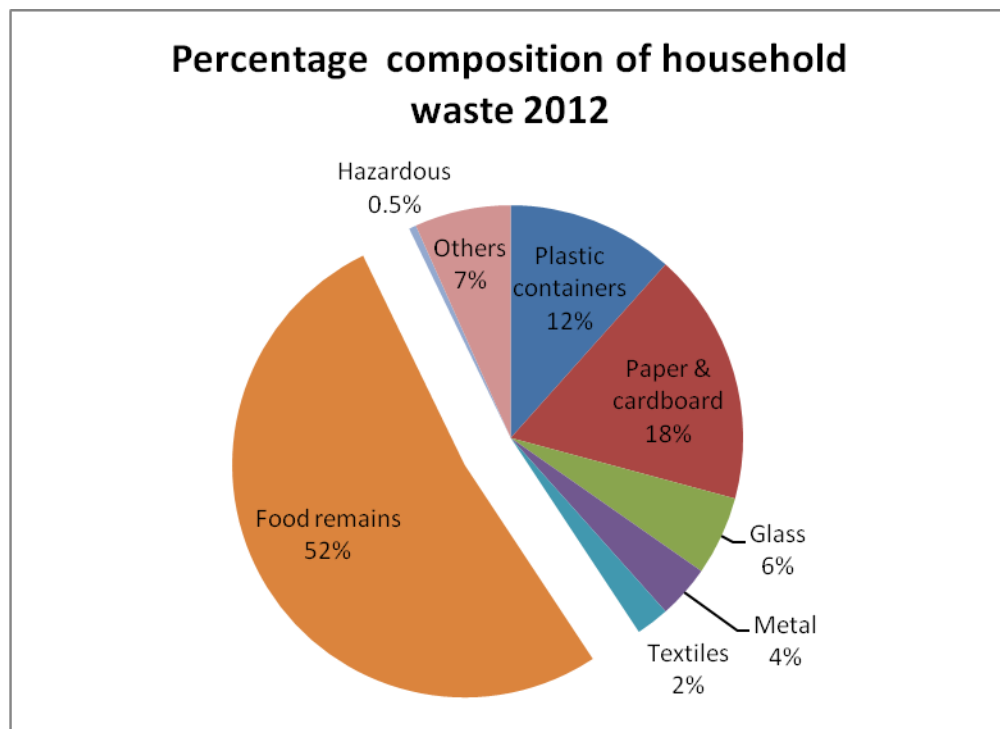
The Waste Regulations, 2011 (L.N. 184 of 2011) define bio-waste as biodegradable garden and park waste, food and kitchen waste from households, restaurants, caterers and retail premises and comparable waste from food processing plants.

Bio-waste does not include, forestry or agricultural residues, manure, sewage sludge, or other biodegradable waste (such as natural textiles, paper or processed wood) and by-products of food production that never become waste.

There is no separate kerbside collection of bio-waste from households, restaurants, caterers and retail premises and comparable waste from food processing plants in Malta. In this context, no data was available at the time of drafting on the amount of bio-waste generated. Since the majority of bio-waste is collected with other waste as mixed MSW, with the exception of garden waste collected separately at Civic Amenity Sites, the main treatment options for this waste streams were diversion to Sant Antnin and landfill.

### 2.1.3. Household waste

According to the Waste Regulations, household waste consists of waste from domestic properties, residential homes, premises forming part of a university or school or other educational establishment, and premises forming part of a hospital and nursing home. Based on the 2012 household survey carried out by the National Statistics Office (NSO), household waste has the following composition:



**Figure 1:** Household Waste Composition (NSO, 2012)

In line with the Waste Framework Directive, it is essential for Malta to reach a minimum of 50% preparing for re-use and recycling target for waste material such as at least paper, metal, plastic and glass from households.

As at 2011, thanks to the general public's active participation in existing collection systems, Malta managed to recycle 23% of the amount of paper, plastic, glass and metal generated by households. Existing collection systems for household waste have yielded positive results in the amounts of dry recyclables and bulky waste collected and recycled, though more effort is needed to narrow the gap towards achieving national target, revision of existing collection practices may further enhance these results. Furthermore, the high amounts of mixed household waste collected remains a concern in view of the loss of potential recyclable materials including organic waste. Existing collection systems for bulky household waste, which include the free door to door collection by local councils and the civic amenity sites, have proved to be excellent means for the collection of such waste.

## **2.2. Commercial and industrial (C&I) waste**

Commercial and industrial and hazardous waste include waste from industries such as factories and industrial plants, and commercial waste arising from activities of wholesalers, hotels and catering establishments and the service sector, of which these can be hazardous. Waste from hotels and catering establishment that is similar in composition to household waste is classified as municipal solid waste.

### **2.2.1. Current situation**

Data for C&I waste recorded over the period 2004 to 2011 as laid down in table 5 indicates that the main treatment operation for this waste stream was landfilling. However, this data may be somewhat misleading as a high percentage of commercial and industrial wastes were captured under MSW data. The main reason for this was that waste resulting from commercial and industrial activities was being classified under

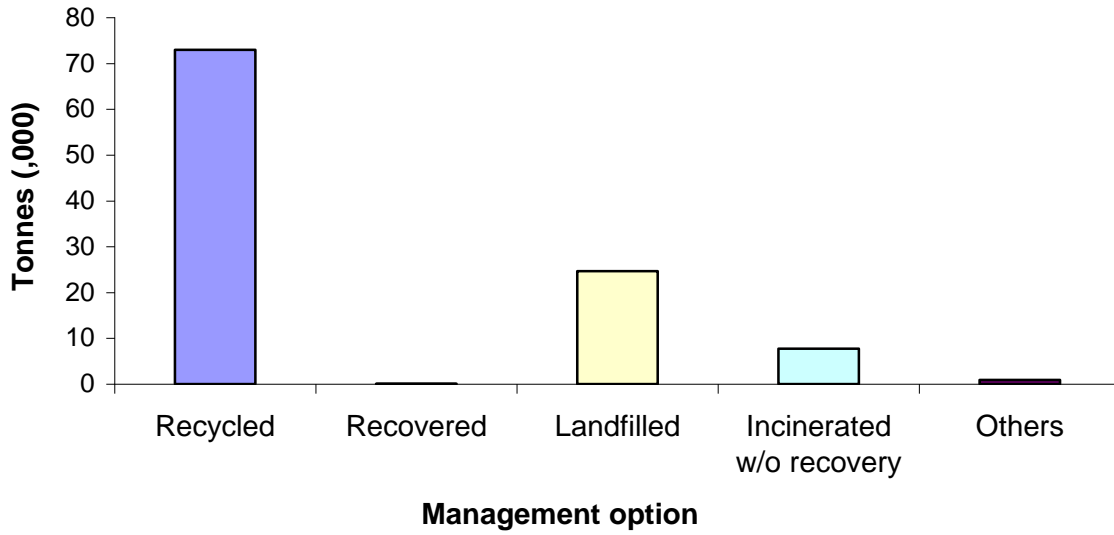
Chapter 20 of the European Waste Catalogue<sup>8</sup>. This situation has since improved, thanks to various consultation sessions and one to one meetings with the relevant stakeholders on the use of the European Waste Catalogue. This has lead towards better classification of waste data and in fact, table 5 indicates a drastic increase in C&I recycled in 2011 when compared to the previous years.

	Recycled	Recovered	Landfilled	Incinerated w/o recovery	Others	Total
<b>2004</b>	962		41,140		11	<b>42,113</b>
<b>2005</b>	1,342		28,451		1,722	<b>31,515</b>
<b>2006</b>	1,424		38,665		25,058	<b>65,148</b>
<b>2007</b>	2,014		26,201		67,856	<b>96,072</b>
<b>2008</b>	2,886		12,685		46,671	<b>62,242</b>
<b>2009</b>	4,210		12,219		45,435	<b>61,864</b>
<b>2010</b>	7,876		18,202		43,161	<b>69,239</b>
<b>2011</b>	72,916	463	24,633	7,356	886	<b>106,235</b>

**Table 5:** C&I waste management over the period 2004 to 2011

As at 2011, 89% of total C&I waste generated was recycled and 30% was landfilled. This indicates that more C&I waste was managed in 2011 than generated. This difference is attributed to the export of C&I waste mainly ferrous metals stored by private facilities from previous years which skews the data. Storage and export of waste materials, in particular metallic waste, is common practice as operators tend to ship at the most opportune moment based on international metal market prices.

<sup>8</sup> Commission Decision 2000/532/EC establishing a list of waste



**Graph 3:** Graphical representation of C&I waste management in 2011

The main commercial and industrial waste landfilled in 2011 was sewage sludge generated by urban waste water treatment plants, totaling some 20,703 tonnes. The latter is expected to increase since the Urban Waste Water Treatment Plant in the South of Malta was fully operational by mid-2011. This will result in increased pressure on precious landfill void space should such a practice continue in the coming years.

The commercial and industrial sector is that sector which generates the highest quantities of hazardous waste. In fact, over 21,000 tonnes of the total C&I waste generated in 2011 was hazardous. Local treatment of hazardous waste is quite limited, with the main treatment facility being the hazardous waste incinerator. In this context, the majority of hazardous C&I waste is stored at authorised private facilities or at the site of generation in the case of factories pending export in accordance with the Waste Shipments Regulation (EC No 1013/2006).



### 2.3. Construction and demolition (C&D) waste

Construction and demolition waste constitutes the largest share of waste generated in the Maltese Islands. The generation of this waste stream is highly dependent on the construction industry, and like any other waste stream is directly proportional to the economics of this industry. In fact, table 6 indicates a decrease in the amount of C&D waste generated over the period 2008 to 2011 with the lowest value recorded in 2009, the same period during which the construction industry registered an overall low due to the economic crisis. Furthermore, the generation of C&D waste is many a time related to major developments within any particular year.

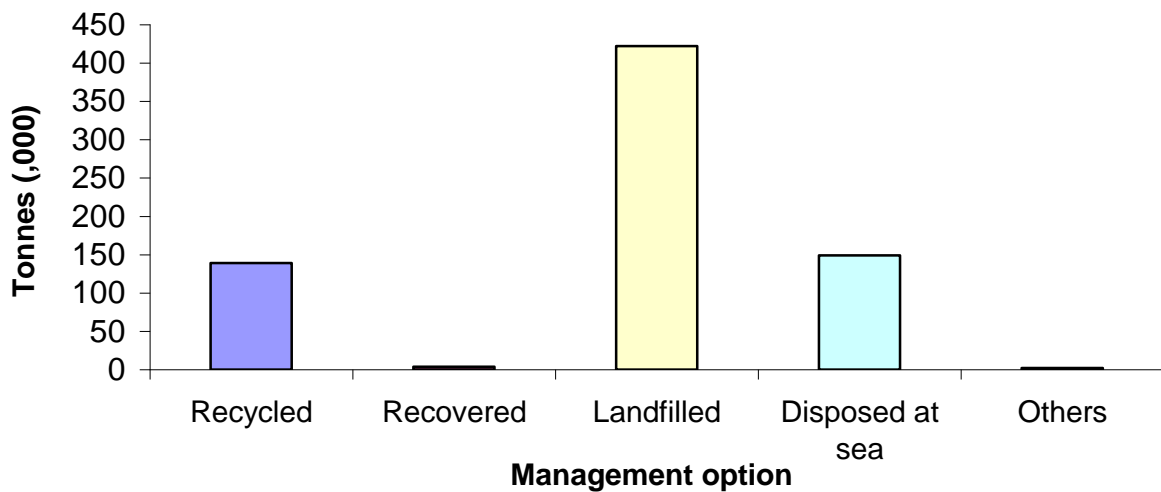
	Recycled	Recovered	Landfilled	Disposed at sea	Others	Total
<b>2004</b>	19,916		2,580,454	210,404		<b>2,810,774</b>
<b>2005</b>	15,332		1,970,883	357,942		<b>2,344,157</b>
<b>2006</b>	101,756		2,061,340	329,426		<b>2,492,522</b>
<b>2007</b>	243,818		2,110,641	146,205		<b>2,500,664</b>
<b>2008</b>	173,982		1,522,000	300,360		<b>1,996,342</b>
<b>2009</b>	63,463		462,584	74,370		<b>600,417</b>
<b>2010</b>	114,149		688,061	290,120		<b>1,092,330</b>
<b>2011</b>	139,144	3,611	422,057	149,120	2,125	<b>716,057</b>

**Table 6:** C&D waste management over the period 2004 to 2011

The table above indicates that landfilling is the preferred option. The main C&D waste disposed of in inert landfills is inert construction and demolition waste and clean geological material excavated during the construction works. Spent quarries, which have been for long accepting inert C&D waste, were permitted as inert landfills, in spite of the fact that such waste material was being used for rehabilitation purposes. The latter is considered as a backfilling operation in accordance with the definition laid down in Commission Decision 2011/753/EU, whereby backfilling is a recovery operation where suitable waste is used for reclamation purposes in excavated areas or for engineering purposes in landscaping and where the waste is a substitute for non-waste materials. In this context, backfilling spent quarries, together with recycling recyclable C&D waste should aid Malta achieve its 2020 target of recovering 70% inert construction and demolition waste. In fact when one considers the amount of inert C&D waste landfilled

in 2011 as backfilled, (excluding non-hazardous and hazardous C&D waste landfilled and dredged material and inert C&D waste disposed at sea), an overall recovery rate of around 98% was achieved (24% recycling, 1% recovery and 73% backfilling) in 2011<sup>9</sup>.

Valuable waste materials generated by the construction industry such as metal and glass waste are exported abroad for recycling. Disposal at sea remains the preferred option for dredged material excavated during cleaning operation of ports. Disposal at sea has often been considered a good option for clean geological material excavated during major construction activities when the alternatives for disposal via landfill/backfill involved the generation of a substantial volume of traffic in already congested areas.



**Graph 4:** Graphical representation of C&D waste management in 2011

The total amount of hazardous waste generated by the construction industry in 2011 totalled 216 tonnes, which was mainly asbestos waste exported for disposal abroad.

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<sup>9</sup> Recovery rate is based on the methodology laid down in Commission Decision 2011/753/EC.

## **2.4. Extended producer responsibility**

### **2.4.1. Eco-Contribution**

The Eco-Contribution regime was introduced in 2004 through the enactment of the Eco-Contribution Act (Cap. 473) which came into force on 1 September 2004 as published by the Notice of Coming into force (LN391/04) and its amendments. The collection of the Eco-Contribution was entrusted to the VAT Department as the Competent Authority on this matter. This Act was proposed and championed by the Ministry responsible for the Environment, which was MRAE at that time, with the collaboration of the Ministry of Finance.

The main objectives of the Act were to:

- Encourage producers to take responsibility for the environmental impact of their waste;
- Provide incentives for the recovery of waste;
- Incentivise more the use of deposit-refund schemes; and
- Discourage the consumption of goods with non-acceptable environmental impact.

This regime also resulted in the generation of revenue target to be used to implement waste management related projects in Malta.

The Eco-Contribution imposed on a particular product is meant to reflect the costs of disposing such products when they become waste. The amount of Eco-Contribution varies according to different products depending on the extent to which these products are harmful to the environment. Government had carried out consultations with constituted bodies regarding the list of products on which Eco-Contribution would have to be charged. When putting packaging goods on the Maltese market, the producer or

importer has to pay a certain amount of money as an Eco-Contribution to balance for the negative environmental impact these products and their packaging might generate.

The Eco-Contribution Act introduces the possibility that payers of the Eco-Contribution may be given back a refund of their Eco-Contribution or even be exempted from the payment of such contribution under certain circumstances, included instances there the payer can prove that s/he is taking due care to recover the waste resulting from the product on which the Eco-Contribution is payable.

The Eco-Contribution (Approved Waste Recovery Facilities) Regulations (L.N. 74 of 2008), the Eco-Contribution (Exemptions) Regulations (L.N. 84 of 2010) and the Eco-Contribution (Granting of Refunds) Regulations (LN 158 of 2011) were issued in order to formalize a procedure for exemptions and refunds.

Essentially these legal notices provide for a refund of the paid Eco-contributions if the payer proves a certain recovery/recycling rate of the material s/he has put on the market. Otherwise, Eco-Contribution is kept by Government to finance the collection of packaging waste.

### **The effects of the Eco-Contribution regime on waste management in Malta**

While the Eco-Contribution regime resulted in a substantial income for Government in terms of revenue targeted for waste management projects and infrastructure, in reality this regime overlapped with a number of other Legal Notices that implement the EU waste management acquis in Malta. In particular, the Eco-Contribution regime clashed with the obligations put forward by the Producer Responsibility Directives, namely The Waste Electrical and Electronic Equipment (WEEE) regulations, the Packaging and Packaging Waste Regulations and the Batteries Regulations. Effectively this Act created:

- a double obligation on producers of EEE, Packaging and Batteries who were obliged to pay the Eco-Contribution and also at the same time to recover waste individually or as part of a collective compliance scheme as a result of the obligations of the Legal Notices regulating WEEE, Packaging and Packaging Waste and Batteries and Waste Batteries.
- This double obligation created a standoff between Government and Industry. The latter objected to the double obligation and as a result many producers of WEEE, Packaging and Batteries refused to implement the obligations of the WEEE, Packaging and Batteries Regulations.
- Perplexity between the definitions laid down in the Eco-Contribution Act and its subsidiary legislation with the definitions laid down in the producer responsibility Directives, and
- Incongruity between the recovery targets laid down in the eco-contribution refunds legislation and the recovery targets laid down in the packaging regulations.

This situation has led to the poor implementation of the Packaging, WEEE and Batteries regulations in Malta.

The standoff with Industry has been somewhat partially addressed for packaging by means of the Legal Notices of 2008, 2010 and 2011 as mentioned above and which provide for refunds and exemptions of Eco-Contribution for those payers that manage to prove that they are recovering part of the packaging that they place on the market. However the situation with regards to WEEE and Batteries is still the same and little progress has been registered in the implementation of the WEEE regulations (and consequently the EU WEEE Directive) in particular.

Government is currently undertaking a review of eco-contribution legislation and is considering all options available to design a system which reinforces waste management principles. This review is at an advanced stage.

#### **2.4.2. Packaging and packaging waste**

Packaging material is an integral part of our daily life, as it contains, protects, facilitates the handling and delivery of goods purchased. Furthermore, packaging may be utilised as a marketing tool in the presentation of the product. Materials used for packaging products may be paper, cardboard, plastics, metal and glass. Many a times once the product is removed from its packaging or the good consumed, the packaging is discarded once it no longer serves its purpose thus resulting in waste. Therefore, in view of the high quantities of packaging material consumed daily, the introduction of specific legislation to regulate packaging material and packaging waste comes as no surprise.

It is the producer of the packaging material who is to shoulder the responsibility of his/her material. European and national legislation, provide that any person that places packaging material on the national market, whether through manufacturing or imports, is to set up the necessary collection systems for the collection of packaging waste so as to recover and recycling a percentage of packaging waste based on the amount of packaging material s/he placed on the market.

Furthermore, the packaging regulations promote eco-design, and encourage producers of packaging material to improve their designs with the aim of using less material without posing a threat to the quality of the good contained. Besides the environmental benefits gained, increased process efficiency during the manufacturing phase could widen the producer's profit margins if fewer raw materials are used. This would in turn result in the reduction of waste at the manufacturing stage thus reducing costs related to waste disposal. Moreover, less packaging placed on the market would entail less waste generation after consumption.

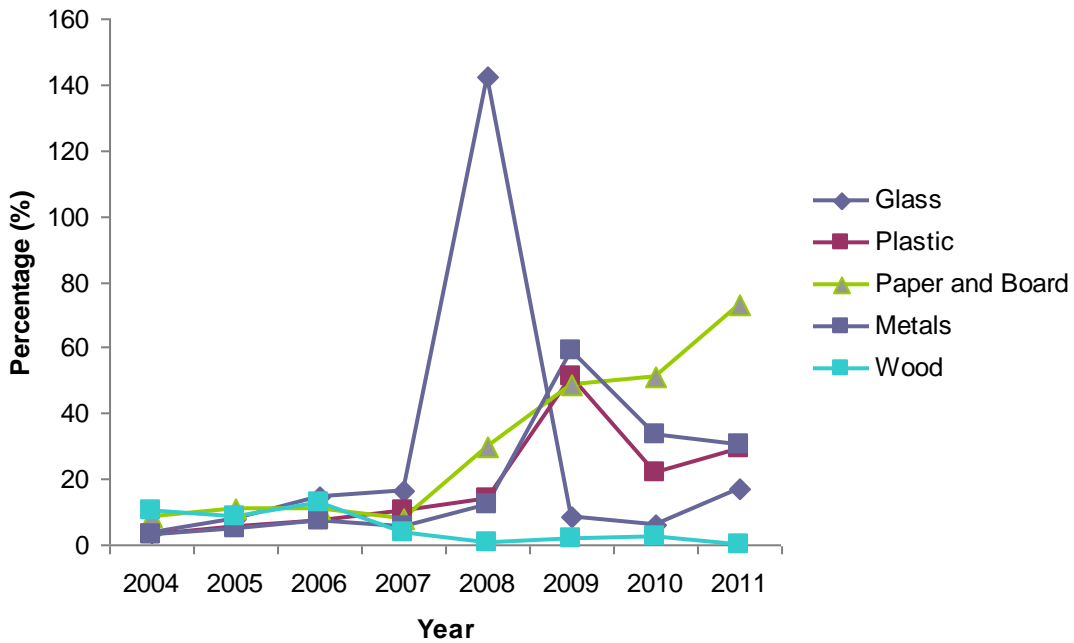
Packaging producers may opt to set compliance schemes to take over their legal responsibilities under the packaging regulations or honour their obligations individually. They would need to register with the competent authority responsible for the implementation of the packaging regulations and declare the quantities of packaging by

material they place on the market in any particular year. At the time of writing there were two authorised compliance schemes and a number of self-compliant producers. Whether, a member of a scheme or self-compliant, producers of packaging material are also to comply with the Eco-Contribution Act as discussed in section 2.4.1., which requires producers of packaging to pay an eco-contribution if they place any of the packaging items laid down in the First Schedule of the Act. The Eco-Contribution (Exemptions) Regulations as laid down in L.N. 84 of 2010, introduced in 2010, exempts some packaging items from the requirements of the eco-contribution regime.

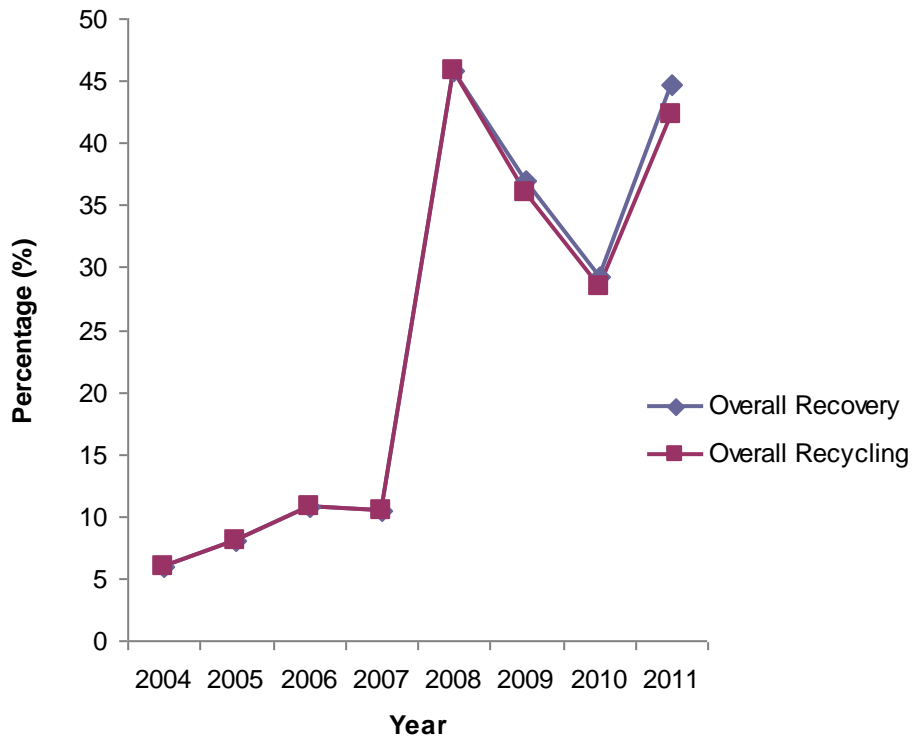
In addition to the eco-contribution, producers are also required to finance systems for the collection, recovery and recycling of packaging waste. Packaging waste is mainly collected through the collection services provided by authorised compliance schemes. The schemes collect packaging waste mainly through the recycling Tuesday's initiative, bring-in-sites and directly from commercial and industrial entities.

Those producers that can prove that they have recycled the stipulated percentage of packaging waste allocated to them (based on the amount of material they placed on the market) are entitled to an eco-contribution refund in accordance with the Eco-Contribution (Granting of Refunds) Regulations, 2011 as laid down in L.N. 158 of 2011.

For the year 2011, Malta achieved its targets for plastic (28.9%), metals (30.2%), paper & board (72.7%) and glass.(17.2%) thus satisfying its minimum overall recycling target due in 2005. However this target may be postponed provided that the target of 55% is achieved by not later than 31 December 2013. In terms of national legislation, Malta should have achieved the target of 51% by 2011. Malta attained an overall recycling rate of 42.3% in 2011. A minimum overall recovery target of 47% for 2011 (Instead an overall recovery rate of 44.7% was achieved in 2011.) was not achieved in terms of EU legislation.



**Graph 5: Packaging waste recycling rate (% by year)**



**Graph 6: Overall Recovery & Recycling Rate (% by year)**

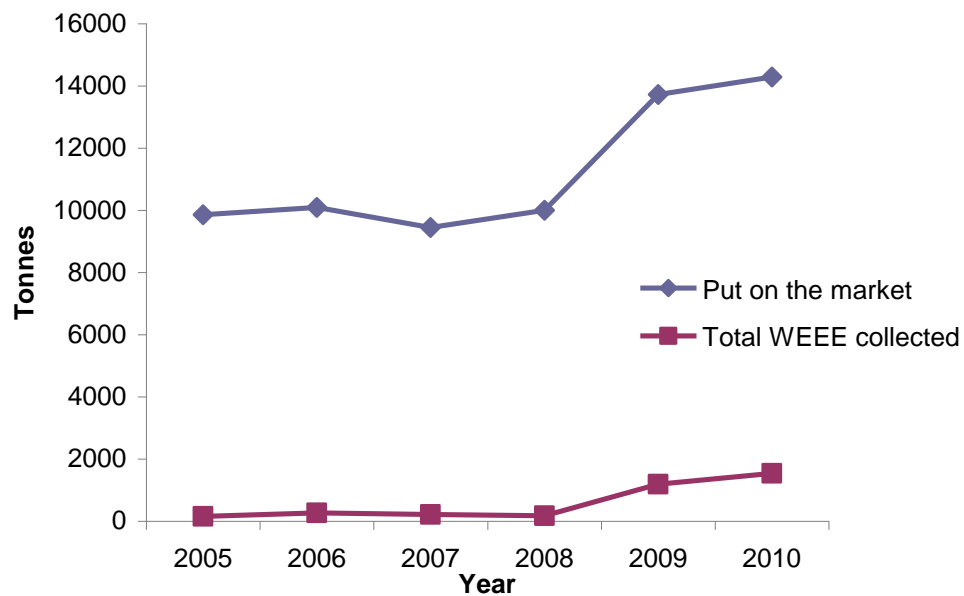


The data provided indicates that Malta faces difficulties in fully complying with the stipulated targets. The main problems hindering effective implementation are twofold: (i) not all producers are shouldering their responsibility and (ii) a lack of separation of dry recyclables at household level. Malta has strived to achieve better recycling targets through capacity building within the competent authority targeted towards the compliance of producer responsibility obligations namely those related to packaging and packaging waste. As a result of this the number of producers registered with MEPA increased significantly, and the members in the authorised compliance schemes has increased considerably. However, it is still considered that a number of producers are free-riding the system and more efforts are evidently required to bring them in line with their obligations.

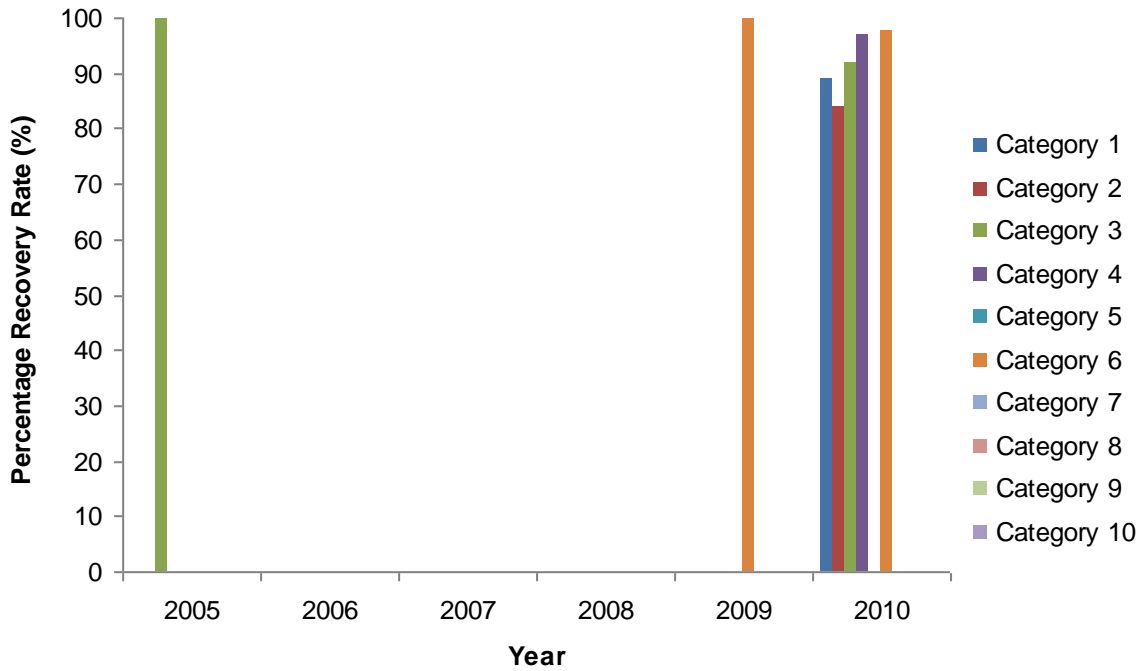
#### **2.4.3. Waste electrical and electronic equipment (WEEE)**

The implementation of the WEEE Directive has still not delivered the desirable results as Malta's performance remained below intended targets. In addition, the producers are not achieving their obligations themselves (through producer responsibility as the implementation of the eco-contribution legislation has met some operational difficulties.

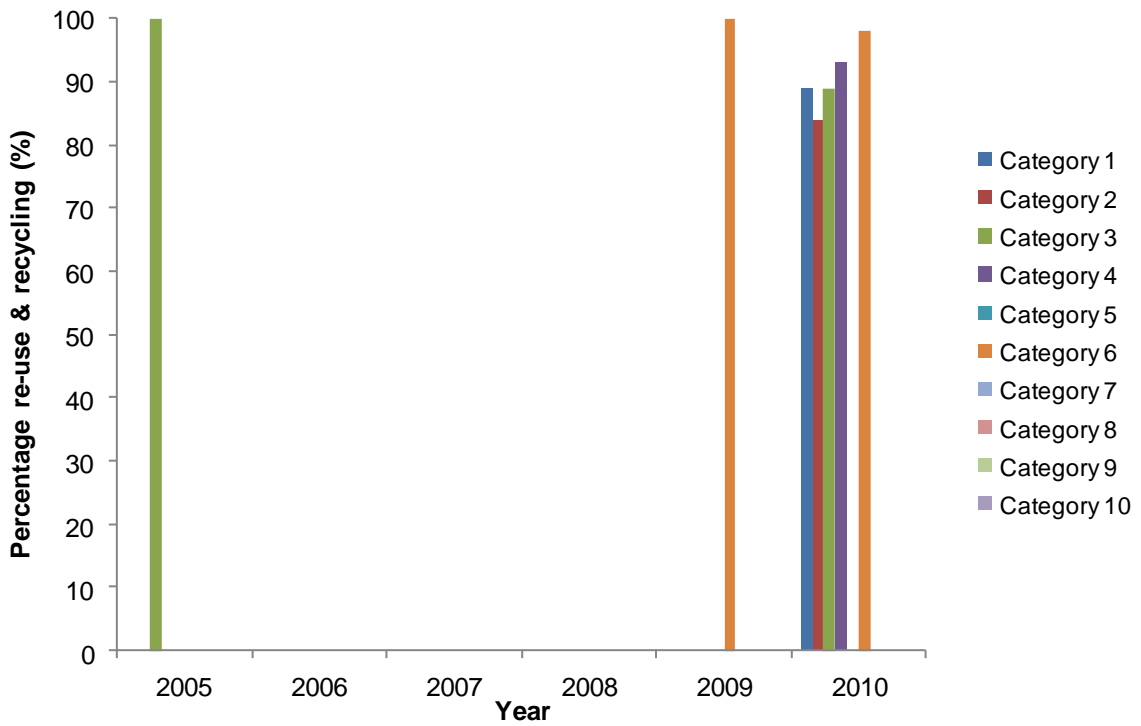
Essentially the major stakeholders in this area are claiming that they are being imposed with a double payment regime whereby producers are paying eco-contribution on EEE while at the same time they are being asked to cater for their obligations as producers of EEE arising from the WEEE Directive. This situation clearly needs to be addressed.



**Graph 7:** EEE put on the market and WEEE collected (tonnes)



**Graph 8: WEEE Recovery Rate (% Category)**



**Graph 9: WEEE re-use and recycling rate (% Category)**

#### **2.4.4. Batteries and accumulators**

Currently batteries can be disposed of at any Local Council Office or at a series of outlets in each locality around Malta and Gozo, which collects batteries in a special bin. This collection system is part of the Batterina campaign managed by WasteServ. WasteServ then collects the separated, used batteries from these outlets, sorts them by type (for example button cells, batteries with lead, with alkaline and zinc-carbon, nickel-cadmium, lithium-ion and other types), and stores them responsibly until they are exported for eventual recycling. In 2012, Malta has achieved a collection rate of 20.39%. Further information on the Batterina campaign may be obtained from <http://www.batterina.net/>

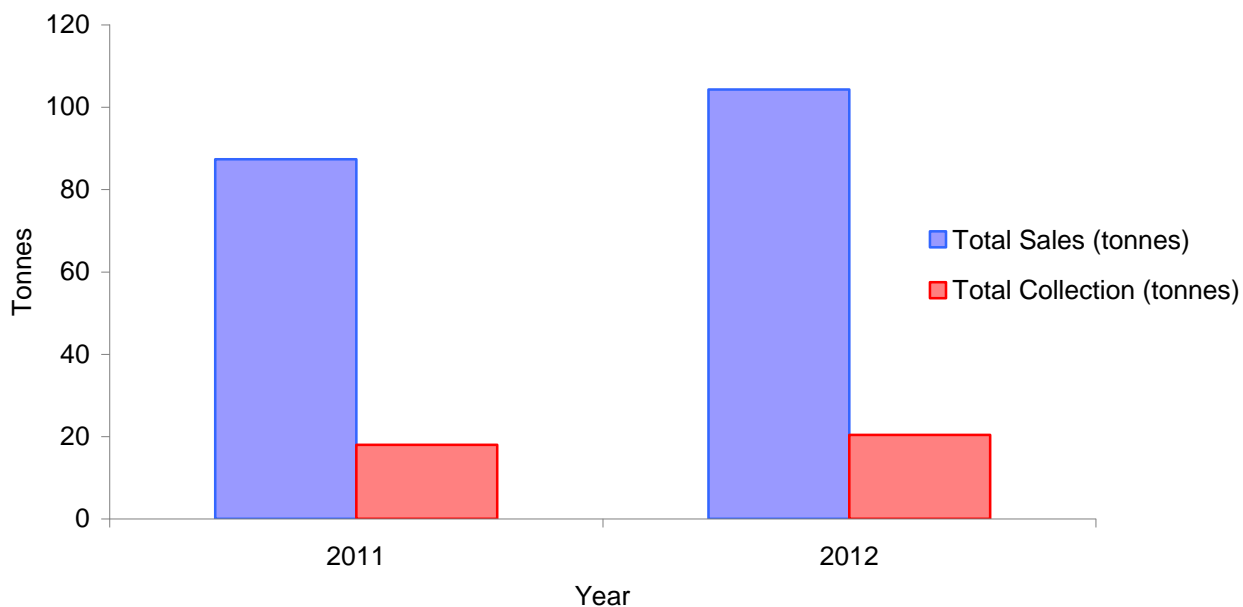
The main problem besides the collection rate, is that the campaign is managed by WSM which is a government owned company and not by battery producers as required by the Batteries Directive. This can lead to the stifling of the business opportunity that motivates the private sector to manage a particular waste stream and is a further pointer to the need for WasteServ to align its operations to reposition itself as the operator of last resort. Therefore, although 20.39% of portable batteries were collected, they were not collected in accordance with the legal obligations provided by the Directive. As per other producer responsibility directive, battery producers, including those importing and placing batteries on the Maltese market, are to set up the necessary collection systems. However, to date there is only one privately authorised scheme, as producers are unwilling to set up such systems until the outcome of the revisions to the existing eco-contribution regime addresses their concerns, namely to remove the double payment regime.

The VAT department collects data by HS codes and does not maintain data by electrochemical type. Having said so, however, data relating to collection by electrochemical type was available.

Although MEPA considered using data obtained from the National Statistics Office, this data was not deemed to be suitable since it was impossible to determine by the NACE

activity and the HS codes which batteries are portable or not. Moreover the quantities declared in the data provided by the National Statistics Office is incomplete, thus the quantity declared by the National Statistics Office do not reflect the total weight declared. We were thus impeded from calculating the amount of portable batteries.

Ideally, Malta's reporting should be based on MEPA's register of producers which needs to be improved further and maintained. It is important that registration deadlines with regards to batteries are adhered to, since, the data relating to producers registering by January 2013 data relating to for example 2013, would need to be used for reporting by June 2014.

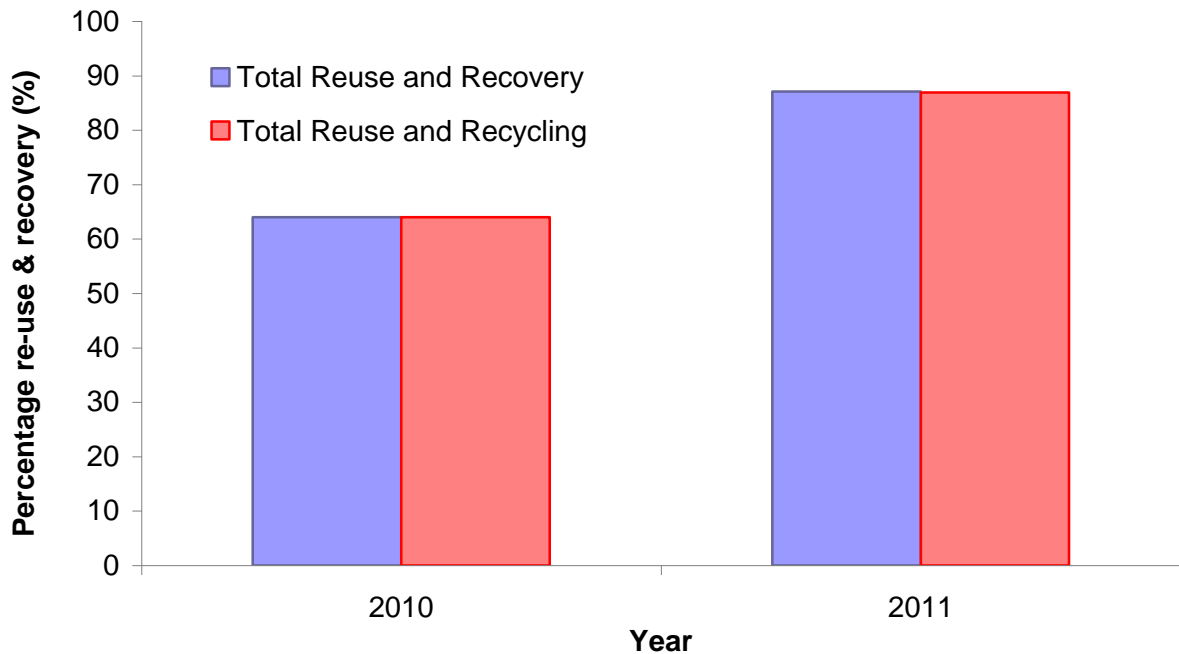


**Graph 10:** Total Sales and Collection of portable batteries (tonnes)

#### **2.4.5. End-of-life vehicles (ELV)**

To date, the implementation of this Directive has been problematic, even though during 2011, Malta achieved a re-use and recovery rate and a re-use and recycling rate of 87% respectively as indicated in graph 11. The main reasons that have been blocking the implementation of this Directive are:

- Issues of competence that need to be sorted between the various authorities.
- Issues of infrastructure: Malta currently has one authorised dismantling facility which was granted both a development and operational permit. This has only started operating in 2010. Currently, there are other pending applications for dismantling facilities, with one of these dismantling facilities being in its final stages for permitting.
- Issues of enforcement: Economic operators have not yet fully embraced their responsibilities under the ELVs Directive, one of the main reasons in the past being the lack of locally authorised treatment facilities. Malta has a large number of operators that are accepting to treat ELVs illegally in scrap yards and panel beating shops. This matter is being targeted by imposing a requirement introduced by Transport Malta to present a certificate of destruction issued by the authorised treatment facility prior to deregistration of a vehicle.



**Graph 11:** Total Re-use, Recycling and Recovery of ELVs (% by year)

#### 2.4.6. Waste oils

Waste oils are classified as hazardous waste, and in this context it is imperative that this waste stream collected and treated in the most appropriate manner. Around 3,000 tonnes of mineral or synthetic lubrication or industrial oils are marketed/sold locally in any one year. Their fate, following their end-of-life is not well documented as there are numerous outlets in particular those involved with car repairs, which may not always follow the consignment note procedure for the disposal of hazardous wastes. The latter entails, that transfers of waste oils locally, from the site of generation to the site of disposal or storage, should be notified to the competent authority.

As at 2011, some 760 tonnes of waste oils followed the notification procedure for local transfers. This might not necessarily imply that these are the total waste oils generated in that year; however, they were the only ones that have been registered.

In this context, it is evident that this waste stream is to be given due importance as inappropriate disposal, such as disposal into the sewers, may have detrimental effects

on human health and the environment. One should never forget the basic principle that oils and water do not mix.

#### **2.4.7. Waste tyres**

There is no one specific EU or national regulation regulating waste tyres. The lack of an adequate legal instrument in this regards makes it somewhat difficult to assess the fate of tyres following placement on the market, in particular the management of waste tyres. Moreover, it has proved to be somewhat difficult to adequately determine the quantities generated per annum. According to data held by the Malta Environment and Planning Authority the following quantities of waste tyres were generated, which were mainly exported for treatment abroad:

<b>Year</b>	<b>Amount (Tonnes)</b>
2010	853
2011	1,996
2012	1,997

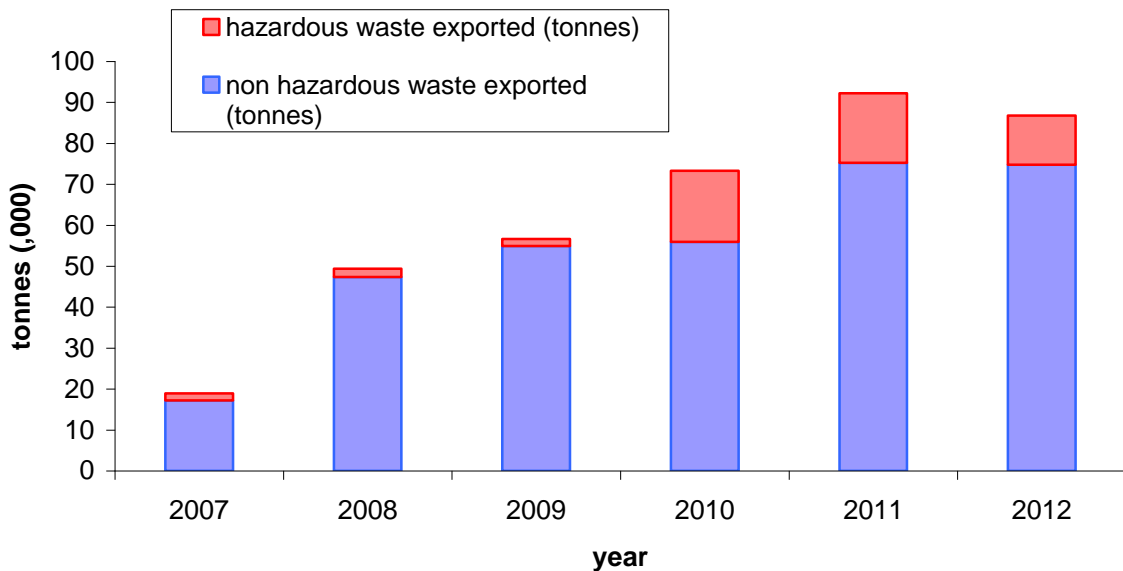
**Table 7:** Generation of waste tyres

Due to the wear and tear and road safety requirements, tyre replacement takes place every so often. Therefore, waste tyres should be a major waste arising in the Maltese Islands, however the data provided above seems to suggest others. In this context, it is deemed necessary to specifically address this waste stream.



## 2.5. Waste Shipments

Section 1.2.2, highlights that in view of Malta’s specificities it may not be feasible to have a full range of facilities to deal with the various waste streams generated locally, especially in regards to hazardous wastes and recycling facilities. In this context, Malta is highly dependent on exports for a number of waste streams. Exports of waste may be divided into two categories depending on the nature of the waste, that is, hazardous and non-hazardous, as discussed further on in this section. Graph 12, provides an overview of the amount of waste exported from 2007 to 2012. There was an evident increase in the amount of waste exported over this period. The highest amount of waste export was recorded in 2011 as highlighted in section 2.2.1., during which some 92,000 tonnes of were exported, 75,000 tonnes of non-hazardous waste and 17,000 tonnes of hazardous waste. This data distortion is mainly attributed to the shipment of waste stored from previous years. Furthermore, one may note that the bulk of the waste exported is of a non-hazardous nature.



**Graph 12:** Total waste exports from 2007 to 2012

The nature of the waste also determines its fate, as the Waste Shipments Regulation lays down more stringent measures for the export of hazardous wastes than non-hazardous waste. Hazardous wastes are mainly exported to other European states, whereas non-hazardous wastes are mainly exported outside the European community.

Shipments of waste destined for disposal in Malta are prohibited in accordance with, The Waste Management (Shipments of Waste) Regulations (L.N. 285 of 2011; S.L. 504.15). Such a prohibition was introduced in view of Malta's limited land space for disposal activities such as landfills. Allowing imports of waste to Malta for disposal will threaten Malta's ability to dispose of its own waste locally.

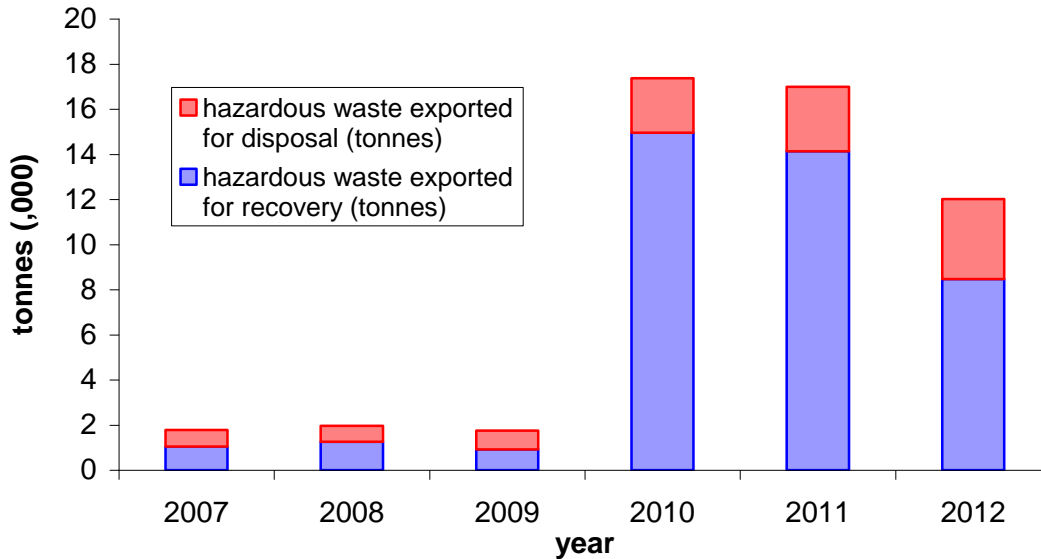
### **2.5.1. Hazardous shipments**

The chemical composition of hazardous waste will many a times determine the treatment option. The main hazardous wastes exported from Malta are:

- industrial sludges
- aqueous washing liquids and mother liquors
- waste solvents
- paint sludges
- waste from gas cleaning and fly ash
- waste oils
- waste electrical and electronic equipment
- lead acid batteries
- asbestos
- boiler dust
- liquid combustible wastes
- solid combustible wastes

The majority of the waste streams identified above, are potentially recyclable or recoverable, such the regeneration of waste oils, the regeneration of waste solvents and the recovery of precious metals and other metallic components from waste electrical and electronic equipment. Furthermore, a number of hazardous wastes are exported for

energy recovery. The waste streams exported for disposal are mainly asbestos waste and gas cleaning residues. Graph 13 provides an overview of the amounts of hazardous waste exported for recovery and disposal. The increase registered over the period 2009 to 2010 was due to the export of waste oils for regeneration which oils were previously treated locally.

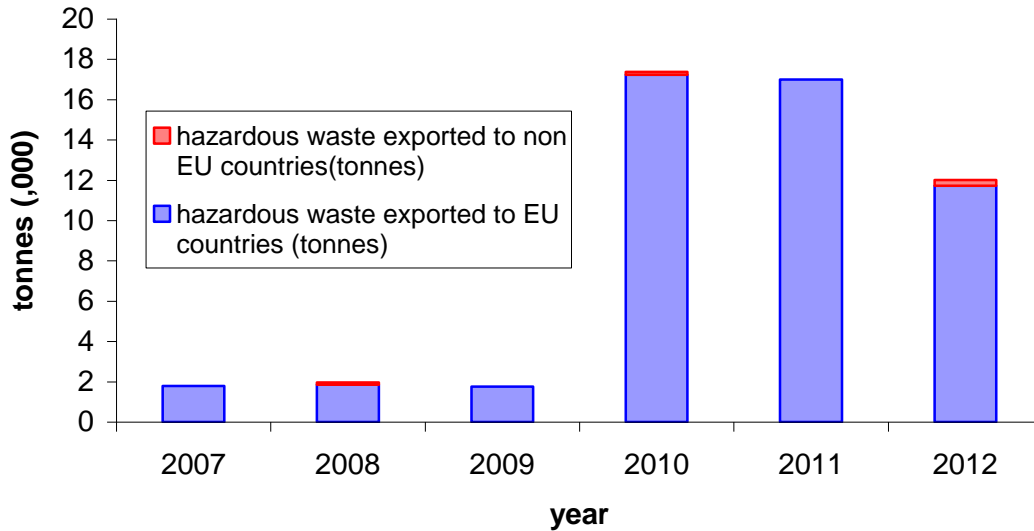


**Graph 13:** Hazardous waste exports destined for disposal or recovery over the period 2007 to 2012

The waste treatment option to be employed, that is, recovery or disposal, prior to export will determine the final destination of the waste, as:

- shipments of **hazardous waste destined for disposal** from Malta are only allowed to EU Member States, and,
- shipments of **hazardous waste destined for recovery** from Malta are only allowed to EU Member States and to countries belonging to the Organisation for Economic Co-operation and Development (OECD).

Graph 14 demonstrates that a small fraction of total hazardous waste exports are destined to non-EU Member states.



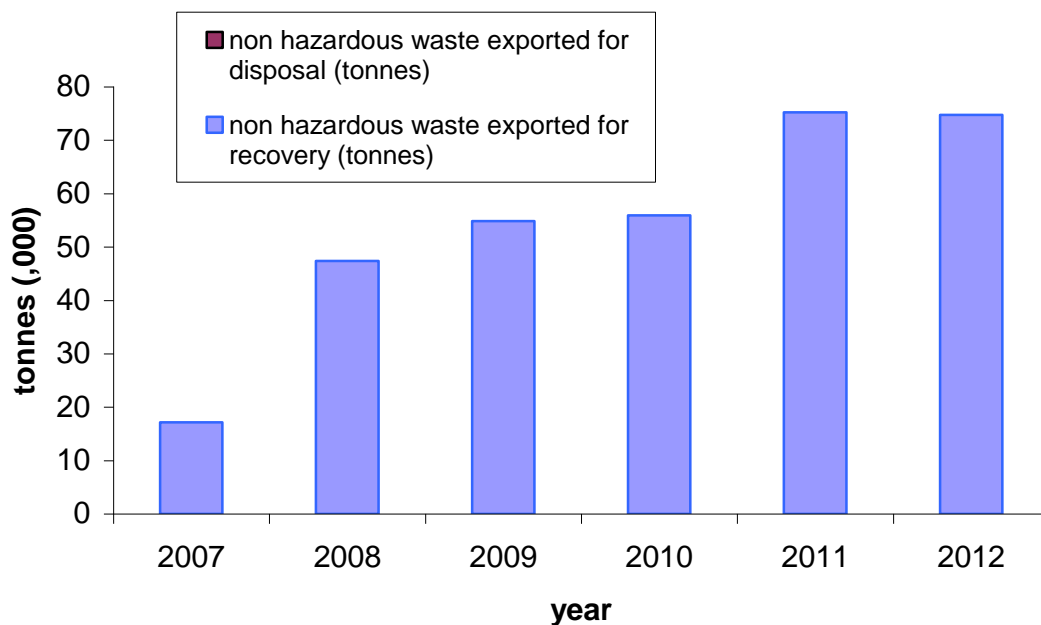
**Graph 14:** Total hazardous waste exported from 2007 to 2012

### 2.5.2. Non-Hazardous shipments

The same principles as for hazardous waste apply for non-hazardous wastes, in that the composition of the waste will determine the treatment operation to be employed. As the majority of non-hazardous wastes exported are:

- Metals,
- Glass,
- Plastic,
- Paper and cardboard,

The main treatment operations are recycling and recovery. In fact, graph 15 indicates that no non-hazardous waste is exported for disposal.



**Graph 15:** Non-hazardous waste exports destined for disposal or recovery over the period 2007 to 2012

The requirements for shipments of non-hazardous waste, also known as, “Green listed waste” are less stringent than those for hazardous waste. In fact:

- shipments of **non-hazardous waste destined for disposal** from Malta are only allowed to EU Member States and EFTA countries which are also parties to the Basel Convention (Iceland, Liechtenstein, Norway and Switzerland), and,
- Shipment of **non-hazardous waste destined for recovery** from Malta are allowed to EU Member States, OECD countries and certain non-OECD countries but are subject to some restrictions for the latter.

In this context, another crucial factor that determines the destination of non-hazardous waste besides the treatment option is the international market value of the waste, especially in the case of paper/board, plastics and metals. This explains the high values for non-hazardous waste exported to non-EU member states graphically represented in graph 16.



**Graph 16:** Total non-hazardous waste exported from 2007 to 2012

### 2.5.3. Marine waste and waste disposal

This section is intended to analyse disposal at sea operations. The main waste streams disposed at sea are:

- dredged material excavated through the course of maintenance of fairways for navigation of vessels and the development of port facilities,
- clean geological material having an inert nature,
- decommissioned explosives, and
- spoilt cargo (deemed suitable for disposal at sea)

Disposal at sea is regulated nationally through the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (London Convention) and its 1996 Protocol (London Protocol), the Convention for the Protection of the Mediterranean Sea Against Pollution, 1976 (Barcelona Convention) and its Protocols

(1976 and 1995 Protocols to the Barcelona Convention). Malta is a contracting party to the 1972 London Convention but not the London Protocol, a contracting party to the 1976 Barcelona Convention and 1976 Barcelona Protocol and signatory to the 1995 Barcelona Protocol.

Through marine protection obligations arising from the EU Water Framework Directive (2000/60/EC) and the EU Marine Strategy Framework Directive (2008/56/EC) Malta is obliged to ensure that dumping operations at sea do not jeopardize the achievement of 'good water status' and 'good environmental status' respectively as defined by these two Directives.

In terms of the Water Framework Directive, dumping at sea should not compromise the achievement of good ecological or chemical status in coastal waters. As part of Malta's Water Framework Directive obligations the first Water Catchment Management Plan (WCMP) was published in 2011 which identified three measures related to dumping operations at sea. The first measure dealt with the need to study the impacts of the spoil ground on ambient water and sediment quality. A study<sup>10</sup> carried out in 2008 had indicated the presence of spoil extending beyond the perimeter of the official designated area. However this study did not assess the chemical quality of the spoil, the biological diversity present, or the physical characteristics of the spoil ground. The measure identified in the WCMP therefore fills this gap and is considered to be an important step to better inform future disposal options at Malta's only designated spoil ground.

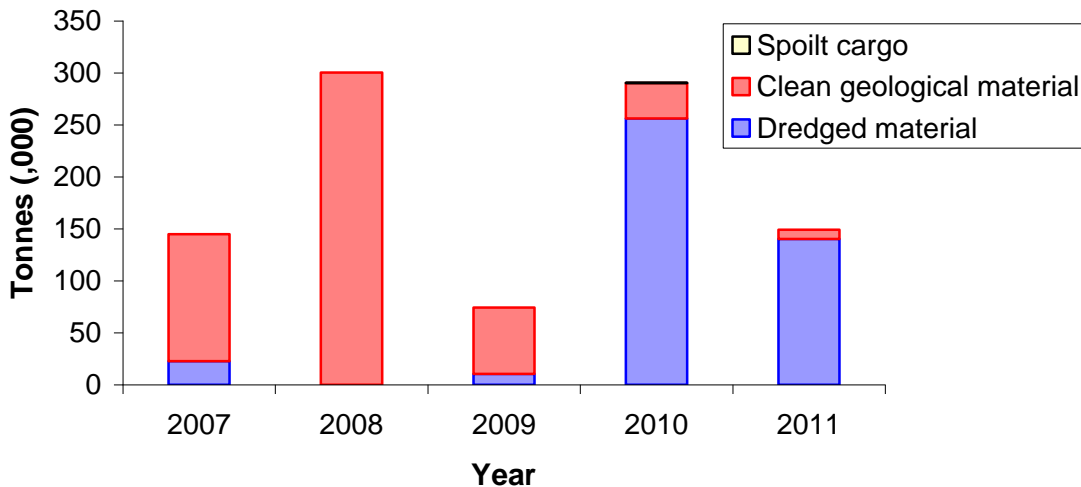
The second measure called for the monitoring of dumping operations at Malta's official marine Spoil Ground, located off Xgħajra. To date monitoring dumping activities is carried out by Transport Malta. The Vessel Traffic Services (VTS) within Transport Malta monitors all vessels in real time through AIS (Automatic Identification System). All AIS transponders on board the vessels include a GPS (Global Positioning System) receiver. The receiver transmits the vessel's position, speed and course, among some other static information, such as vessel's name, dimensions and voyage details.

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<sup>10</sup> Ecoserv Ltd., July 2008. Report of a survey of the physical and biological characteristics of the seabed at the marine spoil ground and surrounding area, off the Grand Harbour, Malta

The WCMP also included a third measure to develop and implement a national protocol for the disposal or reuse of dredged material from harbours. Once complete this national protocol shall establish guidelines that provide clear and consistent standards and criteria for the assessment of dredged material in order to facilitate and improve decision making, particularly in terms of managing contaminated sediments.

During the period 2007 to 2011, around 1million tonnes of waste was disposed of at sea, the majority being clean inert geological material extracted during the development of major on land projects. Graph 16 gives an overview of the amount of material disposed at sea whether dredged material or geological material each year since 2007 up to 2011. During 2010, 353 tonnes of spoilt cargo, notably grain, were disposed at sea.



**Graph 17:** Waste disposed at sea 2004 to 2011

One may note that the total material disposed at sea is dependent on ongoing major developments on land, as the fluctuation in the graph above is mainly attributed to the disposal of clean geological material.



# IMPLEMENTATION PLAN

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## Key issues

- Prevent waste at source
- Achieve EU and national waste targets
- Further promote the Extended Producer Responsibility (EPR)
- Review existing collection practices (Frequency & Time)
- Introduce separate collection of bio-waste
- Increase treatment capacity
- The costs of commercial and industrial waste management shall be borne by commercial and industrial entities
- Quarries to be permitted for backfilling operations

- Revise Eco-Contribution regime
- Limit exports of waste as far as possible to those cases where there is no local recycling/recovery or disposal facility.

### 3. Implementation Plan (Key issues and measures)

Section	Waste stream	Aim	Collection	Treatment option	Financing	Other considerations	Responsible Entity	Kick-off / Timeline
3.1. & 4.	MSW (includes household waste and commercial and industrial waste collected together with household waste)	<p>To <b>reduce</b> the <b>generation</b> and to increase source separation so as to promote <b>recycling</b> and <b>reduce landfilling</b>.</p> <p>To <b>recycle 50%</b> of paper, plastics, metal and glass waste from <b>households by 2020</b>.</p>	<ul style="list-style-type: none"> <li>Collection of dry recyclables 2 or 3 times weekly.</li> <li>Reduce the collection of residual household waste to 3 times a week.</li> <li>Collection of C&amp;I waste (using colour coded bags) by local councils together with household waste.</li> </ul>	<ul style="list-style-type: none"> <li>MRF</li> <li>MBT</li> <li>Ghallis Landfill</li> </ul>	<ul style="list-style-type: none"> <li>Government</li> <li>Local Councils</li> <li>Commercial entities</li> <li>Packaging producers (for packaging waste)</li> </ul>	Decide on framework for charging waste management services (PPP)	MSDEC, Local Councils, MFIN, Schemes, WasteServ, Private facilities	2014 – 2016
			<ul style="list-style-type: none"> <li>Kerbside collection of household bio-waste 3 times weekly.</li> <li>Collection of mixed MSW to once a week.</li> <li>Collection of dry recyclables twice weekly where feasible Promote nightly collection of MSW in certain localities.</li> <li>Introduction of colour coded garbage bags for the dry recyclables, bio-waste and mixed MSW.</li> </ul>	<ul style="list-style-type: none"> <li>MRF</li> <li>MBT</li> <li>Small scale landfill for landfilling non-recyclable/ non-recoverable waste</li> </ul> <p><b>Plus</b></p> <ul style="list-style-type: none"> <li>Local energy recovery</li> </ul>	<ul style="list-style-type: none"> <li>Government</li> <li>Local Councils</li> <li>Commercial entities</li> <li>Householder</li> <li>Differential setup for the different colour coded garbage bags, with the lower price for dry recyclable and bio-</li> </ul>	<p>Study charging system for waste management services (PPP)</p> <p>Improve throughput to Sant' Antnin.</p> <p>To assess the best treatment option for the treatment of residual waste and wastes deriving from MBT plants.</p>	MSDEC, MFIN, Local Councils, Schemes, WasteServ, Private facilities	2014 - 2016

				<p>OR</p> <ul style="list-style-type: none"> <li>• Export</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• Mega landfill</li> </ul>	waste.	<p>Local Councils to be the legal holders of waste collected in their locality.</p> <p>RCVs to reflect dimensions of Maltese roads (ideally they should not exceed a 4 tonne capacity for the collection of household waste).</p> <p>Regionalisation of waste collection.</p> <p>Community composting.</p>		
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<p>3.1. &amp; 4.</p>	<p><b>BMW</b> (Biodegradable Municipal Waste)</p>	<p>To <b><u>divert BMW from</u></b> landfills <b>towards</b> recycling and recovery.</p> <p><b><u>Allowed to landfill:</u></b></p> <p>75% by 2010 50% by 2013 35% by 2020</p> <p>of total BMW generated in 2002.</p>	<p>Kerbside collection of source separated bio-waste 3 times weekly.</p>	<ul style="list-style-type: none"> <li>Anaerobic digestion</li> </ul>	<p>Differential setup for the different colour coded garbage bags, with favourable conditions for bio-waste.</p>	<p>Introduce charging system for waste management services (PPP)</p>	<p>MSDEC, Local Councils, WasteServ</p>	<p><b>2015 - 2016</b></p>
<p>3.2.</p>	<p><b>C&amp;I</b> (Commercial and Industrial waste)</p>	<p>To <b><u>exploit the potential</u></b> stored within this waste stream.</p>	<p>Commercial and industrial establishments to make up the necessary arrangements for the collection of their waste;</p> <p>OR</p> <p>Collected by local councils together with household waste.</p>	<p>Depending on the nature of the waste:</p> <ul style="list-style-type: none"> <li>MRF</li> <li>MBT</li> <li>Export</li> <li>Landfill</li> </ul>	<p>Commercial and industrial establishments are responsible for financing the collection and treatment of their waste.</p>	<p>Consider charging system for waste management services (PPP)</p> <p>To adopt the colour coded bag system proposed for the collection of household waste for those establishments</p>	<p>MSDEC, Local Councils, WasteServ</p>	<p><b>2014 - 2016</b></p>

						that opt for collection services provided by Local Councils.		
<b>3.3. &amp; 4.</b>	<b>C&amp;D</b> (Construction and Demolition waste)	<p>To <b>minimise C&amp;D waste</b> through re-use activities and to promote the <b>recycling</b> and <b>recovery</b> thus minimising the impacts on raw materials.</p> <p>To <b>recover 70%</b> of C&amp;D waste <b>by 2020</b>.</p>	Collection and management of C&D waste shall be the responsibility of the owner/developer of the site.	<ul style="list-style-type: none"> <li>• Re-use</li> <li>• Recycling abroad of glass, plastic and metal</li> <li>• Backfilling</li> </ul>	Owner/developer of the site	<p>Review existing permits for spent quarries, to enable backfilling operations.</p> <p>To study the possibility of excavation of large sites being undertaken in a manner that permits the reuse of the excavated stone e.g. through quarrying rather than excavation.</p> <p>Feasibility of economic incentives in the form of lower tax rates for first time buyers purchasing old property.</p>	MSDEC, MRA, Quarry Owners, Planning Authority	<b>2014 - 2020</b>

3.4.1.	<b>Eco- Contribution</b>	To revise the Eco- Contribution regime	N/A	N/A	Producers of products	<p>Proposed exclusion / exemption of WEEE and batteries from the eco-contribution act ;</p> <p>Align the definitions laid down in subsidiary legislation to the Eco-Contribution act with the definitions laid down in the producer responsibility directives</p> <p>Align the recovery targets laid down in subsidiary legislation to the Eco-Contribution act with the targets laid down in the producer responsibility directives.</p>	MSDEC, MFIN, Producers, Schemes.	<b>2013 - 2014</b>
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3.4.2.	Packaging and packaging waste	<p>To promote <b>product design</b> thus minimising packaging waste and to <b>re-use, recycle</b> and <b>recovery</b> packaging waste.</p> <p><b>To achieve by 2013:</b></p> <p>Overall recovery 60% Overall recycling 55% Glass recycling 60% Metal recycling 50% Plastic recycling 22.5% Paper &amp; Cardboard recycling 60% Wood recycling 15%</p>	<p>Through kerbside collection of dry recyclables</p> <p>Bring-In-Sites</p> <p>Civic Amenity Sites</p> <p>Collecting packaging waste directly from commercial and industrial entities through established agreements between the former and authorised compliance schemes.</p>	<ul style="list-style-type: none"> <li>• MRF</li> <li>• Private Facilities</li> <li>• Landfilling (for rejects)</li> <li>• Exports</li> </ul>	Producers of packaging material	<p>Amend national regulations so that:</p> <p>Producers of consumer packaging must be member of a scheme</p> <p>Producers maybe self-compliant for warehouse packaging</p>	MSDEC, Local Councils, Producers, Schemes.	2014
				<ul style="list-style-type: none"> <li>• WasteServ - MRF</li> <li>• Private Facilities</li> <li>• Exports</li> </ul> <p><b>Plus</b></p> <ul style="list-style-type: none"> <li>• Local energy recovery</li> </ul>				2015



3.4.3.	WEEE	<p>To <b>reduce</b> the use of hazardous substances in EEE and to promote the <b>reuse, recycling</b> and <b>recovery</b> of electrical equipment.</p> <p><b>Collection of 65%</b> of the average weight of EEE placed on the national markets <b>by 2021.</b></p> <p><b>55%, 70%, 80% and 85%</b> re-use and recycling <b>75%, 80% and 85%</b> recovery <b>by 2018.</b></p>	<p>Civic Amenity Sites Bulky refuse collection services provided by Local Councils</p> <p>Retail establishments</p>	<ul style="list-style-type: none"> <li>• Authorised dismantling facilities</li> <li>• Exports</li> </ul>	Producers of EEE	<p>Revision of the Eco-Contribution Act</p> <p>WEEE collected at Civic Amenity to be passed on to authorised compliance schemes in proportion at no charge</p>	MSDEC, MFIN, WasteServ Producers, Schemes.	2013 - 2014
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3.4.4.	Batteries	<p>To <b>increase the collection</b> of batteries and ensure achievement of <b>recycling efficiencies</b>.</p> <p><b>Collection rates</b> for waste portable batteries:</p> <p>(a) <b>25% by 2012;</b></p> <p>(b) <b>45% by 2016.</b></p>	<p>Batterina campaign</p> <p>Collection by authorised facilities</p> <p>Authorised compliance schemes</p> <p>Civic amenity sites</p>	<ul style="list-style-type: none"> <li>• Authorised waste facilities</li> <li>• Exports</li> </ul>	Producers of batteries	<p>Revision of the Eco-Contribution Act</p> <p>Batterina campaign to be managed and financed by producers</p>	MSDEC, MFIN, WasteServ, Producers, Schemes.	2013 - 2014
3.4.5.	ELVs	<p>To <b>address illegal scrap yards</b> and <b>increase the recycling and recovery</b> rates of ELVs.</p> <p>To <b>re-use and recover 95 %</b> of an average</p>	Transfer of ELVs by end user to authorised treatment facility	<ul style="list-style-type: none"> <li>• Authorised waste facilities</li> <li>• Exports</li> </ul>	Producers of vehicles	<p>Delineation of responsibilities among national authorities.</p> <p>Deregistration by Transport Malta shall only follow upon presentation of a Certificate of Destruction</p>	MSDEC, Transport Malta, Producers, Authorised facilities.	2013 - 2015

		weight per vehicle per year <b>by 2014.</b>				issued by authorised treatment facilities		
<b>3.4.6.</b>	<b>Waste Oils</b>	To ensure that waste oils are collected and <b><u>managed in an environment ally sound manner</u></b> and to promote the <b><u>regeneration</u></b> of waste oils where technically feasible.	Producers of oils are to set up the necessary collection systems	<ul style="list-style-type: none"> <li>• Authorised waste facilities</li> <li>• Exports</li> </ul>	Producers of oils	Revision of the Eco-Contribution Act  Consider legislating for extended producer responsibility for oils	MSDEC, MFIN, Producers, Authorised facilities.	<b>2013 - 2015</b>
<b>3.4.7.</b>	<b>Waste tyres</b>	To ensure that waste tyres are collected and <b><u>managed in an environment ally sound manner.</u></b>	Producers of tyres are to set up the necessary collection systems	<ul style="list-style-type: none"> <li>• Authorised waste facilities</li> <li>• Exports</li> </ul>	Producers of tyres	Revision of the Eco-Contribution Act  Consider legislating for extended producer responsibility for tyres	MSDEC, Producers, Authorised facilities.	<b>2013 - 2015</b>

3.7	All streams	To heighten education, information and awareness on waste management issues across all relevant actors of society.	n/a	n/a	<ul style="list-style-type: none"> <li>• Government</li> <li>• Local Councils</li> <li>• Schemes</li> </ul>	A wide-ranging education for sustainable waste management including information and awareness amount various facets of waste management and tailored to the different societal audiences.	<p>MSDEC WasteServ Environment and Resources Authority Local Councils Schemes</p>	2014 - 2020
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### 3.1. Municipal Solid Waste

**AIM:**

1) To reduce the generation and to increase source separation so as to promote recycling and reduce landfilling.

2) To recycle 50% of paper, plastics, metal and glass waste from households by 2020.

3) To divert BMW from landfills towards recycling and recovery.

4) BMW allowed to landfill:

- 75% by 2010
- 50% by 2013
- 35% by 2020

of total BMW generated in 2002.

#### 3.1.1. MSW projections

Various projections were carried out based on the average growth in MSW over 2003 – 2008, 2003 – 2010 and 2008 – 2010. The average growth rates were 3%, 0.33% and -5.06% respectively. The negative growth registered over the period 2008 – 2010, probably attributed to the impacts arising from the global economic situation, seemed to be relatively out of proportion and was thus not considered as a possible scenario. It was decided to work on the 0.33% figure as this covers the largest data set.

Year	MSW generated (tonnes)	Percentage growth
2003	244,247	
2004	249,722	2.24
2005	251,460	0.70
2006	252,849	0.55
2007	265,948	5.18
2008	276,008	3.78
2009	267,774	-2.98
2010	248,672	-7.13
<b>Average</b>	<b>257,085</b>	<b>0.33</b>

Projections were then carried out using the following calculation method:

total waste generated for projected year:

$$G_{n+m} = N * (\% \text{ change in population})^m * W * (\% \text{ change in waste generated})^m$$

where:

**G<sub>n</sub>** is total waste generated in year n (in tonnes)

**m** is the number of years to projection year from year n

**N** is number of inhabitants for year n

**W** ( $G_n/N$ ) is the waste generated per inhabitant per year n (in tonnes)

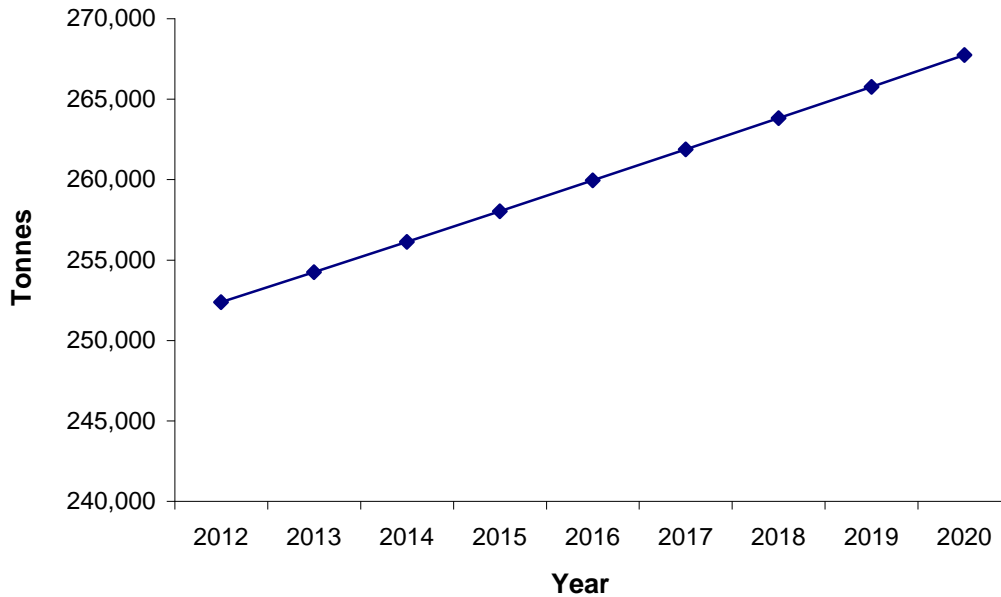
**Assumptions:**

percentage change in population = 0.41%

percentage change in waste generated = 0.33%

The following are the results using this methodology:

**MSW projections up to 2020**



**3.1.2. What's the plan?**

The plan has considered two options in managing municipal solid waste, as follows:

**Option 1 – Retain the status quo**

This option retains the status quo, that is, to continue with current collection systems, one MBT plant subject to the achievement of operational efficiencies, one MRF facility and one non-hazardous landfill<sup>11</sup> for the disposal of mixed MSW and other non-hazardous waste. This option would further entail that once the existing non-hazardous landfill is exhausted, another mega landfill or a number of smaller sized landfills that

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<sup>11</sup> Any reference to the potential of a new landfill inherently means an engineered landfill.

aggregate to the same volume would be required to handle the residual waste that cannot be managed by the MRF and MBT due to their lack of scale.

### **Option 1A – Minimum intervention to the status quo**

Another option to be considered is improving on the existing elements identified in option 1 above such as:

- i) The possibility of improving the quality of waste received at the Sant' Antnin facility should be prioritized. This should ensure that the existing MBT plant can operate better without increasing the throughput. A concerted effort to direct around 35,000 tonnes of separated organic waste to the current Sant Antnin plant in order to maximize the existing treatment capacity of the permitted digester. This would follow a thorough review of the plant mechanics to ensure that the current digester has the correct design parameters to handle this load. Ideally such source separated organic waste should originate from the localities bordering the plant in line with the proximity principle. The restructured collection system is envisaged to cater for the separate collection of organic waste and its success will depend on whether current permitted capacities of MBT plants will need to be enlarged due to the cause of societal inaction; and
- ii) Increased collection of dry recyclables by kerbside collection, bring in-sites and civic amenity sites.

### **Option 2 – Capacity build up and revision of waste collection systems**

#### Facilities

If the country is to divert MSW from landfills, upgrading existing capacity and investing in new infrastructure is indispensable. The following is a list of the proposed changes that will be considered to existing capacity and development of new infrastructure so as to better manage this waste stream:

1. The possibility of improving the quality of waste received at the Sant' Antnin facility should be prioritized. This should ensure that the existing MBT plant can operate better without increasing the throughput. A concerted effort to direct around 35,000 tonnes of separated organic waste to the current Sant Antnin plant in order to maximize the existing treatment capacity of the permitted digester. This would follow a thorough review of the plant mechanics to ensure



that the current digester has the correct design parameters to handle this load. Ideally such source separated organic waste should originate from the localities bordering the plant in line with the proximity principle. The restructured collection system is envisaged to cater for the separate collection of organic waste and its success will depend on whether current permitted capacities of MBT plants will need to be enlarged due to the cause of societal inaction; and

2. A Waste Transfer Station in Gozo for the receipt, sorting, processing, interim storage and transfer of wastes originating from Gozo and Comino. Dry recyclables will be sorted and baled prior to further treatment or export. The MSW will be separated into three fractions: the organic fraction which shall be diverted for biological treatment, Refuse Derived Fuel (RDF) and rejects.
3. An Anaerobic Digestion plant in Gozo for the digestion of the organic fraction of MSW, animal manure and sewage sludge generated in Gozo by the third quarter 2015.
4. A Mechanical Biological Treatment (MTP-AD) Plant for the North of Malta for treatment of MSW and a biological treatment plant for animal manure which has already been permitted and for which EU co-financing has been secured. At this facility waste shall be processed to have the organic fraction and the Refuse Derived Fuel (RDF) extracted from the remaining waste which shall be directed from the landfill. The digestion plant shall treat the organic fraction resulting from MSW and will also include a potential for the treatment of the animal manure not managed directly by farmers. Both facilities are envisaged to be fully commissioned by 2015.
5. Further treatment of RDF to improve its quality and permit the recovery of embedded energy. This could potentially also be handled by the private sector should it view such an operation as a niche market from which it can create win-win outcomes.

The development of the above mentioned technologies would necessitate further treatment options to deal with waste generated from such facilities and the remaining non-recyclable/non-recoverable waste not directed to these facilities. The latter waste streams, which will mainly consist of refuse derived fuel (RDF), rejects from MBT plants, residual MSW and other non-recyclable/non-recoverable wastes will be managed in any one or a combination of the following options:

- A. Local energy recovery (this would entail the development of an energy from waste facility).
- B. Export of this fraction for energy recovery.
- C. Landfilling.

The latter three options are to be re-assessed<sup>12</sup> in more detail in the light of the new facilities discussed previously in points 1 to 4. Furthermore, a cost benefit analysis will be commissioned during 2015 to determine the financial feasibility of the options considered. The CBA will also capture the cost of inaction, and the cost of delays that each Option may bring about including the cost of potential infringements. Annex I provides an analysis of the required landfill void space between 2016 and 2031 for options A, B and C assuming Malta would be honouring its European and national obligations. It is also to be noted that WasteServ had issued a tender for the evaluation of waste to energy options which call was annulled on administrative grounds. WasteServ will be pursuing the contracting of this study which will provide a more in-depth perspectives of the issues characterizing waste to energy technologies and the options which could benefit Malta most. This Plan therefore identifies local or export-based energy recovery of waste volumes that cannot be treated through the existing infrastructure as well as behavioural practices but does not commit to its need or indeed to a specific technology, the decision about which will be dependent on the outcome of the aforesaid study and other related studies that may be required. This with a view to

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<sup>12</sup> A mix of similar options had already been addressed under a Twinning Project on Waste to Energy in Malta in 2008

give Malta the best options it befits. The possibility of using EU Funds to finance this study will be looked into.

In addition, and following the experience related to odour control at Sant' Antnin, all existing and new facilities will build upon Wasteserv's current work in this area such that the level of inconvenience of such facilities to neighbouring environments can be mitigated and reduced.

#### Review waste collection systems

Although existing collection systems for household waste have yielded positive results in the amounts of dry recyclables and bulky waste collected and recycled, revision of existing collection practices may further enhance these results. Furthermore, the high amounts of mixed household waste collected remains a concern in view of the loss of potential recyclable materials including organic waste. Existing collection systems for bulky household waste, which include the door to door collection by Local Councils and the civic amenity sites, have proved to be excellent means for the collection of such waste. In the case of CA sites more information should be provided on what is accepted and by whom with a view to attracting generators of MSW to direct household hazardous waste such as chemicals, paints, medicines and spent garden pesticides to these facilities. It is equally important for CA sites to be operated on a strict policy that allows only private householders to deposit waste particularly for those streams covered by a producer responsibility scheme as they would otherwise serve as a short-circuiting mechanism for private sector operations.

The post-2015 scenario features the introduction of a second MBT plant at Ghallis. A critical feature of MBT plants is the need for a stream of consistent, source separated organic waste (e.g. food, kitchen and gardening waste). The absence of a dedicated and separate collection for such a waste stream has already had some effect on the operations of the Sant' Antnin plant. It is therefore central to the Plan's success for society to understand the importance of proper separation and to engage in contributing

to such plant requirements. Failure to do so will imply lower energy yields from MBT plants and an increase in mixed / contaminated waste which will have to be disposed of either through thermal treatment or else through continued landfilling. Whilst the latter is unsustainable, particularly in such a small geographical context, the former may require larger sizing and is often an infrastructural item that no one would like to have close to one's place of residence or business. Hence the future is entirely in the hands of society. Failure from society to subscribe will impose future burdens on no one but the same society itself.

Local Councils are the key to the successful implementation of this Plan. This is because of their role in the collection and management of MSW at source. 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.

In consultation with the Parliamentary Secretariat responsible for local government, this Plan envisages the following actions to be taken in order to ensure a seamless transition between current and future collection practices both for Local Council and contractor operational stability as well as for retaining the level of service provided to the public:

- Existing expired contracts should be re-issued, subject to Ministry of Finance approval, for the insertion of a new clause that guarantees financial compensation from Government for any changes in specifications as a result of the implementation of the Waste Management Plan. Such changes are envisaged to include:
  - Upscaling to Euro 4/5 vehicles;
  - Increased frequency of fraction collections;
  - Increase in the length of contract;
  - Regularising workers' conditions.

Ministry of Finance approval will have to be sought prior to committing to the budgetary increases that will result from the new collection regime that will be

passed on to the respective Local Councils such that they may pay their waste collection contractors for the required upscaling.

- A period of preparation needs to be established for contractors to gear up for parallel needs of collection that may result from collection tenders being based on a wider geographical base.
- Devolution and administration of waste management responsibilities will continue to remain within the domain of the respective local councils. However, Local Councils are being encouraged to issue joint tenders for the collection of waste in order to take advantage of widened geographical coverages thereby enhancing issues related to economies of scale. It is suggested that waste management governance would be vested at a regional level with regions monitoring how local councils themselves decide to aggregate themselves into larger geographical coverage for the purpose of economies of scale only.
- Aggregation into larger geographical areas would bring with it a series of incentives that may include:
  - The allocation of a full-time waste manager from within the public administration;
  - Retaining revenues from the collection of commercial waste;
  - Assistance in applying for EU funds for project financing of waste management programmes;
  - Provide compensation for alternative or more intensive forms of service for waste collectors (e.g. assistance to co-operatives).
- Conducting a time and motion study to determine the realistic cost of waste collection including the realistic financial cost on which allocation will be based and on which tenders will be adjudicated. This will be carried out in collaboration with waste collector representatives;
- The mechanics for the introduction of fees from commercial establishments and collection of waste therefrom should be guided as follows:
  - Rates for waste collection from commercial establishments will be established centrally and applicable across all local councils. This should

be undertaken through an inter-ministerial committee having the representation of the Ministries responsible for waste management, finance, local government and the economy;

- The mechanics of the system will be designed in consultation with sector representatives including the Chamber of Commerce and Industry, the MHRA and the GRTU;
- Information and training sessions may be organized to assist commercial entities, or their representatives, to be able to assess the amount of waste they produce and on which basis they will be charged;
- Payment of waste collection fees could be part of the trade license renewal process which may also see the devolution of such payments at a Local Council level although further discussions are needed to see how payments can be made more effectively;
- Local Councils should be responsible, in the main, to recover that portion of commercial waste generated within the locality which is currently ending up as part of the household load generated. Whilst it is important to avoid a large number of collectors servicing the same area, in order to avoid associated problems related to traffic, air pollution and the like, due consideration needs to be given to specific operations or specific characteristics within certain localities. Thus whilst it is not intended to include the Local Council's remit in the collection of waste from hotels, specific arrangements may be required for localities deemed as tourism areas or else for a group/s of commercial establishments who aggregate their waste and opt to use their own contractor. Hotels are also obliged to have their own waste collector but being large establishments they will be allowed to continue to use their current contractors for the disposal of their waste. Whilst the principle of Local Councils being responsible for the collection of mainstream commercial waste, in order to facilitate the legal obligation on the micro and small business, practical and specific circumstances cannot be bundled into a 'one size fits all' solution. However the use of public funds by Local Councils to 'subsidise' commercial operators in the disposal of their waste generated has to stop;

- Such a reform in the collection systems will be best implemented through piloting in certain geographical areas with the south-east a strong candidate for it will enable separate organic waste to go directly to Sant' Antnin hence improving its throughput with no increase in net volumes. This will also permit the monitoring of MBT plant performance to be constantly reviewed to determine any operational improvements as a result of the pilot. A second pilot in the northern part of the island will also be considered to take into account this and other problems related to tourism areas;
- In undertaking these, and other, reforms, piloting or implementation of new initiatives should be accompanied by a tailored information campaign that guides users accordingly thus enhancing compliance.

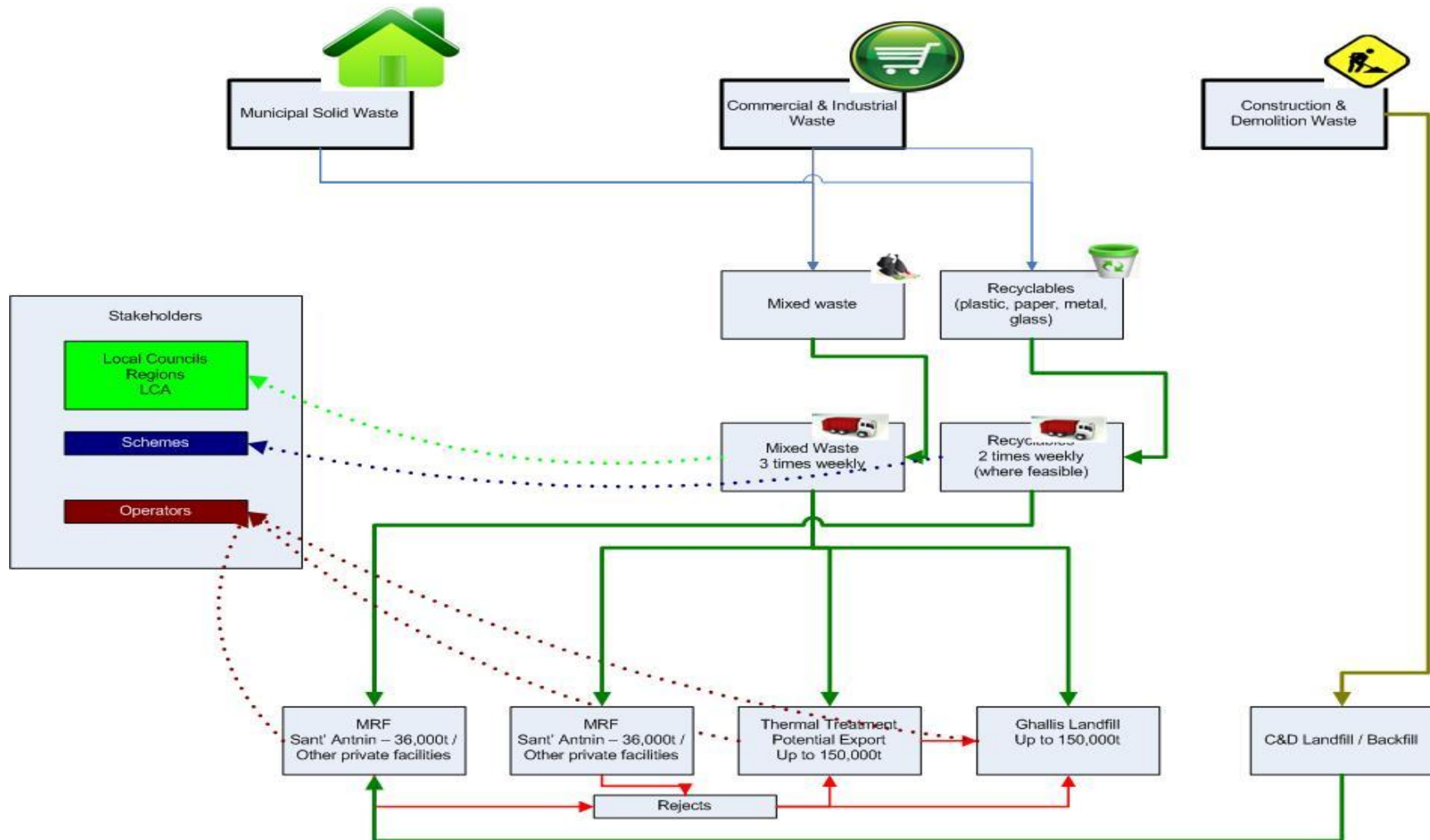
Therefore, possible measure that will be considered to improve the existing waste collection systems, include:

<b>Pre 2015 (Schematic 1)</b>	<b>Post 2015 (Schematic 2)</b>
a) Increase the frequency of the kerbside collection of co-mingled dry recyclables in those localities/regions where this is feasible. b) Reduce the collection of residual household waste (organic + mixed fractions) to three times a week.	a) Kerbside collection of household bio-waste (organic fraction) three times weekly. This may be accompanied by legislative measures. b) Reduce the collection of mixed MSW (mixed fraction excluding organic and recyclables) to once a week. c) Kerbside collection of co-mingled dry recyclables twice weekly in localities/regions where this is feasible. d) Pilot nightly collection of MSW in certain localities prone to heavy traffic during

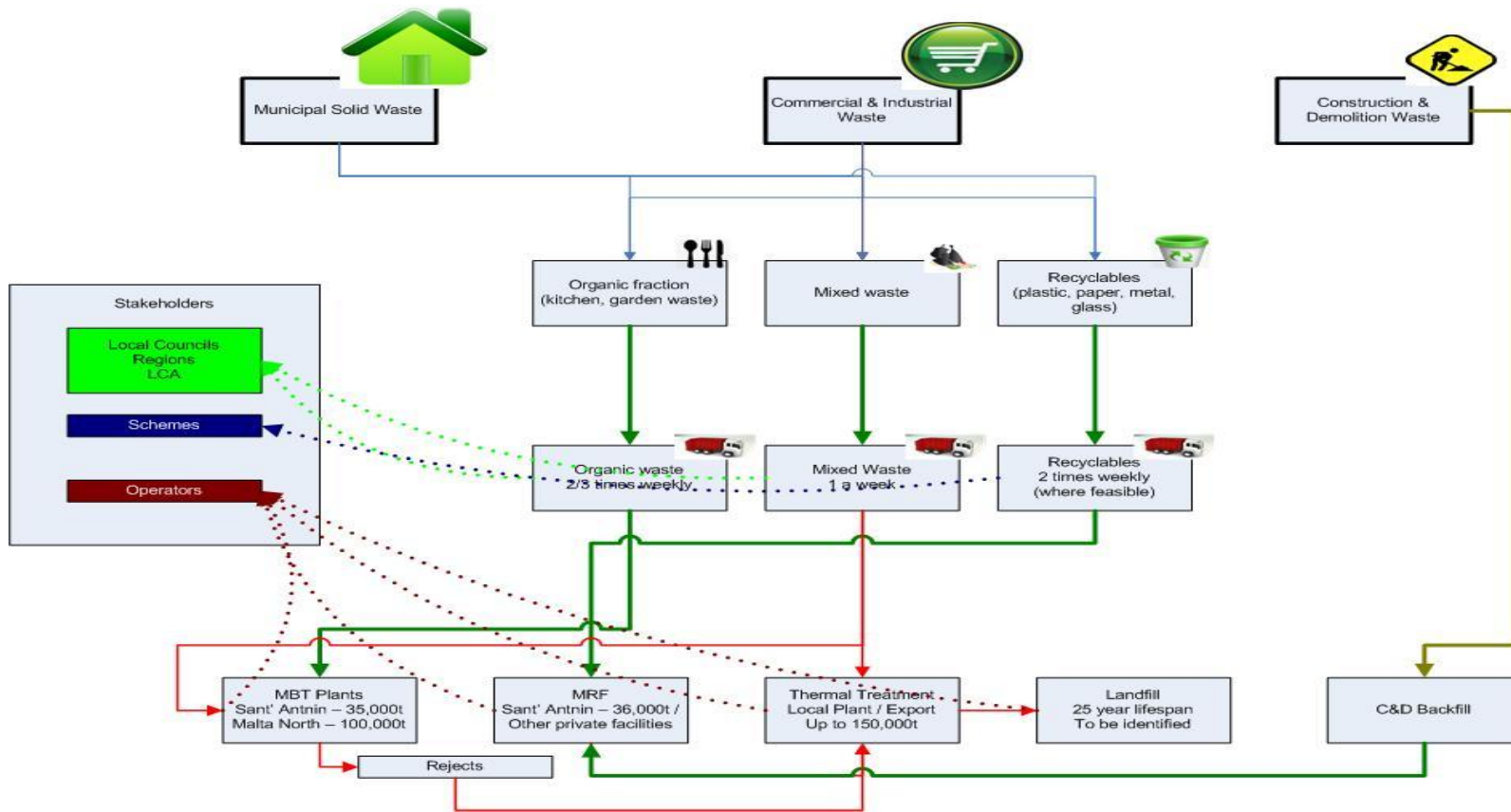
	<p>morning hours. This transition would need to engage the enforcement authorities to operate smoothly.</p> <p>e) Introduction of colour coded garbage bags for the dry recyclables, bio-waste and mixed MSW.</p> <p>f) Promote the use of outputs from the treatment of separately collected bio-waste.</p>
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### Schematic 1: Pre 2015 collection and treatment



**Schematic 2: Post 2015 collection and treatment**



In addition to the proposed collection systems, the following options are being proposed for further assessment by 2015:

- Condominia administrators to be obliged to display signs regarding waste collection systems in their locality and those owners of rented accommodation are to provide waste related information to tenants.
- A study to determine the ideal size/s of RCVs to reflect dimensions of Maltese roads and their respective standards. Any new standards will be introduced after a proper transition period has been notified. This will also be accompanied by a study aimed at quantifying the real cost of waste collection and which will serve as a guideline for local councils during the procurement process;
- The potential of local councils issuing collection tenders jointly in order to achieve critical mass whilst retaining responsibility for the collection within their own jurisdiction. Such an initiative would need to identify quantities of waste generated across Malta and Gozo with the aim of optimising waste collection by clustering localities into sub-regions; and
- The drafting of revised contracts governing waste collection including the possibility of contracts spanning over a longer timeframe than the current 4 year period;
- Better enforcement of contract conditions;
- Community composting. This would entail setting up composting bins in designated areas across Malta for garden waste generated from parks and households. Ideally such initiatives could be considered within the framework to provide for new public green open spaces.

Implementation of these options, if deemed feasible, may require recruitment of waste managers to manage the system within the identified regions. This ought to be coupled by a greater effort to ensure that waste collection is conducted up to high standards in particular taking care of environmental (including green public procurement) and health and safety standards.

As stated in Section 1.2, this is a strategic planning document. The details of planning and delivering the implementation of these initiatives will be carried out in a collaborative approach together with the Department of Local Government, the Local Councils Association and other identified key stakeholders.

The waste streams to be collected by the proposed collection systems are suggested to be managed as follows:

- Dry recyclables

Dry recyclables may be directed to Material Recovery Facilities and private facilities authorised for the management of such waste so as to separate and bale recyclable material by type. The baled products may be directed for recycling either locally or abroad. Refuse derived fuels and non-recyclable/non-recoverable material to be generated from these facilities may be directed for further treatment. Initially it is proposed to upgrade those localities where it is financially feasible to do so to 2 collections per week. In the context of a wider geographical coverage additional localities may benefit from an increased collection frequency as a result of an increased territory. Additionally Government will study, together with schemes, importer and retailer representatives the potential for the introduction of a deposit-refund scheme on selected recyclables in order to promote higher recycling targets, cleaner waste to MBT's and lower rejects to landfill.

- Bio-waste

Separately collected bio-waste from households will be directed towards anaerobic digestion or in-vessel composting for recycling into a compost and recovery of energy from the generation of biogas by anaerobic digestion. This should reduce the level of contamination in the output fractions, thus allowing the possible use of post-composted

digestate on agricultural land or for rehabilitation/engineering purposes. The satisfactory operation of the MBT plants at Sant' Antnin and Malta North will depend on societal participation in separating their waste at source.

- Mixed MSW (residual waste)

Residual household waste will be directed to mechanical biological treatment facilities to mechanically separate the waste so as to recover potential recoverable material. Recovered waste such as metals, plastics and glass will also be baled for recycling. Refuse derived fuels and non-recyclable/non-recoverable material to be generated from these facilities may be directed for further treatment in order to improve its quality. Given the collection of separate dry recyclables and separate organic waste, the quantity of mixed waste should be reduced drastically. 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.

- Bulky waste

Local Councils are to continue to collect household bulky which is to be directed to civic amenity sites or other authorised waste facilities. In addition to this service, householders also have the option to use their own means of transport to transfer bulky waste to a civic amenity site. Bulky household waste deposited at civic amenity sites is to be transferred to authorised waste treatment facilities for further treatment or exported directly for re-use, recycling or recovery depending on the nature of the waste.

### **3.1.3. Responsibilities and Duty-of-care**

The management of MSW is a shared responsibility among various stakeholders, including retailers, restaurants, bars, offices, government departments, cruise liners, whose waste is similar to that generated by households. However, the main stakeholders along this chain are householders, producers (or schemes) and local councils. Householders may not be fully aware of their waste management responsibilities. Each individual household's performance will cumulatively lead to

positive results towards sustainable waste management that will ultimately reduce the need for more landfills, improve efficiency in the operation of waste facilities and contribute to a better quality of life in general. To date, the landfill space that has been taken up as a result of our waste generation and lack of separation or prevention is testimony to what society has had to sacrifice in terms of the land and environmental resource. Thus, householders are encouraged to embrace the responsibility that comes with waste generation and are to ensure that their waste is managed by authorised personnel so as to protect our health and our environment. Householders' responsibilities include, amongst others:

- Minimise waste generation as much as possible (refer to Chapter 4 – waste prevention);
- Separate dry recyclables;
- Separate bio-waste;
- Cooperate with Local Councils by respecting collection times and collection days for the respective waste types;
- Ensure that their waste is managed by a person in possession of a permit.

However, the householders' responsibility is limited until the point of collection by a waste carrier. The latter is responsible to ensure that the waste is contained so as to prevent the escape of waste from his/her control or that of any other person and delivered to an authorised waste facility. In this context, Local Councils are responsible for overseeing and monitoring the overall collection system from the point of collection from in front of one's door to its final destination in authorised treatment facilities. Local Councils are duty bound, by The Waste Regulations, 2011, to ensure that waste is managed in the best available manner thus putting the householders' mind at rest. In this context, Local Councils are to follow Green Public Procurement procedures when issuing and awarding tenders for waste collection services. It is important to find ways as to how the awardee of such tender not only provides the most competitive price but also the most environmentally sound bid. It is also important for Local Councils to maintain records of all the wastes managed in their locality including a full audit trail of such waste. To this effect Government is proposing to work with Local Councils in order

to reform the current waste collection framework to consider issues such as regionalization, frequency of collection, dealing with waste from commercial entities within localities, shifting to night collection in localities prone to heavy traffic whilst factoring green public procurement principles.

#### **3.1.4. Economy and financing**

The polluter pays principle is being implemented locally, as packaging producers are funding the collection and treatment of dry recyclables generated by householders. In this case, it is the producer of the product from which the waste came that bears the costs in accordance with Article 14(2) laid down in the Waste Framework Directive.

The architecture of a municipal waste management system would be ideally composed of two elements, namely

- a. A public sector municipal waste management system for the collection of municipal (mixed, separate and bulky) waste produced by households and businesses and the treatment of such waste;
- b. A private municipal waste management system responsible for the collection of separated waste, mainly from large businesses and the treatment of waste collected by the private sector and part of the separated waste which is to be collected by the public system.

The financing of a public waste management system needs to be carefully designed to achieve the desired balance especially the socio-economic affordability aspect. In fiscal matters, the Ministry of Finance plays a crucial role not only in this, but in all initiatives with a financial impact.

The first priority should be to ensure that the operational costs for the management of public facilities or for public contracts to be the lowest possible, without compromising quality, and based on securing effective operational activities that minimize recurrent

costs whilst maximizing potential revenues be they from the generation of energy or by products. This would ensure that any costs to be recovered under the Directive's principle of cost recovery are kept to an absolute minimum.

In this context Government expects that the value recovered in recyclables and energy, as a result of increased separation at source, to be higher thereby offsetting a higher part of the treatment costs. The ensuing quantity of mixed waste will in all probability be low and all efforts will be made to attempt to recover its costs from other revenue streams. In any case, despite the free bulky refuse service, fly tipping continues to persist and until Malta can ensure better enforcement, charges imposed on households will result in a profusion of black bags in secluded areas. Government's preferred option remains the avoidance of a charge being imposed on households for the waste they generate.



### 3.2. Commercial and industrial waste

**AIM:**

**1) To exploit the potential stored within this waste stream.**

Commercial establishments and industry generate a vast array of waste and it is worth noting that they contribute the highest share of hazardous waste generated in Malta. As part of their corporate social responsibility (CSR), there are companies that already take the necessary measures when dealing with waste generated by their activities. Moreover, private companies implementing quality management systems and environmental management systems according to a recognised European or international standard are committed to minimise waste generation and ensure that their waste is managed in an environmental sound measure. In fact they organise their own collection and transportation systems, usually through a waste broker or dealer, to the final treatment facility. Such initiatives have proved to be fruitful benefiting both the commercial and industrial sector as well as the local environment.

However, there are other (many at times, small scale) commercial entities and industrial operators, usually within the urban part of localities, who still make use of the waste collection services provided by local councils even though they are not entitled to such a service. The latter may be the result of various factors including, but not limited to, composition of waste similar to that generated by households, the generation of low quantities of waste does not make it feasible to engage a private waste collector, limited storage space and short storage life span in particular bio-waste. Although these factors may justify the actions, the burden is shifted from the commercial or industrial owner onto the tax payer, by exhausting local council's funds allocated by Government for the management of household waste. This results because waste tonnage from such establishments end up being charged to the Local Council when these are deposited at the licensed waste facility (currently the landfill). This extra money spent by local councils to managed C&I waste or shouldered by WasteServ when Local Council budgets do not suffice to meet billed gate fees, could have been used for embellishment

projects within the locality. Such a practice is not in line with existing national legislation and thus can no longer be sustained.

Thus, there is an obvious need to tackle this fraction of C&I waste collected together with household waste through services provided by Local Councils in order to maximize existing infrastructural waste collection systems. Furthermore, the nature of commercial and industrial waste can prove to be high in recyclables and the residual fraction may be worth recovering energy in view of its potential calorific value. In this context, the following measures will be considered:

- Local Councils could collect waste generated from C&I entities and co-collect their waste together with that generated by households against a fee, established centrally, that reflects the amount of their waste arisings. Moreover, such establishments would be obliged to follow the collection systems for households as established by their Local Council. Establishments who already engage their own private collector may continue to do so for a transitional as defined earlier.
- Compositional survey to determine the nature of this waste stream with greater accuracy.
- Separate collection of bio-waste from restaurants, caterers and retail premises and food processing plants, possibly in colour coded bags, to differentiate between commercial and household waste.

### 3.3. Construction and demolition waste

**AIM:**

**1) To minimise C&D waste through re-use activities and to promote the recycling and recovery thus minimising the impacts on raw materials.**

**2) To recover 70% of C&D waste by 2020.**

Until 2011, landfilling was the main waste management option for C&D waste, by disposing huge amounts of inert C&D waste in spent quarries. Although shifting from quarries from landfilling to backfilling operations, which would imply an overall recovery rate of some 98%, it would be worth exploring the possibility of shifting from recovery to recycling this waste stream. In this context, the following measures will be considered:

- review existing permits for spent quarries, to enable backfilling operations in accordance with L.N. 184 of 2011, The Waste Regulations and L.N. 22 of 2009 The Waste Management (Management of Waste from Extractive Industries and Backfilling) Regulations, 2009.
- to introduce a new national legal framework for C&D waste making on site separation, recycling and recovery of materials obligatory during construction and demolition activities, except for non-recyclable and non-recoverable materials which can continue to be landfilled.
- to study the possibility of excavation of large sites being undertaken in a manner that permits the reuse of the excavated stone e.g. through quarrying rather than excavation,
- to include measures to separate C&D waste at the site of generation and to include recycling targets for major projects in their development permit,
- to develop standards and guidelines for recycling C&D waste,
- allocation of storage areas for re-usable C&D material dismantled during demolition works,
- economic incentives in the form of lower tax rates for first time buyers purchasing old property, so as to promote the restoration and rehabilitation of

such properties rather than promoting demolition and the use of new raw materials.

### **3.4. Extended producer responsibility**

#### **3.4.1. Eco-Contribution**

The consultation exercise pointed towards the issue that the current Eco-Contribution regime is considered as one of the main barriers towards proper implementation of the producer responsibility directives mainly due to the issue of double taxation, perplexed definitions in national legislation and non-consistent recovery targets.

In this context, Government has already embarked on a wholesome review of this mechanism and intends to consider all options that would lead to sustainable waste management. Such review is at an advanced stage. Elements of the reform of the current Eco-Contribution regime could include, but not be limited to:

- excluding specific products from the eco-contribution act;
- aligning the definitions laid down in subsidiary legislation to the Eco-Contribution act with the definitions laid down in the producer responsibility directives;
- aligning the recovery targets laid down in subsidiary legislation to the Eco-Contribution act with the targets laid down in the producer responsibility directives; And
- ensuring that a level playing field for all 'imported' good is established whatever the mode of importation used by economic operators.

The following sub-sections put forward certain ideas that Government will consider in order to improve the implementation of the specific producer responsibility directives, as well as waste oils and waste tyres.

### 3.4.2. Packaging and packaging waste

**AIM:**

1) To promote product design thus minimising packaging waste and to re-use, recycle and recovery packaging waste.

2) To achieve by 2013:

- Overall recovery 60%
- Overall recycling 55%
- Glass recycling 60%
- Metal recycling 50%
- Plastic recycling 22.5%
- Paper & Cardboard recycling 60%
- Wood recycling 15%

Section 2.4.2 clearly indicates that Malta is facing difficulties in fully complying with the targets set on a national and European level. As the main sources of packaging waste are households, commercial establishment and industry, the cooperation of all is imperative if the country is to achieve the set targets and honour its obligations at a European level. The collection systems proposed in sections 3.1.2. and 3.2. should contribute towards increased collection of dry recyclables thus implying a higher catchment of packaging waste.

Since packaging waste may be paper/cardboard, plastics, glass or metal, this waste stream is considered to be a valuable resource. In fact there are already various authorised facilities, brokers and dealers managing these waste fractions that are capable of adjusting their operations so as to manage whatever increase may result from the collection systems mentioned earlier.

Moreover, it is suggested that the Waste Management (Packaging and Packaging Waste) Regulations 2006, be amended to allow an element of flexibility. Such an amendment may oblige producers to join a packaging waste recovery scheme duly authorized by the Competent Authority for all consumer packaging. Producers can opt to be self-compliant for all packaging remaining at the back-end store in line with relevant introduced definitions.

Another suggested measure is the introduction of thresholds for producers of packaging and packaging waste, such that producers placing on the market amounts less than 100 kgs in a calendar year are exempt from registration with the competent authority as a producer of such. In this regards producers placing less than 100 kgs on the market of packaging or packaging material will not be covered by the packaging regulations, with the exception of regulations 4, 5, 6, 7, 11, 18, and Schedule 2. It has been estimated that this would reduce administrative burdens since around 600 producers place on the market less than 100 kgs, which amount equals to approximately 20% of the total registered producers, and in turn only affects 0.1% of the total weight placed on the market.

The current Eco-contribution regime as well as the administration of the eco refunds/exemptions mechanism referred to in section 2.4.1. ought to be maintained for packaging. This system shall be reviewed as part of the monitoring programme referred to in section 3.10. and revised accordingly following the conclusions of the monitoring programme.

### 3.4.3. Waste electrical and electronic equipment (WEEE)

**AIM:**

1) To reduce the use of hazardous substances in EEE and to promote the reuse, recycling and recovery of electrical equipment.

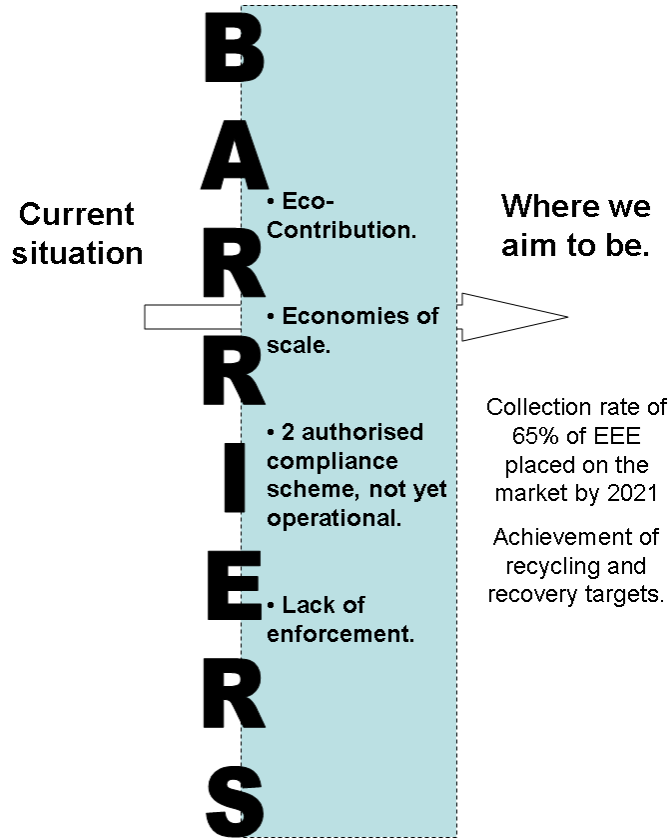
2) Collection of 65% of the average weight of EEE placed on the national markets by 2021.

3) To achieve the following targets by 2018:

Categories	Re-use & Recycling (%)	Recovery (%)
1 and 10 (large household appliances and automatic dispensers)	80	85
3 and 4 (IT and telecommunications equipment and consumer equipment)	70	80
2, 5, 6, 7 and 9 (small household appliances, lighting equipment, electrical and electronic tools, toys, leisure and sports equipment, monitoring and control instruments)	55	75
Gas discharge lamps	80	—

It has already been mentioned that Malta faces difficulties in achieving economies of scale in the recovery and recycling of waste. This severely compromises its ability to meet EU set targets, in a beneficial and economically viable manner. This particular waste stream requires immediate action in view of the envisaged increase resulting from the projected uptake of PV installations over the coming years as a result of Malta's

obligations to meet its renewable energy targets. Notwithstanding the amount of WEEE that enters the household as a result of technological development can lead to a greater level of hazardous waste entering the MSW stream as such items reach their end of life.



In order to help overcome this weakness and to address other shortcomings in the current system the following measures are being suggested for consideration as part of the ongoing review process:

1. Revocation of the provisions laid down in the Eco-Contribution Act which call on producers to pay an eco-contribution on Electrical and Electronic Equipment (EEE). This would imply that producers would no longer pay an eco-contribution on EEE once placed on the Maltese market. This measure does not exonerate producers from collection of WEEE.
2. A new legislative proposal including highly dissuasive fees in the form of a flat rate per category by weight of EEE put on the market for those producers



who fail to fulfil their obligations under The Waste Management (Electrical and Electronic Equipment) Regulations as laid down in L.N. 63 of 2007.

3. Producers willing to comply individually are to provide a bank guarantee when EEE is placed on the market. The bank guarantee shall be equivalent to the costs of managing WEEE that would result from the EEE put on the market by any one producer. This shall be based on the average weight of EEE placed on the market in the three preceding years for self-compliant producers.

In cases where producers opt to join a scheme this bank guarantee would be paid by the scheme of which it is a member and shall be based on the weight of EEE placed on the market by its members in that particular year.

In cases where the producer/scheme fails to achieve his/her obligations or goes bankrupt, local authorities can use the bank guarantee to manage this abandoned WEEE.

4. Producers may include a visible fee of the costs for managing WEEE in accordance with Regulation 9(1)(e) as laid down in L.N. 63 of 2007 which stipulates that producers shall until 13th August 2012 for categories 2, 3, 4, 5, 6, 7, 8, 9 and 10 of Schedule 1A, and until the 13th August, 2014 for category 1 of Schedule 1A, be allowed to show a fee for the collection, treatment and disposal of WEEE. After these dates, the cost shall not be shown separately.
5. A possible introduction of an obligation for both schemes and self-compliant producers to use the services of an independent auditor (i.e. an auditor who would be eligible for appointment), approved by the Authority, to certify all of the information reported to the Authority, ensuring that a sound auditing procedure for traceability, monitoring and control is put into place for all the waste electrical and electronic equipment managed.
6. Increased enforcement and compliance monitoring.
7. WEEE collected at Civic Amenity sites operated by WasteServ is to be passed on to authorised compliance schemes in proportion against a fee covering receipt, storage and treatment as applicable.

#### 3.4.4. Batteries and accumulators

**AIM:**

1) To increase the collection of batteries and ensure achievement of recycling efficiencies.

2) Collection rates for waste portable batteries:

(a) 25% by 2012;

(b) 45% by 2016.

The same principles of producer responsibility apply to this waste stream. Technological developments can lead to a greater level of hazardous waste entering the MSW stream as batteries reach their end of life. To this effect the suggested measures to be considered in respect of this waste stream are:

1. To enable the transfer to, and uptake of, the Batterina campaign by the private sector so that it is administered and financed by the producers themselves as members of the said scheme. Such transfer is to be undertaken at a pace that sustains the existing momentum.
2. The revocation of the provisions laid down in the Eco-Contribution Act which, call on producers to pay an eco-contribution on batteries and accumulators as part of the ongoing review. This would imply that producers would no longer pay an eco-contribution on batteries once placed on the Maltese market.
3. Consideration of a new legislative proposal with the objective of laying down fines in the form of a flat rate per category by weight of batteries and accumulators placed on the market for those producers who fail to fulfil their

obligations under The Waste Management (Waste Batteries and Accumulators) Regulations as laid down in L.N. 55 of 2010.

4. Consideration of placing an obligation by producers willing to comply individually to provide a bank guarantee when batteries and accumulators are placed on the market. The bank guarantee shall be equivalent to the costs of managing waste batteries and accumulators that would result from the batteries and accumulators put on the market by any one producer. This shall be based on the average weight of batteries and accumulators placed on the market in the three preceding years for self-compliant producers.

In cases where producers opt to join a scheme this bank guarantee would be paid by the scheme of which it is a member and shall be based on the weight of batteries and accumulators placed on the market by its members in that particular year.

In cases where the producer/scheme fails to achieve his/her obligations or goes bankrupt, local authorities can use the bank guarantee to manage this abandoned waste batteries and accumulators.

5. An obligation on schemes and self-compliant producers to use the services of an independent auditor (i.e. an auditor who would be eligible for appointment), approved by the Authority, to certify the information reported to the Authority, ensuring that a sound auditing procedure for traceability, monitoring and control is put into place for all the waste electrical and electronic equipment managed.
6. Increased enforcement and compliance monitoring.
7. The distribution of waste batteries and accumulators collected at Civic Amenity sites operated by WasteServ to authorised compliance schemes in proportion to their obligations against a fee covering receipt, storage and treatment as applicable.

### 3.4.5. End-of-life vehicles (ELV)

**AIM:**

**1) To address illegal scrap yards and increase the recycling and recovery rates of ELVs.**

**2) To re-use and recover 95 % of an average weight per vehicle per year by 2014.**

It is evident from the information provided in section 2.4.4 that a number of issues need to be addressed to assist Malta in progressing towards full implementation and compliance with the legal provisions stipulated both at European and National level. In this context, the following specific targeted measures are being proposed for consideration to address those barriers identified in section 2.4.5.:

1. Identification of illegal scrap yards with a view to determine their potential for regularising their operations in line with the legal obligations covering the respective waste streams or the termination of their current activities. A decision to regularise any of these facilities shall only be taken following the appropriate determination of the extent of their impact on the receiving environment by the competent authority.
2. The authorisation of new treatment facilities.
3. Delineation of the provisions laid down in Legal Notice 99 of 2004 transposing Directive 2000/53/EC among the respective authorities responsible for the proper implementation of this legislation.
4. Transport Malta to consider only deregister vehicles sent for dismantling upon presentation of a certificate of destruction (COD) issued by an authorised treatment facility.

### 3.4.6. Waste oils

**AIM:**

**1) To ensure that waste oils are collected and managed in an environmentally sound manner and to promote the regeneration of waste oils where technically feasible.**

In view of their hazardous nature, and current collection practices of this waste stream, it is being proposed to consider the introduction of legislative measures to ensure that producers of oils, including importers of oils into the Maltese market, or third parties acting on their behalf, with respect to waste oils arising from their activities, use existing systems or set up systems, individually or collectively, or both, to provide for the return and, or collection of waste oils and recover, including regeneration of waste oils, where technically feasible and economically viable.

The current Eco-contribution regime is suggested to be maintained for oils until national regulations stipulate producer responsibility for oils.

### 3.4.7. Waste tyres

**AIM:**

**1) To ensure that waste tyres are collected and managed in an environmentally sound manner.**

The nature and chemical composition of waste tyres makes them a prime waste stream as they can replace the use of raw materials in various other industrial and recreational activities. Currently there is no systematic collection practice for waste tyres, and in this context it is being proposed to introduce legislative measures to ensure that producers of

tyres, including importers of tyres into the Maltese market, or third parties acting on their behalf, with respect to waste tyres arising from their activities, use existing systems or set up systems, individually or collectively, or both to provide for the return and, or collection of waste tyres and recycling and recovery of this waste.

The current Eco-contribution regime is suggested to be maintained for tyres until national regulations stipulate producer responsibility for oils.

### **3.5. Waste Shipments**

Section 1.2.2. (subsidiarity and proximity principle) highlights that Malta is 99% percent self-sufficient when it comes to waste disposal, with only 1% of the total waste requiring disposal outside Malta. This 1% is mainly hazardous waste which due to its nature, composition and volumes has to be treated abroad as Malta lacks the necessary facilities in view of economy of scales.

However, Malta may not be self-sufficient when managing recyclable and recoverable wastes, as although it may appear that we generate high volumes of waste for such a small country, such volumes do not make it economically feasible to invest in local recycling and recovery facilities for say paper/board, plastics, glass and metal.

In this context, and in line with the proximity principle, Malta should limit exports of waste to those cases where there is no local recycling/recovery or disposal facility.

### **3.5.1. Hazardous shipments**

Hazardous waste shipments are crucial to Malta in view of the lack of local hazardous waste treatment facilities. In this context, the plan proposes to:

- Limit exports of hazardous waste as far as possible to those cases where there is no suitable recovery or disposal option in Malta; and
- Start discussions with shipping lines not willing to transport hazardous wastes so as to better understand the difficulties they encounter.

It is in this context that Government will be looking into ways in which it can facilitate the management of hazardous waste generated either through a specific guidance note or else through the provision of specific initiatives aimed at facilitating the management of such waste.

### **3.5.2. Non-Hazardous shipments**

The main non-hazardous waste fractions shipped abroad are paper/board, plastics and metals, all of which have a market value. In this context, the plan proposes to:

- Limit exports of non-hazardous waste as far as possible to those cases where there is no suitable recovery or disposal option in Malta.
- Shipments of residual municipal solid waste for landfilling should be prohibited.

### **3.5.3. Marine waste and waste disposal**

Disposal at sea should be considered as the last resort, in view of its potential impacts to the marine environment. In this context, disposal at sea operations should be limited to:

- non-hazardous dredged material that complies national thresholds to be set by the competent authority,
- clean geological material excavated on land during development activities,
- decommissioned explosives, and
- spoilt cargo

which cannot be disposed of on land without unacceptable danger or damage, above all for the safety of human life.

All disposal at sea operations are to comply with the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (London Convention) and its 1996 Protocol (London Protocol), the Convention for the Protection of the Mediterranean Sea Against Pollution, 1976 (Barcelona Convention) and its Protocols (1976 and 1995 Protocols to the Barcelona Convention).

#### **Monitoring the type and quality of waste dumped at sea**

In order to fulfill Malta's commitment under the Water Catchment Management Plan of 2011 any proposal made to the Competent Authority for the disposal of waste at sea shall be requested to undertake the following measures prior to disposal:

- determine the nature of the waste, that is, whether inert, non-hazardous or hazardous;
- undertake the necessary chemical and biological testing of the waste.
- undertake an impact assessment.



Disposal at sea will only be permitted if the waste is inert or non-hazardous, complies with national set thresholds for chemical and biological content and if the impact assessment proves that the impacts of managing the waste on land are higher than disposing of the waste at sea.

### **Monitoring of marine dumping operations**

Current monitoring efforts carried out by Transport Malta are considered to be sufficient and therefore there is no identified need for additional efforts over and above existing measures in place to monitor dumping operations. Nevertheless should any future monitoring results point towards an increase in unauthorized dumping along the coastal stretch outside the designated boundary of the spoil ground, additional operational monitoring measures or checks would need to be considered.

## **3.6. Implementing the polluter pays principle in Malta**

### **The way forward**

In the context of existing EU obligations and past Government commitments with EU institutions as discussed in section 3.1.4., EU funding for waste management activities in Malta are tied to certain commitments on the part of Government. That is, it is the waste generator or producer of the product who is to finance the collection and treatment of the waste s/he generates.

In this context, the following measures are being proposed so as to implement the Polluter Pays Principle (PPP):

1. Review 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) as required by the Landfill Directive. .
2. Use the current review of the eco-contribution legislative instrument to address the proper implementation of PPP for those waste streams covered by producer responsibility directives.

### **3.7. Education on waste management**

Much has been said on the existing waste management practices and what we want to achieve by 2020. The Plan has also identified various measures that need to be implemented in the coming years, if the country is to break the link between waste generation and economic growth through waste prevention and the need to move waste up the hierarchy increasing recycling and recovery of waste.

However, all of this cannot be achieved solely by Government or the Competent Authority. Every single individual must embrace him/herself and understand that it is our collective responsibility to ensure that our waste does not collectively become a nationwide problem. Without the active participation of all, the plan is deemed to fail. Moreover, waste management is just a piece of the sustainable development puzzle. Therefore, it is imperative that our current education system adopts a holistic approach towards sustainable development.

In this context, education for sustainable development (ESD) and awareness campaigns are crucial to the success of this plan. This section should be read in conjunction with Section 4 of this Plan and forms part of the broader Waste Prevention Programme outlined therein. Waste Management education should be addressed to:

waste generators	waste operators
<ul style="list-style-type: none"> <li>○ adults</li> <li>○ workers/private and public sector</li> <li>○ youths</li> <li>○ children</li> </ul>	<ul style="list-style-type: none"> <li>○ waste collectors</li> <li>○ waste dealers/brokers</li> <li>○ waste facility operators</li> </ul>

The means and tools needed to pass on the message of sustainable waste management differ between the two groups and the sub-groups within the respective groups. The following table presents the educational tools that can be used for each sub-group within the waste generator group.

Waste generators	Educational tools
Adults	<ul style="list-style-type: none"> <li>○ Social media</li> <li>○ Newspaper adverts</li> <li>○ News releases</li> <li>○ Guest speakers on TV programmes</li> <li>○ TV Adverts featured during prime time and tele-series slots</li> <li>○ Internet adverts</li> <li>○ House-to-house visits</li> </ul>
Workers/private and public sector	<ul style="list-style-type: none"> <li>○ Government should lead by example by promoting waste prevention measures and collection mechanisms to promote re-use, recycling and recovery</li> <li>○ Train the trainer</li> <li>○ Environmental training sessions by Environmental, Health and Safety</li> </ul>

	<p>officials within respective entities</p> <ul style="list-style-type: none"> <li>○ Social media</li> </ul>
Youths	<ul style="list-style-type: none"> <li>○ Guest speakers at various youth activities</li> <li>○ Collaboration with youth centers and parish groups</li> <li>○ Guest lectures at secondary schools and post-secondary.</li> <li>○ Use of social media</li> </ul>
Children	<ul style="list-style-type: none"> <li>○ To include waste management in national curriculum</li> <li>○ To promote initiatives such as Eko-skola</li> <li>○ To encourage environmental school projects and exhibitions</li> <li>○ Development of online tools</li> </ul>
Professionals	<ul style="list-style-type: none"> <li>○ Medical professions</li> <li>○ Plant engineers</li> <li>○ Maintenance engineers</li> </ul>

A specific audience with which Government feels it is imperative to work with are the Local Councils themselves. Government considers Local Councils to be the ‘make or break’ link for better waste management practices. Naturally Government understands the lack of capacity such governing institutions may have. However, it is equally important for Government to spell out the necessary key success factors with the Councillors themselves as well as with the Executive as these are key towards harmonizing one’s understanding of waste management theory, practice and their contextualization to the Maltese scenario.

A different approach is to be taken for waste operators. In fact, the Waste Regulations, 2011 (L.N. 184 of 2011; S.L. 504.37) provides that any person who collects or transports waste on a professional basis, dealers, brokers and waste treatment operators are to possess some sort of qualification/certification. It is being proposed that formal training through a certification scheme by a competent educational institution is provided. The Malta Environment and Planning Authority has already drafted a syllabus for such a waste management course for waste collectors, dealers, brokers and waste treatment operators. Waste collectors need to be properly trained as they are the first line of defence in the waste management system. Moreover, their visibility requires that they have a corporate identity which includes compliance to health and safety requirements, a disciplined work ethic and a punctuality in respecting collection times with a view to sending the correct message. However education on sustainable waste management needs to be permeated at all levels of education be they at compulsory or tertiary levels and within a formal, non-formal and informal context. The educational aspect remains crucial in order to achieve the desired success. This is because despite the progress that has been made, education needs to be stepped up in order to fine tune upon certain key issues such as the ways and means to secure more separation as well as how to minimize the generation of waste. There are still certain elements of our mixed waste that should be directed to the recyclable component whilst the reverse also applies. It is important that educational programmes provide practical and tangible examples on which waste should be directed to where. Chapter 4 of this document deals extensively with waste minimization and the awareness that has to be created therein.

The education and information campaign should also target professionals such as architects, civil engineers, urban and transport planners such that, in their respective designs, they can take into account waste management requirements. Moreover, professional who generate waste or are responsible for its management need to be brought on board in order to further improve waste management practices from the professional sector.

It is important for all existing local research on waste management to be aggregated in order to take stock of the work that has been produced. The University of Malta is known to have conducted research on the use of recycled material as part of concrete

mixes. A call for identifying future research needs would be premature before we have taken true stock of what exists and to subsequently address the gaps that may ensue in areas such as analyzing the utilization of recycled and waste material in construction or other processes; perception and attitude surveys and the like. Both MCAST and the University of Malta have a tertiary educational framework wherein they can encourage students to effect research in such areas in close collaboration with Wasteserv.

Education and awareness is considered to be key to the success of this plan and all efforts will be undertaken in order to drive the message as close to the waste generator as possible and through the most appropriate media. To this effect, it is envisaged that, as far as possible, initiatives will be accompanied by an educational and awareness campaign that not only reinforces the goals of this strategy but places that initiative in the context of the whole strategy.

### **3.8. Planning considerations and locational criteria for future waste facilities**

This section describes the criteria to be considered when identifying areas of search and determining individual applications for new waste management facilities within the Maltese Islands. The criteria are intended to assist both the private sector and the Planning Authority assess the suitability of areas or sites. In this context, these criteria shall be binding in the review process of national local plans managed by the planning authority for allocating adequate sites for waste management activities.

The site selection methodology described recommends a two phased approach to site identification, involving a coarse sieve exercise to identify an area and fine sieve exercise to help identify specific sites and appraise the merits of individual sites.

At the initial planning stage, a coarse sieve analysis is appropriate using the key land use planning and environmental considerations to identify areas where overriding constraints to development might apply. In undertaking this exercise, an understanding

of the issues relevant to each type of waste management facility is required. This exercise is deemed useful in the planning stage when preparing land use plans that cover the whole or substantial territory of the Maltese Islands.

This section also includes a checklist of criteria for site selection to assist both developers and planners when considering the merits of an individual site or comparing alternative sites. This checklist provides the basis for a comprehensive appraisal at the site level, and as with the coarse sieve exercise may be subject to a scoring system to enable comparison between different sites or options.

In outlining the issues relevant to the identification of suitable areas and sites regard has been given to previous search criteria utilised by the Malta Environment and Planning Authority in the identification of potential sites for an engineered landfill on Malta and inert landfill facilities on Gozo.

### 3.8.1. Criteria for Areas of Search

For areas of search, the criteria are divided into the following categories:

<b>Technical and Operational Parameters</b>	<b>Land Use Planning and Environmental Considerations</b>
<ul style="list-style-type: none"> <li>• size of the site required for the development and associated infrastructure;</li> <li>• the waste types managed by the facility and proximity to waste source;</li> <li>• accessibility, including the ease of access to and from the site;</li> <li>• physical constraints to</li> </ul>	<ul style="list-style-type: none"> <li>• surface water, including impacts on river drainage and the risk potential of pollution arising from the development;</li> <li>• groundwater source protection (Water Protection Zone);</li> <li>• landscape, including the quality of the landscape as defined in terms of national designations (Areas of High Landscape Value);</li> </ul>

<p>development, in particular geotechnical, hydrological and hydrogeological factors and availability of development materials.</p>	<ul style="list-style-type: none"><li>• visual impact including the potential for visual intrusion from the development</li><li>• nature conservation, including impacts on known conservation sites (Areas of Ecological Importance and Sites of Scientific Importance);</li><li>• heritage, including impacts on known archaeological sites, urban conservation areas, listed buildings etc;</li><li>• proximity to residential development, reflecting the potential for nuisance arising from noise, air emissions, odours and dust;</li><li>• traffic, including proximity to road networks;</li><li>• agricultural land quality;</li><li>• economic and social factors;</li><li>• beneficial restoration of mineral workings or despoiled land, or potential sterilization of mineral assets.</li></ul>
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### **3.8.2. Other considerations**

In comparing different types of facilities and preferred locations, the duration of potential environmental effects should be taken into account.



### **3.8.3. Grading of Criteria**

In order to compare development alternatives, the anticipated impact of the proposals must be assessed for each criterion. This can be achieved by applying a grading system that indicates the potential significance or importance of each issue.

At the coarse sieve stage, the primary purpose is to eliminate those sites or areas with overriding constraints and identify those areas with the most potential for further study. A three-point scale is considered to be sufficient for this purpose, which classifies each issue in descending order of:

- A. Major impact or concern;
- B. Moderate impact or concern;
- C. Negligible impact or concern.

In carrying out the assessment, the sensitivity of the receptor affected and the potential for the implementation of mitigation measures should be taken into account when grading each criterion. The assessment of individual criteria relies on the judgment of those undertaking the exercise, although a measure of objectivity can be applied in reaching the judgment for each criterion. For example, an assessment of proximity can use distance thresholds, and a determining factor for significance might be the presence or absence of a particular feature or land use planning designation. For a more detailed analysis of particular options, areas or sites, the scoring system can be progressively refined. Although the limitations of this type of appraisal should be noted in that it is unavoidably subjective in its nature, its purpose is to enable a relative comparison between facilities or sites rather than make an absolute judgment.

### **3.8.4. Checklist of Criteria for Site Selection and Assessment**

This list is similar to the criteria for areas of search, but is more specific at the site level:

#### **Development Aspects**

- Type of facility and operational features;
- Land requirements;
- Waste types and source;
- Good access and transportation network or the potential for their development;
- Presence of services and availability of disposal routes;
- Physical constraints - geotechnical/hydrological/hydrogeological;
- Availability of sufficient material to carry out the operation;
- Land availability/ownership/use constraints;
- Economic considerations;
- Extent to which the operation may contribute to the effective restoration of the site.

#### **Land Use and Environmental Criteria**

- Land use planning area designations (Rural Conservation Areas Sites of Scientific Importance);
- Water resource value;
- Agricultural land quality;
- Existence of trees/stonewalls and other key landscape features;
- Ecological, scientific or historical importance of the site;
- Ability of local topography and landscape to absorb the development;
- Distance from residential development;

- Compatibility with adjoining development;
- Allocation of the site in the Structure Plan;
- Accessibility;
- Access and transportation networks or the potential for their development;
- Duration of predominant effects associated with the development.
- The planning and siting would require a location away from major residential areas but close to the source of the waste.

These locational criteria will provide the input to the draft Local Plans that are currently being prepared. Notwithstanding it is Government's intention to embark upon a site selection process for the new engineered landfill upon adoption of this Plan. Besides the options being put forward for consideration, the possibility of extending the projected lifetime of the current Ghallis engineered landfill shall be studied. Any resultant outcome of the said study shall, if implemented, strictly adhere to established environmental standards and regulations in full compliance with the relevant EU Directives.

### **3.8.5. Urban design for waste management**

Managing waste, in particular the storage of waste at the place of generation may be somewhat problematic if the site is not adequately designed to cater for designated waste storage areas. This may be a problem for many catering establishments, industrial sites and households, which lack adequate storage capacity prior to collection.

In this context, waste storage areas should be part and parcel of any development application submitted to the competent authority responsible for spatial planning. Thus it is being proposed that designated waste storage sites for separate waste fractions be an essential requirement of a planning application submitted by applicants/architects for the development of a catering establishment, factory, major project, and multi storey apartments.

It is deemed necessary that appropriate planning policy guidance is developed in view of the current extent and projected growth in waste management operations in the Maltese Islands.

Furthermore, when planning for the use of urban spaces, account should be taken of the need for locality bring-in sites and for such spaces to be redesigned or reconfigured in order to facilitate their use, minimize inconvenience to neighbours and be serviced efficiently in order to avoid such areas becoming filthy. In this context it is not excluded that additional monitoring will be required in order to minimize abuses such as the dumping of waste materials in adjacent areas.

### **3.9. Monitoring progress and review of the plan**

The success of the strategy is highly dependent on ongoing monitoring and review, to which the necessary human and financial resources are to be allocated. The plan is to be reviewed in light of the changes in population consumption patterns, technology development and the ongoing discussions at European level, in particular, the management of bio-waste in the European Union and the revision of the Waste Framework, Landfill and Packaging and Packaging Waste Directives.

Moreover, in light of Article 30(1) laid down in the Waste Framework Directive, the Plan is to be evaluated and revised as appropriate and where relevant by 2016.

In this context, the following performance indicators are to be monitored to aid in determining the success of the strategy:

<b>Indicator</b>	<b>Measurable</b>	<b>Monitoring time frame</b>
MSW generation and management	MSW generated per capita Generation vs GDP	<b>Annually</b>
C&I generation and management	Generation vs GDP Generation vs GDP(sector specific)	<b>Annually</b>
C&D generation and management;	Generation vs GDP Generation vs GDP(sector specific)	<b>Annually</b>
Percentage biodegradability of MSW	Compositional surveys Biological tests	<b>Periodically (every 3 to 5 years)</b>
Total BMW landfilled	BMW generated vs BMW landfilled	<b>Annually</b>
Total BMW diverted from landfills for recycling and/or recovery	BMW generated vs BMW treated in authorised facilities	<b>Annually</b>
Collection and separation rates	Tonnes collected by the different systems (material specific)	<b>Annually</b>

Producer responsibility targets	Products placed on the market, collected and treated	<b>Annually</b>
Financing by producers of waste oils and waste tyres	Eco-contribution collected, oils placed on the market and oils collected and treated	<b>Annually</b>
Monitoring of Fluorinated gases (F-gases)	Tonnes of F-gases generated and treated	<b>Annually</b>
Identification of new waste streams that may need to be addressed by the plan	Generation of new waste streams and treatment options	<b>Annually</b>
Capacity of waste infrastructure	Generation of waste and treatment capacity by stream	<b>Annually</b>

These performance indicators will be monitored by the environment authority namely through compliance, registration, enforcement, data gathering and management.

### **3.10. Administrative capacity**

No plan can be adequately implemented should the administrative capacity be lacking. In this context, it is imperative to build up the necessary resources to:

1. Monitor the Plan;
2. Improve data collection and management of waste management operations and regulatory processes through an integrated waste management electronic platform for facilities, brokers, dealers, schemes and all those authorised to operate in the waste sector. This to ensure that waste statistics are as accurate as possible and reflect a fair and true picture of current scenarios;
3. Improve WasteServ Malta Ltd's operational efficiency as well as the operational efficiency of the infrastructure it currently manages;
4. WasteServ should revert back to its role as an operator of last resort divesting those initiatives that could be undertaken by the private sector to the same private sector. Moreover, where the business case permits, increased involvement of the private sector will be encouraged.
5. Improve waste-related enforcement capability to, at least, previous level. This could also be undertaken through the deployment of resources from within the public administration after proper and adequate training;
6. Review health and safety procedures in the waste sector;
7. Gozo as a pilot site for piloting certain initiatives;
8. Ensure a level playing field for all operators;
9. Improve Local Council and regional administrative capacity. This could also be undertaken through the deployment of resources from within the public administration after proper and adequate training;
10. Engage waste managers for regions (referred to earlier). This could also be undertaken through the deployment of resources from within the public administration after proper and adequate training;

11. Ensure contribution of the plan towards the creation of green jobs and the green economy. It is recognized that green jobs and green business offer Malta a significant opportunity in creating further employment opportunities with improved earnings. In this sense the strategy needs to dovetail with the strategy for a green economy such that an added value may result, in particular, from Malta's waste management strategy;
12. Assess how the proposed judicial reform can facilitate the tackling of environmental cases including waste;
13. Ensure capacity building and training (internal and external);
14. Improve co-operation between regulator, and stakeholders whilst ensuring that there are clear parameters for interaction between such so as not to destabilise the level playing field;
15. At a national level to use waste management as a best practice case study to demonstrate how cost effective, properly planned and environmentally responsive behaviours could lead to increase employment opportunities and promote the creation of green businesses and green jobs even further;
16. Promote R&D in the sector in areas where Malta could transform such R&D into a competitive advantage. Examples include the improvement of operational efficiencies in MBT plants in order to generate a higher level of energy, the use of low grade heat generated from MBT plants for recovery purposes etc.



### **3.11. Compliance and Enforcement**

Compliance and Enforcement shall be one of the central themes in the implementation of this Plan. The need for effective monitoring and enforcement will also be a central theme of the educational and communications programme. The importance of having effective enforcement has not yet been fully recognised and accepted by all sections of our society. A focus on education and communication is a proactive way to reduce the incidence of fly-tipping and breaches of waste management regulations in the long run although these will also need to be accompanied by a financial penalty regime for defaulters. Unfortunately some forms of abusive waste disposal are likely to continue. It is therefore important that resources remain dedicated to the enforcement of waste management regulations. Proactive learning and engagement in waste management will therefore be supported by firm enforcement procedures.

Laws and regulations governing waste management are not in themselves sufficient to ensure their success. To be effective, such measures must be administered and enforced, which in turn requires that adequate systems, procedures and resources be deployed to fulfill these tasks. In order to specify and quantify these requirements more precisely, it is proposed that Government considers:

- carrying out a systematic assessment of the resources required for establishing and maintaining a monitoring and enforcement regime sufficient to ensure a continuing high level of compliance;
- ensuring that there is a level playing field amongst others, on the implementation of the eco-contribution legal framework, where this concerns the individual importation of goods by economic operators as opposed to traditional importation methods. Moreover, Government will be in constant dialogue with interested stakeholders in order to sound out any prevailing attempts to circumvent the payment of eco-contribution dues which will also result in tax leakages;
- conducting a training needs analysis of all public administration employees working within the waste sector in order to identify areas where further training is

necessary to ensure that all enforcement personnel are full trained in environmental matters;

- specifying and then providing or acquiring sufficient human and technical resources based on the results of the assessment;
- increasing the focus on environmental, and hence waste management, related enforcement as a result of the demerger of the current MEPA which will yield a more focused environment and resources regulatory entity;
- developing and implementing integrated approaches and procedures for monitoring, inspection and enforcement; and
- reviewing periodically the adequacy of resources, systems and procedures, and adjusting these in the light of experience and changing circumstances.

Government is conscious of the financial situation of the country and is therefore determined to ensure that

- existing resources are deployed in an effective and efficient manner;
- any competent resources within the public service/sector who are not being utilised to their full potential will be detailed to the Environmental Unit of the Enforcement Directorate within MEPA; and
- recruitment be the last yet inevitable option.

The Ministries responsible for the Environment and that for Finance are therefore strategic partners in ensuring that value for money concepts are delivered in the use of public funds and in the commitment of public funds for waste management initiatives. Government will work with the relevant entities to ensure that the Waste Management Plan is implemented to minimise the incidence of abusive waste disposal. To this effect Government will ensure that the relevant entities entrusted with waste management are properly resourced to fulfil the entrusted tasks particularly those regarding the enforcement component which is critical to ensuring adherence to permits, legislation and other provisions. In order to ensure that adequate systems, procedures,

and resources are deployed to fulfil these tasks a review of existing enforcement resources will be undertaken.

In addition to the above, the following measures are also being suggested to promote compliance with existing obligations, thus aiding in enforcement procedures:

1. the introduction of financial penalties for delayed reporting by waste facilities, brokers and dealers aimed to improve data gathering. This would in turn improve reliability of waste statistics as the competent authority would have sufficient time to validate the reports;
2. certify that who is obliged to pay for waste handling and treatment is actually doing so;
3. removal of current practice that for enforcement reports to be triggered, the person who reports must do so in writing;
4. development of best practice guides by the new environment and resources competent authority on areas such as information required for permitting certain facilities;
5. confirm that Local Councils are to be the legal holders of waste collected from their communities; and
6. introduce reporting requirements for Local Councils for waste managed within their locality.

### **3.12. Involvement of the Private Sector**

Throughout this document, Government has clearly indicated its willingness to involve the private sector further in the waste management sector. The private sector has already played a key role in various aspects of the waste management cycle be it in the collection, operation of schemes, brokering and export of waste, design of facilities and the like.

In a small country such as Malta, it is even more so important to utilize all available resources and expertise to support a sector such as that related to waste management. Due recognition needs to be given to Wasteserv which, has been crucial in piloting certain initiatives that, perhaps, would not have materialized had its role not been established.

The time may be ripe, however, for Government to start a process of identifying which waste management operations can be delegated to the private sector. In doing so, the private sector would also be asked to take specific initiatives to ensure that society is enticed, motivated and well informed of the need for enhanced waste management and that it contributes to the goals embraced by this Plan.

In doing so, Government will need to take stock of the data characterizing each operation which will be considered appropriate for private sector management with a view to providing the private sector with a clear picture of the scenario it is to become responsible for, the targets that are expected to be achieved and the level of societal engagement expected. Such a process will undoubtedly be carried out in consultation with interested employer and employee representatives. It must be stated clearly that, as the transition of Wasteserv to an operator of last resort takes place, public employees will be retained and their expertise used to further foster the environmental dimension of this plan.

Finally, Government is actively considering the setting up of a Waste Management Stakeholders Group in order for Government to regularly brief interested stakeholders on the achievements and proposals being contemplated such that constant feedback may be sought from those directly involved in the sector.

# WASTE PREVENTION

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## Key issues

- Qualitative prevention – reduce the use of hazardous substances
- Quantitative prevention – reduce the generation of waste
- Priority waste streams – MSW and C&D waste
- Promote the reduction at source
- Promote re-use activities

## **4. Waste prevention**

### **4.1. Situation Analysis**

The revised Waste Framework Directive requires Member States to establish, by 12 December 2013, national waste prevention programmes which shall be evaluated at least every sixth year and revised as appropriate. A Waste Prevention Programme (WPP) may be integrated either into the waste management plans or into other environmental policy programmes, as appropriate, or shall function as separate programmes. When integrated into the waste management plan, the waste prevention measures shall be clearly identified.

Waste minimization in Malta has been piloted primarily by WasteServ. To date this government entity has undertaken the following initiatives in respect of waste prevention.

#### European Week for Waste Reduction

The aim of the EWWR is to organise multiple actions during a single week across European countries to raise awareness about waste prevention. The EWWR started off in 2009 as a 3-year project supported by the EC's LIFE+ Programme, but its success year after year led to the extension of this project. WasteServ has been involved annually since 2010, both as a participant and also as the national coordinator for Malta. Malta has always had a substantial number of participants during each edition and actions carried out included initiatives by schools, hotels, NGOs as well as individuals. Most notably, during the 2010 edition, architect Elisa Andretti put Malta's name on the winners list after her creation of a website for the reuse of construction and demolition waste was selected as a winner during the European Waste Reduction Awards. These prestigious awards aim to recognise the most effective and innovative entries submitted from all participating countries. For yet another year, WasteServ was the local organizer for the EWWR. We had over 39 participants organizing initiatives between the 18th and 24th November 2013.

### Waste Minimisation Awards

For two consecutive years, WasteServ has collaborated with the University of Malta's Cleaner Technology Centre (CTC) as a sponsor of the Waste Minimisation Awards, part of the established Environment Awards for Enterprise organised by CTC. In the 2012 edition, these local awards were linked to the EWWR and hence the scheme was extended to schools and NGOs in addition to commercial enterprises. Similar to the EWWR, the aim of this award scheme is to encourage local entities to implement waste reduction measures and recognise the efforts of those considered exemplary.

### Pre-Waste project

Pre-Waste was a 3-year project funded by the INTERREG IVC programme, an EU funding instrument to help share knowledge and transfer experiences across the EU. WasteServ implemented the Pre-Waste project in partnership with another nine entities from eight EU countries, with the Marche Region of Italy being the Lead Partner. The project aimed to improve the effectiveness of waste prevention policies in EU territories so as to significantly reduce waste generation and its degree of hazardousness.

Implemented between 2010 and 2013, this project developed guidelines for planning, implementing and monitoring regional waste prevention policies. One of the key deliverables was a web tool to allow the assessment of waste prevention actions' efficiency and monitoring. On a national level each partner was responsible for implementing activities to promote the importance of waste prevention, with food waste reduction being the focus of the local campaign implemented by WasteServ. Each partner was also responsible for commissioning a feasibility study to select best practices on waste reduction.



[www.reuse.com.mt](http://www.reuse.com.mt)

During the 2012 edition of the European Week for Waste Reduction, WasteServ launched a new website, [www.reuse.com.mt](http://www.reuse.com.mt), also funded through the Pre-Waste project. The website offers members of the public the opportunity to give away any unwanted items such as furniture, electronics, clothing, books and much more in order to extend the life of these items before they become waste. Likewise, the public can also take advantage of items given away by other users. The aim of this initiative is twofold: firstly, to reduce waste and reuse items which might otherwise be thrown away; at the same time, the project also has a social dimension in that all items are donated rather than sold, while website users are also encouraged to make a small donation to charity for every item they obtain free of charge.

#### Zero Waste project

Following our involvement in the Pre-Waste project, WasteServ was invited to once again be involved as a partner in an EU project called Zero Waste. This project has recently been approved for funding and hence has not yet started to be implemented. The project which commenced in September 2013, is expected to have a duration of 18 months and is mainly aimed at disseminating education on waste prevention through the organisation of seminars and workshops.

#### Other initiatives

WasteServ also organises targeted educational initiatives on a regular basis, such as talks and educational games in schools and waste management training for companies and government departments. In recent years the focus of these activities has shifted more towards waste prevention rather than waste separation, with the added benefit that the message can be tailored to the specific audience and context. Furthermore, the

company participates regularly in local community events with an educational stand that promotes food waste reduction and composting, the reuse concept, and other sustainable waste management practices.

## **4.2. Waste Prevention Plans**

Waste prevention is defined as “measures taken before a substance, material or product has become waste that reduce:

- a) the quantity of waste, including through the re-use of products or the extension of the life span of products;
- b) the adverse impacts of then generated waste on the environment and human health;
- c) or the content of harmful substances in materials and products.

That is, prevention varies from quantitative and qualitative.

### **4.2.1. Qualitative prevention**

Qualitative prevention involves the reduction of the hazardousness content of waste.

### **4.2.2. Quantitative prevention**

This includes targeting at-source waste production (reduction at source) where a life-cycle approach should be taken, targeting the product when it reaches its end of life, so that it is not discarded (avoiding waste), stimulating fundamental change in product design by extending a product’s lifetime or considering options like reuse (diverting waste), product reuse, and considering consumption of resources, environmental impact of products, etc.

The WPP is expected to set out the waste prevention objectives in the context of existing prevention measures and evaluate the usefulness of the examples of measures indicated in Annex IV of the Waste Framework Directive or other appropriate measures. The aim of such objectives and measures shall be to break the link between economic growth and the environmental impacts associated with the generation of waste. The WPP shall determine appropriate specific qualitative or quantitative benchmarks for waste prevention measures adopted in order to monitor and assess the progress of the measures and may determine specific qualitative or quantitative targets and indicators.

Examples of waste prevention measures as per Annex IV of the Waste Framework Directive and to which proposed measures may subscribe are reproduced hereunder for ease of reference.

#### **4.2.3. Measures that can affect the framework conditions related to the generation of waste**

1. The use of planning measures, or other economic instruments promoting the efficient use of resources.
2. The promotion of research and development into the area of achieving cleaner and less wasteful products and technologies and the dissemination and use of the results of such research and development.
3. The development of effective and meaningful indicators of the environmental pressures associated with the generation of waste aimed at contributing to the prevention of waste generation at all levels, from product comparisons at Community level through action by local authorities to national measures.

#### **4.2.4. Measures that can affect the design and production and distribution phase**

1. The promotion of eco-design (the systematic integration of environmental aspects into product design with the aim to improve the environmental performance of the product throughout its whole life cycle).
2. The provision of information on waste prevention techniques with a view to facilitating the implementation of best available techniques by industry.
3. Organise training of competent authorities as regards the insertion of waste prevention requirements in permits under this Directive and Directive 96/61/EC.
4. The inclusion of measures to prevent waste production at installations not falling under Directive 96/61/EC. Where appropriate, such measures could include waste prevention assessments or plans.
5. The use of awareness campaigns or the provision of financial, decision making or other support to businesses. Such measures are likely to be particularly effective where they are aimed at, and adapted to, small and medium sized enterprises and work through established business networks.
6. The use of voluntary agreements, consumer/producer panels or sectoral negotiations in order that the relevant businesses or industrial sectors set their own waste prevention plans or objectives or correct wasteful products or packaging.
7. The promotion of creditable environmental management systems, including EMAS and ISO 14001.

#### **4.2.5. Measures that can affect the consumption and use phase**

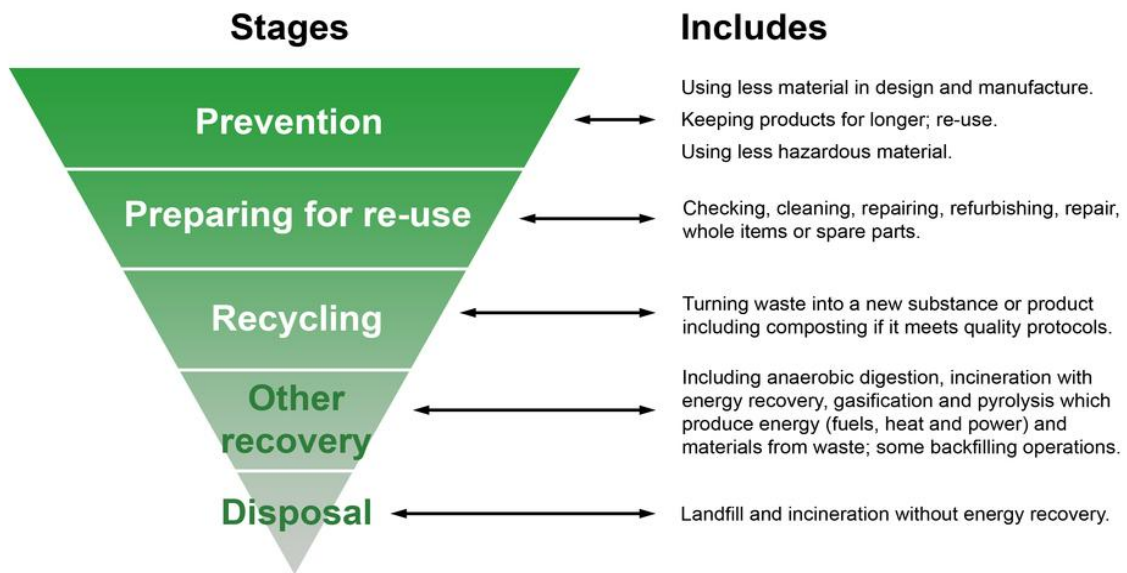
1. Economic instruments such as incentives for clean purchases or the institution of an obligatory payment by consumers for a given article or element of packaging that would otherwise be provided free of charge.

2. The use of awareness campaigns and information provision directed at the general public or a specific set of consumers.
3. The promotion of creditable eco-labels.
4. Agreements with industry, such as the use of product panels such as those being carried out within the framework of Integrated Product Policies or with retailers on the availability of waste prevention information and products with a lower environmental impact.
5. In the context of public and corporate procurement, the integration of environmental and waste prevention criteria into calls for tenders and contracts, in line with the Handbook on environmental public procurement published by the Commission on 29 October 2004.
6. The promotion of the reuse and/or repair of appropriate discarded products or of their components, notably through the use of educational, economic, logistic or other measures such as support to or establishment of accredited repair and reuse-centres and networks especially in densely populated regions.

### **4.3. Waste Hierarchy**

The waste hierarchy ranks waste management options in an order commensurate with their environmental impact. Many readers familiar with the subject have been used to the 3R concept - reduce, reuse, recycle. This concept has been extended and has taken a 5 point ranking in the form of - prevention; preparing for re-use; recycling; other recovery (e.g. energy recovery) and disposal (e.g. landfill). The basic concept is to extract the maximum practical benefits from products and to generate the minimum amount of waste. Thus waste prevention sits at the top of the waste hierarchy and represents the most environmentally friendly option in that the absence of waste calls for no management thereof.

## The Waste Hierarchy



Source: <http://andrewtmarlow.wordpress.com/2012/05/15/waste-hierarchy/>

Of course one has to be practical in that waste arisings will occur and need to be managed. However, societal commitment is required in order to make a lifestyle change which commits us to more environmentally responsible behaviour. It needs to be underscored that waste results from our individual behaviours and that the management of waste raises issues which we have only ourselves to blame. Hence the need to commit ourselves to preventing the generation of avoidable waste whether at home, at work, at school or during our recreation. This is more significant in Malta where our small land size means that both waste collection and treatment will inevitably impact some, if not all of us.

#### **4.4. Towards Sustainable Waste Management**

Sustainable waste management involves the identification of problem areas in the local waste management setup with a view to proposing a series of alternatives that would provide a net economic, social and environmental benefit. Compromising any of these three pillars of sustainable development would imply the compromising of sustainable waste management initiatives.

From an economic standpoint, there is no doubt that the costs associated with waste management are on the rise. This is due to the higher standards that need to be adopted in the collection, treatment and disposal of waste generated. Consequently, waste prevention, inherently avoids such costs by eliminating the generation of unnecessary waste. Of course, eliminating waste completely is impossible. However, even with the waste generated, our efforts need to be aimed at converting this waste into a resource and ensuring that the way it is used pushes waste management up the waste hierarchy. Reuse concepts can transform waste into a raw material for the production of new products. Failing this, waste can be recovered and sent to treatment facilities whilst other fractions (organic) can be used for the generation of energy.

From a social perspective, waste management has already provided employment opportunities for a number of workers who have been reskilled to act as one of the cogs in its management. Equally, waste management has provided an employment opportunity for third country nationals . Further opportunities exist in the sector so long as waste is managed appropriately and viewed as a resource from which terminal benefits can be derived. The private sector has a huge role to play in the management of waste and as such it will be through this sector that further employment needs to be secured. Waste management requires a behavioural change whereby traditional perception is challenged. Materials are not finite and alternative options exist to final disposal. Opportunities exist where waste management options can be created in such a manner as to instil wider appreciation of the link between addressing environmental objectives (in this case waste minimisation) and an improved quality of life, for different

sectors of society. Effective waste management is impossible without a societal change in behaviour and a commitment towards managing the waste they generate in a manner that facilitates collection, treatment and disposal.

Malta's overdependence on landfilling is by far the least environmentally friendly option. New plants are foreseen in order to divert significant amounts of waste away from landfills. However, infrastructure alone is not possible and we need to stimulate all those who can contribute, such as the private sector and members of society, to play a part in minimisation strategies as well as in providing waste streams which are effectively separated for their appropriate treatment or recovery. Failure by society to play its part can only result in an increased reliance on landfilling, thereby taking up more land for such purpose, as well as thermal treatment. In a country of such a small size such as Malta it is important for all to understand that any new facility will undoubtedly be close to a significant portion of our community. The more we rely on facilities for treatment and disposal the larger will be that portion of our community who will live in proximity to one of these facilities. The ultimate responsibility lies not only with Government but also with those who generate waste – us.



## **4.5. Consultation**

This Waste Prevention Plan is underpinned by a wide ranging consultation exercise. The launch of the Issues Paper on the 1 July 2013 was intended to put forward our current state of play in the context of our obligations under the Waste Framework Directive. It represented the start of a journey by highlighting the issues Malta is facing with a view to elicit stakeholder feedback as to the range of potential solutions to address such. The Issues Paper, purposely, did not put forward any concrete proposals by Government with a view to avoiding any skew in stakeholder perspectives. During an initial month-long consultation process a number of one to one meetings with stakeholders were organised. Reflecting its inclusive nature and its commitment to sustainability principles the team met stakeholders from the business, social and environmental fields. Moreover it made sure that it met the key players involved in the management of waste be they state or non-state actors. In addition, due consideration was made to factor in the opinions of policy makers and regulators alike. This with a view to encompassing all perspectives within the economic, social and environmental fields.

The consultation process reaped a wealth of proposals from around 40 different stakeholders during the first round and another 32 during the second. The hours invested in meetings and subsequent analysis of proposals has surely shaped this Plan considerably.

## 4.6. Priority Areas

The Waste Management Plan for Malta 2013-2020 is the umbrella plan under which this Waste Prevention Plan is being published. The Plan provides an analysis of the current waste scenario. For the purpose of the portion of the Plan, a summary of the statistics released by the National Statistics Office (2013) is being provided.

In 2011, the total amount of waste treated in Malta amounted to approximately 1Mtonnes, down by 26% over the previous year. 69% consisted of non-hazardous mineral wastes, a decline from 91% in 2004 and below the 2004-2011 average of 86%. This is not to say that we have managed to harness the C&D waste problem but due consideration needs to be made of the economic downturn which characterized this period and the lower number of development applications submitted.

<b>Waste generation</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011<sup>13</sup></b>
C&D waste	2,810,774	2,344,156	2,492,521	2,500,663	1,996,341	600,417	1,092,330	716,057
Municipal waste	249,712	251,460	252,849	265,947	276,008	267,773	248,672	247,386
C&I waste	42,113	31,514	65,147	96,071	62,241	61,864	69,239	81,897
Hazardous waste	47,304	44,374	53,848	67,655	58,119	46,453	35,985	22,629
<b>TOTAL</b>	<b>3,149,912</b>	<b>2,671,504</b>	<b>2,864,365</b>	<b>2,930,336</b>	<b>2,392,709</b>	<b>976,507</b>	<b>1,446,226</b>	<b>1,045,340</b>
<b>Management option</b>								
Recycled	72,189	72,258	178,395	305,514	216,728	97,167	148,372	231,136
Recovered	0	0	0	0	0	0	14,954	15,797
Landfilled	2,837,569	2,212,375	2,304,392	2,384,154	1,800,392	729,828	907,818	651,828
Disposed at sea	0	0	0	0	0	0	0	149,120
Others <sup>14</sup>	240,155	386,873	381,581	240,670	375,592	149,513	375,082	21,815
<b>TOTAL</b>	<b>3,149,913</b>	<b>2,671,507</b>	<b>2,864,367</b>	<b>2,930,338</b>	<b>2,392,711</b>	<b>976,509</b>	<b>1,446,227</b>	<b>1,069,695<sup>15</sup></b>

**Table 8: Waste Management Overview – Malta**

<sup>13</sup> The 2011 total generation figure does not include the total hazardous waste generated in that year since hazardous waste forms part of MSW (1,209 tonnes), C&D waste (137 tonnes) and C&I waste (21,283 tonnes).

<sup>14</sup> 'Others' refers to storage activities and incineration without energy recovery.

<sup>15</sup> Total waste treated in 2011 was more than that generated. This was due to exports of waste stored in the previous years.

Municipal waste made up 24% of all waste managed.

Waste collected from bring-in sites reached a peak of 5,000 tonnes in 2011 whilst the introduction of the grey bag collection scheme, in 2008, introduced increased recovery of recyclables by 9,700 tonnes. Waste collected from Civic Amenity Sites reached 22,000 tonnes by 2011.

The amount of waste managed in public landfills decreased by an average 15% per annum between 2004 and 2011. On average, between 2004 and 2011 municipal waste represented 18% of waste diverted to landfill. In 2011, the Sant' Antnin plant treated around 56 Ktonnes of waste, the highest amount treated so far as the plant gained full operational capability. The Marsa Thermal Treatment Plant averaged 6,645 tonnes of treated waste per year over the period 2008-2011. During this period 91% of the waste incinerated consisted of animal tissue waste and by-products of animal rearing. The Marsa Plant is the only facility in Malta licensed to provide final treatment for hazardous waste. During the period 2008-2011, 5.8% of the total amount of waste treated by this facility was classified as hazardous.

The waste management scenario for the period 2004-2011 is summarised in Table 8.

On the basis of the waste management statistics as well as the consultations held, the priority areas established for this minimization plan are:

1. Heightening the awareness on the need to reduce waste arisings through appropriate behavioural changes which either minimize the amount of purchases that generate waste through smarter shopping practices or through extending the life cycle of goods and to avoid their untimely conversion into waste.
2. Reduction of MSW arisings:
  - a. organic fraction
  - b. recyclables fraction
  - c. promoting re-use and repair initiatives

## **4.7. Minimising Waste Arisings**

The following initiatives are all intended to minimise the amount of waste that is currently being managed through Malta's public and private waste infrastructure. Minimisation features at the very top of the waste management hierarchy and it is each and every person's civic duty to take those actions which are realistically possible without overburdening citizens too much.

### **4.7.1. Outreach Initiatives**

Outreach initiatives involve communication, education and joint initiatives with stakeholders that permit the heightening of the awareness on the need for sustainable waste management projects and practices. Outreach initiatives are thought to be critical in promoting a new culture of waste minimisation and mainstreaming such behaviour throughout society. At the outset it is important to recognise and laud the education and awareness initiatives that have been undertaken by WasteServ over the past years. Such an approach needs to be sustained and directed to different audiences. In parallel programmes addressing environmental responsibility related both directly to waste management as well as to indirect facets such as littering and closing up of vacant building sites shall also be considered.

### **4.7.2. Enablers**

Reducing waste generated will be facilitated by reaching out to different audiences with a view to capture their imagination and interest to change from current unsustainable patterns to ones in which less waste is generated. Different media need to be selected to convey different messages to different stakeholders. At the same time different population 'pullers' need to be factored in as potential venues or avenues through which awareness and education is made available. Whether it is daytime television programmes with an audience which is predominantly composed of housewives and elderly people to libraries which can be centres of educational activity, waste prevention

awareness needs to reach all corners of society. Communication is therefore key to behavioural change. Very strong efforts have been made with school children which whilst being sustained also need to encompass the youth and adult audiences. Many a time the consequences of inaction or the worth of one's efforts are not given the importance they deserve. Hence heightened awareness on one's environmental responsibility should also be factored with a view to target both waste management aspects as well as ancillary related aspects such as littering.

The EWWR Guide of Good Practices (2012) provides a compendium of good practices on awareness-raising actions for waste reduction which brings together a number of actions that have been taken at in various Member States. Government will adopt this document in principle as an inspiration to enrich the outreach activities that have also been specifically contemplated in this Plan.

#### **4.7.3. Enabling actions**

Educational initiatives will be developed in order to provide a rolling programme of training for public administration employees, with a view towards enabling them to practice waste minimisation both at their place of work but also when at home. Educational initiatives will need to be intensified as a form of lifelong learning in order to reach out more intensely to the adult population. The Faculty for the Built Environment which already teaches principles of waste management at undergraduate and postgraduate level and WasteServ will be Government's partners in this respect. Education initiative will be undertaken at places of work as well as at local councils with a view towards reaching out to the adult audience which is thought to be critical in ensuring sustainable waste management practices. Working with schools will also continue to be supported so as to ensure that future generations are educated with a sustainability mindset. As far as possible, educational initiatives will try and permeate the homes with a view towards guiding people on better shopping habits. To this effect, research on food purchasing and consumption patterns in collaboration with home

economics specialists at the University of Malta will be fostered. These may take the form of dissertations and Masters by research.

Government will also develop a Towards a Zero Waste Guide for electronic dissemination thus avoiding itself the temptation of mass mailings which could be counterproductive. Hard copies will be available for collection by those who are interested from accessible locations such as local council offices. This guide will tackle various waste streams generated at home or at the place of work and tips for their better management. This will complement other outreach initiatives contemplated in Section 3.7 and all of Section 4. Several guides and educational material have already been developed as part of the activities undertaken by actors such as WasteServ. An inventory of such work will be undertaken in order to avoid duplication and consolidate existing resources.

An online directory of waste management facilities and a list of enterprises whose products contribute towards minimising waste will be developed in a manner which may facilitate the identification of such enterprises by product, geographic location or any similar identifying criterion.

As far as possible Government will encourage continued participation in European and national campaigns promoting sustainable waste management and individual environmental responsibilities. During these campaigns the main messages will be intended to heighten awareness on behavioural changes required for waste minimisation as well as publicising waste treatment facilities available for the better management of inevitable waste generated.

Another important aspect will be to work with businesses such that they will also become waste champions both operationally as well as by instilling a change in behaviour amongst their employees. Businesses will be provided with a manual of practical tips to implement at the workplace. They will also be encouraged to join the Waste Prevention campaign and to display this on their website and possibly all their communication material. Such initiatives will be undertaken in collaboration with business sector

representatives who will have better access to their membership and offer a more solid platform for accessing them.

Specific outreach initiatives will be used to promote behavioural change and increase the Maltese population's appreciation of the benefits associated with:

- separation of the different fractions of waste such that the recovery rate will be increased. This will address fractions such as glass, paper, plastic and metal;
- community reuse initiatives involving the transfer of goods which are no longer required by one person and which may be reused by another. This prolongs the life of the object and prevents it entering the waste stream at an earlier stage;
- the link between certain recyclable fractions of potential waste material and its artistic or craft value;
- promoting loan and hire behaviours as a means to enhance the frequent reuse of common items without the need for their re-creation and which may eventually contribute to increased waste arisings;
- the purchase of electronic format alternatives to traditional printed material. Internet penetration in Malta is significantly high and so is its usage and therefore this may be harnessed as a means to avoid the generation of physical products which have a higher chance of becoming waste in the shorter term;
- the producer's responsibility in minimising, through redesign, of packaging material in order to lower packaging related waste as well as to heighten awareness on which packaging may be recovered or otherwise. In this context, society should be encouraged to favour the purchase of products which have the least possible packaging;
- The concept of each individual's environmental responsibility both as directly applied to waste management but also as applied to ancillary activities such as littering.

#### **4.7.4. Targets**

The following targets will be pursued:

- establishing a baseline of the Maltese population's behavioural and knowledge characteristics with respect to waste management;
- establishing an index for the measurement of waste prevention to achieve consistent data along the years for the monitoring of progress towards the achievement of the established targets;
- measuring on a biennial basis the increase in awareness and changing behaviour of the Maltese population in response to the outreach initiatives in order to set future benchmarks.

#### **4.7.5. Monitoring**

Monitoring will generally be pursued through the surveys referred to in the Targets section above.

### **4.8. Food waste**

A recent survey by the National Statistics Office has revealed that, on average, 22% of the amount of purchased food ends up being wasted and directed to the solid waste stream (NSO, 2013). Wasted food means a wasted resource and the consumption of energy to produce food which has literally gone to waste. Food which goes to waste represents an undermining of sustainable production and consumption patterns and, in turn, requires increased infrastructural capacity to collect and treat this waste component. Food waste has been estimated to constitute 55.8% of domestic waste generation which averages at 0.38kg per capital per day of solid waste.

It has been estimated that residents consume 12.17kg of food per week which is equivalent to a daily amount of 1.73kg. In monetary terms, this translated to an



expenditure of €26 per resident per week (NSO, 2013). Food waste results from incorrect purchasing patterns, a lack of understanding of 'best by' and 'use by' labelling as well as by incorrect storage. Food waste may also be generated by overly estimating individual food portions.

#### **4.8.1. Enablers**

Reducing food waste essentially requires raising people's attention to their consumption patterns as well as changing their behavioural patterns. Food waste may be generated from a range of the following situations:

- too much choice of food available within the household implying purchasing of more than one can reasonably consume;
- lack of knowledge on food preparation and cooking;
- automatic discarding of leftovers;
- shorter shelf lives;
- time constraints in our daily life – buying in bulk to avoid multiple shopping trips;
- lack of kitchen planning.

#### **4.8.2. Enabling actions**

It is therefore suggested to create a greater awareness on the amount of food that a human being actually requires. This will be done by roadshows at local council level with a view to access members of the family who are free during the day and who are likely to be involved in the day to day shopping requirements. Moreover, such a presence will also be encouraged at public events with a view to reaching out to a wider audience. Home economists will be asked to provide guidelines for better education of households in their purchasing and consumption habits as well as leftover management.

Strategic alliances will be sought with supermarkets in order to determine whether they are receptive to the presence of authorised personnel to be available on the premises to advise customers on their consumption patterns and to promote the wiser purchase of food. Government will also engage with the medium to large employers in order to use their employees as selected audiences for food waste reduction programmes. To this effect Government will ensure that there are a sufficient number of trained food champions to promote sustainable consumption in the community.

Television programmes which feature cooking spots shall also be contacted with a view to dedicating certain cooking spots to cooking with leftovers. Food champions will also be asked to recount their personal experiences in order to demonstrate the tangible nature of changes in behaviour. This could also be coupled by offering prize money for television reality programmes aimed at food waste minimisation in a similar way as is done with themed programmes on weight loss. As a result, winners of such programmes could then be committed to become national waste champions and to take part in national and local information and awareness campaigns.

It is equally important for families embarking on such changes in behaviour to be assisted in quantifying the reduction in their food bill as a tangible means of showing the reward for this new attitude.

#### **4.8.3. Targets**

The following targets will be pursued:

- to establish a baseline as to the percentage households that practice food waste reduction;
- to increase the number of committed food reducers by 10% per annum;
- promote food waste reduction in at least 30 interventions of radio, television and newspapers;

- work with a television producing company in order to develop a reality show aimed at rewarding food reducers;
- distribute food purchasing tips to at least half of the aggregated number of schools, medium to large employers, supermarkets and local food stores;
- aim to lower food waste from 22% to at least 15% over a period of five (5) years.

#### **4.8.4. Monitoring**

These actions will be monitored as follows:

- biennial awareness surveys of the importance of reducing food waste;
- biennial survey to establish the number of committed food waste savers;
- a five-year survey by NSO to determine the amount of food waste from the domestic sector.

#### **4.9. SMART shopping**

Smart shopping involves making informed choices to reducing trash and subsequently saving money. It is about encouraging shoppers to understand the implications of the goods they purchase and to make the right choice based on environmental considerations. Whilst most people prepare a shopping list, one cannot discount the amount of impulsive buying that result from special offers and attractive displays.

The following considerations can assist shoppers in making informed decisions:

- is there a real need to purchase the object;
- do we need to buy new or can we purchase second hand;
- can repair offset the need to purchase;
- can we borrow or hire instead of purchase;
- how many times is the purchased object intended to be used;
- does an electronic version exists;

- does the purchase contain too much packaging;
- what are the ultimate consequences of the object and its packaging;
- can one subscribe to the 'bag for life' concept in that shopping is carried fabric bags that may be reused for a number of times;
- do we favour products which may be refilled or subject to a deposit refund scheme in order to help in minimising waste and maximising resources by multiple reuse (coffee refills for jars, liquid soap for handwashing and for dishwashing);
- avoid purchasing disposable items;
- purchase long-life products such as rechargeable batteries;
- favour recycled products;
- a change from giving goods as gifts to giving experiences as such (concert or theatre, tickets, well-being therapy, e-book etc.).

SMART shopping is a concept which brings about with it a need for a change in our behavioural pattern. It is a way of life we have to permeate at home, at our place of work, at school and during our recreation activities. Reversing trends and learning new patterns is not an easy challenge – SMART changes require a lifetime commitment, resisting the temptation of defaulting to traditional behaviour. Lifestyle changes which yield more sustainable patterns should be the focus of an awareness campaign with a view to permeate such practices within the widest audience possible.

#### **4.10. Leading by example**

Undoubtedly, Government activities can contribute towards the generation of significant volumes of waste. In order to be credible, Government must lead by example and must set the highest possible standards within its own operations.

Government operations as varied in nature and, in essence, generate considerable volumes of municipal solid waste and recyclable materials. This is not to say that it does not also generate hazardous waste. In order to be able to ask others for their commitment, Government must first and foremost illustrate that it has that same commitment it is asking from others within its own operations. To this effect Government

needs to undertake sustainable waste minimisation and waste management initiatives. This will require the highest authorities and leaders within the public administration to facilitate such initiatives whilst ensuring that employees are made aware of changes in behaviour required from them and make a deliberate and voluntary commitment thereto.

#### **4.10.1. Enablers**

Government will need to take stock of existing waste management practices across all government entities, in the form of a waste audit, in order to determine whether there exists the infrastructure, the knowledge and the commitment for change to happen.

#### **4.10.2. Enabling actions**

Government will organise waste audits in all government Ministries across the whole of the public administration to determine the existing gaps and address them accordingly. Such an exercise could also be the subject of structural funds in order to speed up implementation timelines in the light of critical resource levels within government itself.

#### **4.10.3. Monitoring**

Monitoring will involve:

- establishing a baseline of waste arisings in audited government entities;
- computing the progress registered following waste audits and information sessions.

## **4.11. Green Public Procurement**

Government purchasing bears consequences on the environment. As such expenditure is considered to be very high, and represents a significant proportion of Malta's GDP, its environmental footprint cannot be neglected. These negative aspects, such as those associated with materials and resources use and the resulting waste may be reduced, whilst the positive aspects promoted with the help of Green Public Procurement (GPP), which is an instrument designed to promote environmentally-positive procurement practices.

Green public procurement is a win-win tool, which leverages economic and environmental objectives. On the one hand, it enables the public sector to obtain the best value for money and procure low-carbon, environmentally-friendly goods, works and services. It therefore represents an efficient use of public finances and promotes environmental improvement. On the other hand, GPP represents a business opportunity for the suppliers of goods and services, rapidly pushing the boundaries of the growing market for environmentally-positive products and services.

Contracts Circular No. 5021/2011 on Green Public Procurement issued by the department of contracts instructing all contracting authorities to integrate green public procurement criteria, according to their respective targets, by following the National Guidelines for Green Public Procurement.

### **4.11.1. Enablers**

The ideal departure point is considered that whereby a baseline of what has been achieved in terms of the National Guidelines for Green Public Procurement is established. This will point Government towards those changes that need to be undertaken in order to make possible the implementation of waste prevention initiatives. Government's procurement could positively contribute towards the achievement of economies of scale that would enable the private sector to truly turn its focus to

identifying those waste components which truly represent a resource opportunity for contributing towards Government's green agenda.

Green Public Procurement could particularly contribute to the prevention of waste, if the criteria for construction works as well as those for road construction are increasingly adopted, especially since construction and demolition waste constitute a significant share of the waste produced. These criteria mainly relate to environment management measures that prevent harmful waste and hazardous substances as well as measures aimed at minimising waste production on site.

Local councils will be fundamental stakeholders in addressing the local waste scenario. Green Public Procurement offers an opportunity to procure transport services relating to waste collection trucks and services, which mainly reduce emission levels. Other Green Public Procurement criteria which do not strictly relate to waste such as cleaning products are also contributing to reducing waste particularly in packaging requirements since no less than 80% is considered to be recycled material.

#### **4.11.2. Enabling actions**

Government will undertake a baseline study to establish to what extent waste related activities have contributed towards Government's Green Public Procurement. This will enable the identification of those products and materials, traditionally procured from the open market, which can be identified as representing the best possible for securing a shift towards tangibly demonstrating that waste can indeed be a resource.

#### **4.11.3. Monitoring**

Monitoring will focus on the level of GPP achieved over and above the established baseline.

## 4.12. Tackling Unwanted Mail

The nature of the material that comes through our letterbox has changed considerably owing to the developments that technology has brought with it. A number of exchanges are nowadays carried out electronically and therefore the amount of personalised physical mail has decreased. Another form of physical mail is unaddressed mail, or promotional mail, and which consists mostly of fliers and printed marketing material. It is probably correct to assume that there is an undetermined portion of recipients who would be willing to migrate towards an electronic rather than a physical form of such mail and another portion who would not like to receive such mail at all. This could present an opportunity towards society's contribution to the waste minimisation objective.

Unaddressed mail does not necessarily come through the postal services but there are also private operators in the sector. Unfortunately, those who do not participate actively in separating their waste may divert these to the mixed waste fraction compounding the problem. Moving up the waste hierarchy involves the opportunity to reduce unwanted mail from those who express a wish not to receive such mail or those who can migrate to an electronic medium.

### 4.12.1. Enablers

Most people have grown accustomed to accepting the fact that their letterbox receives promotional mail. The inability not to have the choice of how to receive such mail, or not to receive it at all comes at an environmental cost. The main barriers to move beyond the *status quo* are:

- the average throughput of unaddressed mail that comes through our letterboxes has never been quantified scientifically;
- it has never been scientifically estimated how many people would opt to stop receiving such mail or receive it electronically;



- people simply do not know what to do in order to stop receiving such mail;
- there is no mechanism to regulate the distribution of such mail and safeguards for those who do not want to receive such mail;
- a difficulty in accepting some but not other forms of mail;
- stickers on letterboxes may not be attractive to some or may not be respected by some operators;
- a ‘why bother’ attitude.

In order to tackle and reduce the amount of waste that is generated from unwanted mail tangible actions need to be taken.

#### **4.12.2. Enabling actions**

An initial prudent approach would be to determine the amount of unaddressed mail being received by households as well as the amount of households who would prefer to opt out from receiving such material or receive it electronically. This would enable a clearer picture of the situation to be established.

An equally prudent approach would be for Government and current operators within the sector to collaborate for the development of a ‘corporate’ sticker to be made available for affixing to letterboxes asking distributors to refrain from depositing such mail. Such an initiative would be possible only if there is unanimous agreement by all operators to participate so as to ensure that there is a level playing field.

Moreover, discussions will commence with the relevant stakeholders to assess the possibility of developing a framework by which all actors in the sector may abide with a view to foster good environmental practices over and above the competitive aspect.

Companies who produce catalogues should be encouraged to the distribution of a selected number of copies in appropriate locations (supermarkets, stationeries etc) where people make a conscious choice to take a copy. In addition, such companies should take advantage of the internet to host electronic calendars which are emailed to those who want to receive it in such a format by subscription. Moreover, current operators within this sector are encouraged to examine the opportunities that exist, or may be created, to enable them to develop a virtual distribution platform for those who may wish to make a tangible environmental choice of receiving material in electronic rather than in physical format.

#### **4.12.3. Targets**

The following targets in respect of promotional mail will be pursued:

- conduct a survey to establish the average amount of promotional / unaddressed mail being received by households;
- conduct a survey to establish the perceptions of households towards promotional / unaddressed mail;
- open discussions with stakeholders on the possibility for the development of a regulatory framework which will, amongst others, enable business and citizens to be able to unsubscribe from the delivery of unaddressed mail;
- encourage catalogue and directory companies and magazine publishers to move away from letterbox to letterbox distribution in favour of online distribution.

#### **4.12.4. Monitoring**

Monitoring shall be mainly carried out by means of annual surveys on the number of persons who opted to benefit from a regulatory framework which permits the receiving of unwanted mail as well as the number of companies who have opted to discontinue door to door distribution in favour of subscription based distribution.

## **4.13. Construction and demolition waste**

Construction and demolition waste is the result of the activities related to quarrying and construction and is largest fraction within the total amount of solid waste generated in the Maltese Islands. It is generated from the demolition of existing buildings to make way for redevelopment, refurbishment of buildings, new construction and quarrying activities. By its very nature, inert material from construction and demolition, in particular the limestone and concrete fractions, waste has a high density and can occupy considerably large volumes. Over the past years, the inert fraction of the construction and demolition waste has been partly managed in privately managed construction and demolition spaces, usually disused quarries, through backfilling, and which have returned eyesores into better landscaped areas. Such material was also disposed at sea in a designated site thus extending the challenge of waste management to encompass on the marine environment.

### **4.13.1. The development process' contribution to minimising C&D waste**

Construction and demolition (C&D) waste is tied to the level of permitted development. Over the years we have witnessed fluctuations in the generation of this waste fraction according to the number of permits issues, often with a time lag that factors the time lag between the application and construction stages.

There are many factors which have contributed to the generation of construction and demolition waste. The relatively low price of stone block, relatively high labour costs as well as the importance of time to the market on the feasibility of the project have all resulted in an attempt to effect construction in the shortest time possible. This same reality continues to prevail, coupled by an increasing vacant dwelling stock.

A greater awareness on the need for a quality built environment for a better quality of life for us all as well as to retain the aesthetic appeal sought by tourists and investors alike

motivates the need to change. Without in any way proposing any changes to scheduled properties and planning guidance governing urban conservation areas, there are several structures which merit the retaining of their aesthetic properties whilst modifying or enhancing the internal structure through modern solutions. And perhaps there is no better time to change than now.

Our modern streetscapes have often been criticised for our lack to keep them in the pristine state they were in. Redevelopment has compromised a considerable part of the vernacular fabric and what is left is being increasingly appreciated and needs preservation. In this sense architecture has a role to play. Many talented architects are emerging from their training within the University of Malta. They truly have the potential to develop innovative solutions not only to preserve the vernacular nature of the existing fabric but also to maximise their accommodation potential *in lieu* of further sprawl.

On their part, developers are the financiers of development projects. Their investment permits employment levels to be sustained within the industry as well as driving the economy forward as do the other economic sectors. Developers have an important role to play in ensuring that, whilst feasible projects are realised, architects are allowed to express themselves to their best. Demolition should make way, where appropriate for retention and moderate extension.

The planning process is the natural ally for promoting such concepts.

#### **4.13.2. Enablers**

Over the years, Maltese society and visitors to the islands alike have valorised traditional architecture, rehabilitating it and enriching it. The end result is a retained and restored building, with traditional features, which commands a market premium. Without generalising, this is the way forward for exploiting the development potential of the traditional urban fabric.

Market research into the value of restored buildings should be undertaken with a view to demonstrate, or otherwise, the link between retention and extension strategies and market premium. This will assist the developer's business case.

Planning guidelines should also recognise the intrinsic value of our traditional architecture and, where possible, constraining development to restrain outright demolition in favour of retention and extension strategies.

#### **4.13.3. Enabling actions**

In laying down future policies for development, cognisance should be given towards protecting traditional architecture and the streetscapes they generate whilst at the same time valorising their potential for extension.

Planning constraints on outright demolition should be applied where possible. Planning guidance on excavation works should also be prepared, with a view to reducing amount of C&D generated.

Discussions between MEPA, the KTP, MDA, FOBC and other relevant stakeholders should be undertaken, particularly when local plans are being revised, in order to factor in the need to limit unnecessary construction and demolition waste. This with a view to promoting the value of the limestone resource at excavation stage and to harness the potential of technology to make this process more resource efficient rather than simply generating more C&D waste.

#### **4.13.4. Monitoring**

Monitoring will take the form of:

- number of redevelopments undertaken not involving demolition;

- volumes of inert waste generated

#### **4.14. Concluding Note**

This Waste Prevention Plan originates from our obligation under the Waste Framework Directive. Reacting to satisfy an obligation is an insufficient commitment. Society needs to embrace the concept of waste minimisation and think in a sustainable manner. Many of us might think that our behaviour will not cause any impact in our lifetime. The reader is invited to examine which of the following developments occurred during their lifetime – the closure of the Maghtab dump, the opening of the Ta' Zwejra and Ghallis engineered landfills, both of which are nearing their exhaustion putting pressure for a new site or sites, the Sant' Antrnin waste treatment plant and its subsequent upgrading and the upcoming waste treatment plant in the Maghtab area. All this bears witness to our current unsustainable waste management practices. Persisting down this road can only lead to further encroachment of facilities closer to our neighbourhoods and/or increased cost of managing that waste from the taxpayer's coffers. On the other hand, minimising waste generation can lead to real and tangible cost savings in the materials we consume, in the food we purchase and in lengthening the time for capital expenditure to purchase new objects.

All this exercise will prove futile unless society commits itself to investing some of its time to secure better waste management practices. This requires a collective effort that will make Malta more sustainable in its waste management practices. This is our chance towards safeguarding the limited resources of our islands and leave behind a better environment to the younger and future generation.

Government intends to lead by example, bettering its own waste management practices and working together with the various Ministries and entities involved in the initiatives identified in this Plan. It is in this context that Government is considering setting an appropriate governance framework for the implementation of this Plan which recognises the role that every stakeholder has to play such that we may ensure the efficiency and

effectiveness in making the Plan happen within a framework of accountability, transparency and participation.

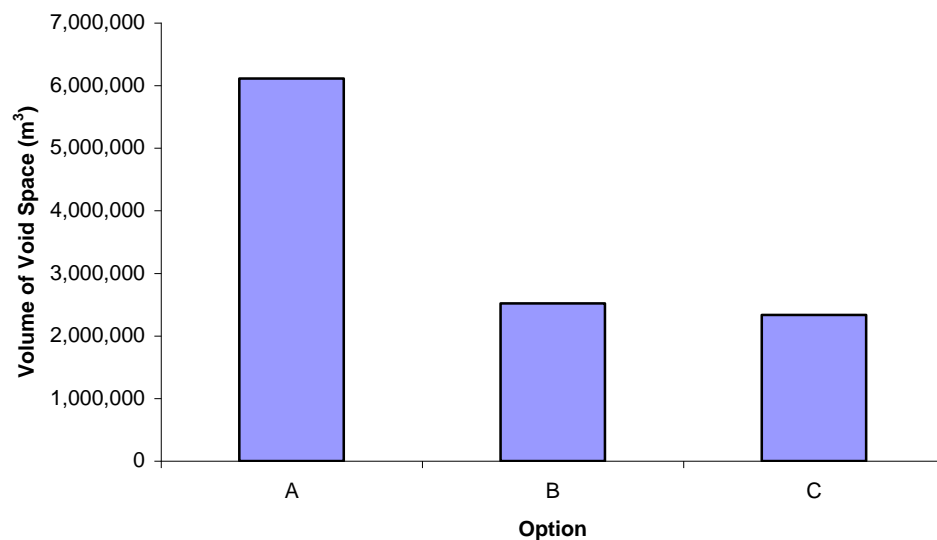
## ANNEX I – Landfill capacity needed post 2015 for options A, B and C identified for option 2 in section 3.1.2

year	MSW projected	Landfill void space needed (OPTION A with an EfW facility of 120,000 t/a)	Landfill void space needed (OPTION B)	Landfill void space needed (OPTION C)
2011	250,516			261,066
2012	252,373			272,923
2013	254,244			274,794
2014	256,129			276,679
2015	258,027			278,577
2016	259,940	92,140	57,940	176,140
2017	261,867	94,067	59,867	178,067
2018	263,809	96,009	61,809	180,009
2019	265,764	97,964	63,764	181,964
2020	267,735	99,935	65,735	183,935
2021	269,720	101,920	67,720	185,920
2022	271,719	103,919	69,719	187,919
2023	273,734	105,934	71,734	189,934
2024	275,763	107,963	73,763	191,963
2025	277,807	110,007	75,807	194,007
2026	279,867	112,067	77,867	196,067
2027	281,942	114,142	79,942	198,142
2028	284,032	116,232	82,032	200,232
2029	286,137	118,337	84,137	202,337
2030	288,259	120,459	86,259	204,459
2031	290,396	122,596	88,396	206,596
2032	292,549	124,749	90,549	208,749
2033	294,717	126,917	92,717	210,917
2034	296,902	129,102	94,902	213,102
2035	299,103	131,303	97,103	215,303
2036	301,321	133,521	99,321	217,521
2037	303,555	135,755	101,555	219,755
2038	305,805	138,005	103,805	222,005
2039	308,072	140,272	106,072	224,272
2040	310,356	142,556	108,356	226,556
<b>TOTAL (tons)</b>		<b>2,915,871</b>	<b>2,060,871</b>	<b>6,379,910</b>
<b>Void space needed 2016-2040 (m<sup>3</sup>)</b>		<b>4,409,742</b>	<b>4,121,742</b>	<b>10,031,742</b>



**Note:** Thermal treatment with Energy Recovery reduces the weight of waste by 70% and the volume of waste by 90% essentially extending the lifespan of landfill void space by 10 times as opposed to landfilling waste directly. Ashes generated by energy recovery facilities will have to be landfilled if they cannot be used in construction activities such as road works, thus why a slightly higher void space is projected for option A when compared to option B.

**Projected landfill void space<sup>16</sup> requirements between 2016 and 2031  
(Comparison of the 3 options)**



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<sup>16</sup> This is a simplistic calculation of void space only cover the actual void space needed for waste containment and excluded the other space needed for engineering the facility and for ancillary facilities. Calculations of waste density are taken at 0.5 tonnes per meter cube for general waste and 2.4 tonnes per meter cube for incinerator bottom ash.