

Issues Paper

TOWARDS SUSTAINABLE WASTE MANAGEMENT

Issued by

**THE MINISTRY FOR SUSTAINABLE DEVELOPMENT, THE
ENVIRONMENT AND CLIMATE CHANGE**

**as a preliminary consultation document prior to the formulation of
Malta's Waste Management Plan 2014-2020**

1 July 2013

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Aims and Objectives

This issues paper is the first step towards the revision of Malta's 2010 National Waste Strategy, and its amalgamation within the formulation of a National Waste Management Plan, as per Malta's obligations under the new Waste Framework Directive (Directive 2008/98/EC) and which will realign national waste management policies with the provisions of the Directive. This is also in line with measure 2.3.37 of the National Environment Policy (2012).

As the first step towards the formulation of Malta's consolidated Waste Management Plan, the aim of this paper is to put forward ideas to stimulate discussion and obtain a clear idea of public concerns and expectations in this field, with a view to setting out the key elements of Malta's National Waste Plan.

The objectives of this document are to:

1. highlight where we are obliged to be;
2. analyse the current situation and highlight existing gaps;
3. identify the issues related to Minimisation, Recycling, Recovery and Treatment of waste that are to be addressed in the Plan;
4. request proposals for addressing these gaps and securing citizen and business engagement.

Written views and comments shall be received until the 21st July 2013. To help guide your response, we have identified the following questions:

Question 1: Do you have any comments on the issues paper as a whole?

Question 2: Do you have any comments on the issues presented in this document?

Question 3: Is there any particular issue that is not highlighted in this paper that you would like to raise?

Question 4: How can we achieve citizen and business engagement in addressing the identified gaps?

Question 5: What proposals can be put forward to address identified issues and gaps?

Any additional feedback would be appreciated.

Further information may be obtained by calling the Ministry for Sustainable Development, the Environment and Climate Change on 2292 6241, or by email to sustainablewaste.environment@gov.mt.

Comments will also be received by post to: Ms Karina Fiorini, Ministry for Sustainable Development, the Environment and Climate Change, Millenia, Aldo Moro Road, Marsa.

Where we are obliged to be

As waste prevention is considered to be the most sustainable waste management practice, the Maltese Government aims to break the link between economic growth and waste production by minimising waste generation at source.

Basing on our obligations in the EU waste management acquis, Malta is obliged to manage waste in an environmentally-sustainable manner taking into consideration the following principles:

1. to reduce waste and to prevent waste occurring;
2. to manage waste in accordance with the waste hierarchy;
3. to cause the least possible environmental impact in the management of waste.
4. to reflect the polluter-pays principle in waste management procedures.

Table 1 lays down the recycling and recovery targets that Malta is to achieve in the coming years in relation to the EU environmental acquis. These targets have been set at national level and should enable Malta to align itself with EU set targets. These targets have been set with the intention of promoting waste as a resource in order to prevent the loss of valuable non-renewable materials such as plastics, precious metals, and minerals through, for example, disposal into a landfill. The uncontrolled extraction of non-renewable resources is likely to result in future generations not being able to meet their needs. These principles are also reflected in Malta's National Environment Policy, 2012.

Table 1 – National and EU waste targets (Souce MEPA Data)

Waste Stream	Target	Status
All waste streams	To draft a waste prevention programme by December 2013	Waste prevention programme currently being drafted
Household waste	To recycle 50% of paper, plastics, metal and glass by 2020	23% of household waste recycled in 2011
Biodegradable Municipal Solid Waste (BMW)	Allowed to landfill: 75% by 2010 50% by 2013 35% by 2020 of total BMW generated in 2002	Landfilled: 83% in 2010 (78% in 2011)
Packaging and Packaging Waste	Overall recovery 60% Overall recycling 55% Glass recycling 60% Metal recycling 50% Plastic recycling 22.5% Paper & Cardboard recycling 60% Wood recycling 15% (by 2013)	Overall recovery: 29.2% Overall recycling: 28.5% Glass recycling: 5.8% Metals recycling: 33.4% Plastic recycling: 22% Paper and board: 51.4% Wood recycling: 2.7% (2010 data)
Waste Electrical and Electronic Equipment (WEEE)	<ul style="list-style-type: none"> Producers to set up systems for the collection and recovery of WEEE as from 2006 Collection rate: 4kg/inhabitant/year as from 2008 50%, 65%, 75% and 80% re-use and recycling 70%, 75% and 80% recovery 	<ul style="list-style-type: none"> Producers not yet compliant with obligations (issues with Eco-contribution need to be resolved) Collection rate: 3.3 kg/inhabitant/year in 2011 Absence of collective compliance schemes renders enforcement difficult
Waste Batteries	Collection rates for waste portable batteries: (a) 25% by 2012; (b) 45% by 2016.	Not yet available
End-of-Life Vehicles (ELVs)	<ul style="list-style-type: none"> Depolluting all ELVs in authorised facilities by 2004; Re-use and recovery of 85 % by an average weight per vehicle per year by 2005. Re-use and recovery of 95 % by an average weight per vehicle per year by 2014. 	<ul style="list-style-type: none"> 82% de-polluted in authorised facilities in 2011 Reuse and recovery: 64% in 2011
Construction and Demolition waste (C&D)	To recover 70% by 2020	72% in 2011 (mainly achieve by means of the use in the rehabilitation of quarries)

Where we stand

Malta has long relied on disposal as the main waste treatment operation, however in recent years efforts have been made to recycle and divert waste away from landfills. Continued efforts to move towards more sustainable waste management options will reduce the environmental impact of waste management practices (including loss of resources, air pollution and land take-up), as well as the economic impact of resource loss and the cost of waste management, and achieve compliance with the National Environment Policy and EU waste management targets.

Currently the waste management market consists of a mix of public and privately owned facilities. The public sector (mainly operating through the Government owned Wasteserv Malta Ltd.), owns and operates the main large scale infrastructure, including an engineered landfill, a hazardous waste incinerator, a Mechanical-Biological Treatment plant based on Anaerobic Digestion, a Material Recovery Facility, a transfer station in Gozo and 5 Civic Amenity Sites. Further infrastructure is currently in various stages of planning including an additional Civic Amenity Site, a Hazardous Waste Landfill, Hazardous Waste Storage Facility and an additional Mechanical-Biological Treatment plant based on Anaerobic Digestion.

A number of private companies operate smaller scale waste management facilities and are also providers of waste collection and management services. Such facilities include sorting yards, metal scrap yards, an ELV dismantling facility, a number of small WEEE dismantling facilities, a plastics recycling facility, hazardous and other waste storage facilities, waste oils treatment facilities and source separation bring in facilities. In addition a number of authorised waste dealers and brokers operate in this sector and are responsible for the majority of the export of recyclable waste out of Malta. Waste collection is primarily carried out by the private sector and financed by Local Councils, in the case of household waste, and by economic operators, in the case of industrial and commercial waste. Collection of source separated material, particularly packing waste, is financed by Collective Compliance Schemes, which are in turn financed by “producers” who place packaging on the Maltese market.

The waste hierarchy, which is derived from international good practice and supported in national and EU policy, recognises 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. Moving waste up the waste hierarchy through increased prevention, re-use, recycling and recovery depends on a variety of factors, including population habits, waste volumes, waste collection practices, waste infrastructure and output markets. Moreover Malta's climatic conditions, high population density, limited land space and waste infrastructure, hygiene and odour issues and lack of economies of scale make it difficult for a small island state like Malta to be competitive in the waste sector. These issues will be explored further in the next sections of this paper.

A legislative and infrastructural framework has been put in place to modernise the waste sector in line with EU policy. New legislation has been enacted to control waste management through registration, permitting and reporting activities, which have also promoted waste recovery, including recycling. Rehabilitation of decommissioned waste management facilities is also underway.

The shift from unsustainable dumpsites towards separate waste collection and treatment over the last years, confirms the national commitment to moving towards sustainable waste management practices. The ongoing public awareness campaigns and significant investments in the public and private sector, also demonstrate the national commitment to take on board the challenge of moving waste up the waste hierarchy. This commitment has also prompted investment in a Materials Recovery Facility (MRF) and a Mechanical Biological Treatment plant in the South of Malta with an annual capacity of 71,000 tonnes of MSW (36,000 tonnes of dry recyclables and 35,000 tonnes of organic waste). In addition, a new permitting regime for the management of waste storage and treatment facilities was introduced by the Malta Environment and Planning Authority in 2007.

Energy from waste facilities¹ play an important role in the waste management sector. Besides their ability to divert Biodegradable Municipal Solid Waste (BMW) from landfills, they also contribute towards the EU's Renewable Directive targets in view of the energy stored in biodegradable waste. The potential energy recovery from agricultural waste, residual Municipal Solid Waste (rMSW) and residual Commercial and Industrial waste (rC&I), that is, the waste remaining after the recycling and composting fraction, could further contribute towards Malta's electrical consumption.

Table 2 - Waste Generation (2004-2011)

Year	Municipal Solid Waste	Hazardous Waste	Construction & Demolition waste	Commercial & Industrial waste	TOTAL
2004	249,721	47,304	2,810,774	42,113	3,149,912
2005	251,460	44,374	2,344,156	31,514	2,671,504
2006	252,849	53,848	2,492,521	65,147	2,864,365
2007	265,947	67,655	2,500,663	96,071	2,930,336
2008	276,008	58,119	1,996,341	62,241	2,392,709
2009	267,773	46,453	600,417	61,864	976,507
2010	248,672	35,985	1,092,330	69,239	1,446,226
2011*	237,671 ²	22,360	710,487 ³	116,407 ⁴	1,064,565⁵

* subject to revisions

Approximately 2 million tonnes of waste a year were generated in Malta between 2004 and 2011, although a decrease of 59% was observed between 2008 and 2009 mainly due to a drop in construction and demolition waste which may have been due to the economic climate. EU waste legislation divides

¹ Energy from waste facilities are those 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.

² This includes 1,421 tonnes of hazardous waste.

³ This includes 146 tonnes of hazardous waste.

⁴ This includes 20,793 tonnes of hazardous waste

⁵ This figure does not include 54,045 tonnes of waste deriving from the mechanical treatment of waste, i.e. paper, plastics, metals, glass, refuse derived fuel and rejects resulting from the separation of waste received at waste facilities.

waste into four main categories: municipal waste; hazardous waste; construction and demolition waste; and commercial and industrial waste.

Malta depends primarily on landfills for the treatment of its waste. In 2011, 56% of the total waste generated in Malta was landfilled, and around 21% was recycled. The remaining waste was recovered, dumped at sea, incinerated without energy recovery, stored or exported. A total of 144,800 tonnes of construction and demolition waste⁶ was disposed of at sea. During 2011, a total of 95,432 tonnes of waste were exported. Table 3 provides a picture of where we stand today.

Table 3 – Current total waste generation, recycling, recovery and landfill rates (2011)

Waste Stream	Total waste generated	Recycling, recovery and disposal rates as at 2011
Municipal Solid Waste (MSW)	237,671 tonnes	Recycling: 9,992 tonnes (4%) Recovery: 29,663 tonnes (12%)⁷ Landfilling: 195,833 tonnes (82%)⁸ Others*: 49 tonnes (0.02%)
Hazardous Waste	22,360 tonnes	Recycling: 14,522 tonnes (65%) Recovery: 38 (0.17%) Landfilling: 2,580 (12%) Others*: 5,221 tonnes (23%)
Commercial and Industrial waste (C&I)	116,407 tonnes	Recycling: 62,820 tonnes (54%) Recovery: 699 (1%) Landfilling: 25,703 tonnes (22%) Others* 19,281 tonnes (24%)
Construction and Demolition waste (C&D)	710,487 tonnes	Recycling: 139,968 tonnes (20%) Recovery: ⁹ 371,459 tonnes (52%) Landfilling: 0 (0%) Disposal at sea: 144,800 tonnes (20%) Others*: 54,260 tonnes (8%)

⁶ 136,000 tonnes of this was dredged material.

* Others refer to incineration without energy recovery and storage.

⁷ 24,583 tonnes were recovered without the necessary permits from MEPA. The other quantities were the generation of digestate and biogas.

⁸ This includes the landfilling of 40,583 tonnes of RDF and rejects from the treatment of municipal waste at Sant Antnin.

⁹ Recovery mainly achieved thru the rehabilitation of quarries by means of backfilling.

Issues

This section highlights a variety of issues in the waste management sector, and aims to stimulate discussion and to gather stakeholders' comments with a view to updating Malta's National Waste Strategy and formulating a National Waste Management Plan.

Waste management in general faces a number of challenges, including:

- A lack of precise quantitative data on wastes produced and their composition;
- The cost of proper collection operations;
- The cost of building proper disposal installations;
- The absence of economic value for some of the waste;
- Identifying suitable locations for waste facilities;
- The variety of waste produced and the need for different treatment techniques;
- Inadequate knowledge and understanding of waste management criteria for the identification of type and quantity of waste;
- Lack of economies of scale¹⁰.

Apart from these challenges, a small island state like Malta faces specific difficulties that are linked to:

1. Size, insularity and location

Malta, with an area of approximately 316km² 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, each resident generated 595.5kg of municipal waste 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 2010¹¹.

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.

¹⁰ Codes of practice for waste management on Islands, European Commission, 1996.

¹¹ The Environment Report, Indicators 2010-2011, MEPA, 2011. The per capita figure was calculated by dividing total waste generated by the Maltese population. The Maltese population does not include annual number of tourists visiting Malta.

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 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.

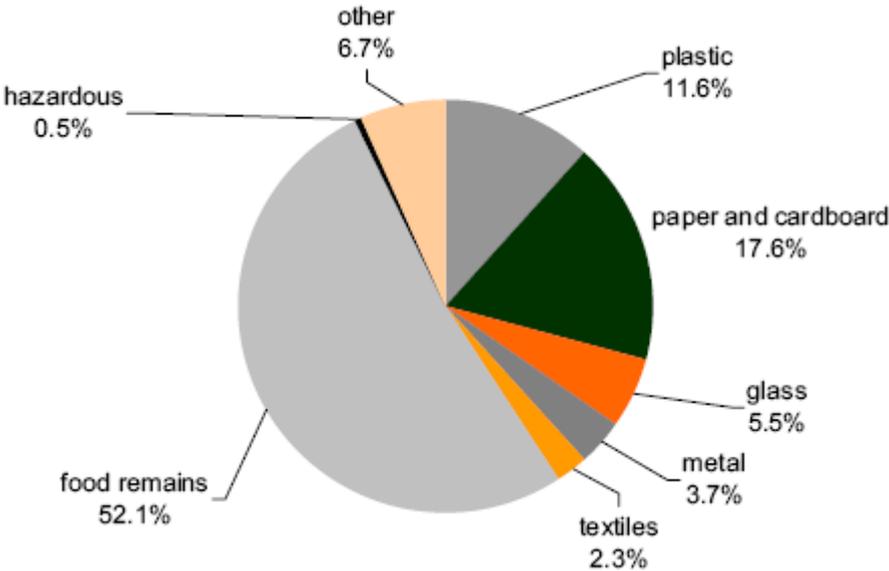


Figure 1 – Household waste composition 2011/2012¹²

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 tonnes¹³. 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 wastes¹⁴ 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.

¹² Household waste composition survey, 2012, National Statistics Office, 2012.
¹³ 85,000 tonnes of recyclables in MSW, 55,625 tonnes in C&I and 10,775 tonnes in C&D – total 151,400 tonnes.
¹⁴ The following waste streams are disposed of at sea: inert geological material, inert C& D waste and dredged material.

The main issues are:

- 1.1. Relatively high volumes of waste generated per capita.
- 1.2. Limited local waste facilities.
- 1.3. Loss of potential resources / Resource efficiency.
- 1.4. Land use pressures.
- 1.5. Disposal at sea.
- 1.6. Waste exports are relatively expensive due to distances from recipient countries.
- 1.7. Lack of economies of scale.

2. Human health and the environment

Waste is a health and environmental concern due to various hazardous and non-hazardous components present in the waste itself. Uncontrolled management of waste is a risk to water, air, soil, plants and animals. The scope of EU waste legislation is to safeguard human health and the environment. Waste is made up of a variety of forms and compositions, and the related health and environmental effects are not the same for the different waste streams. For example, while contaminated syringes from hospitals are a direct health hazard, biodegradable waste might initially not seem to pose a threat to human health and the environment. However, if biodegradable waste were to be landfilled it would degrade in the absence of oxygen (anaerobic decomposition), releasing methane (CH₄) as a by-product of the decomposition process. Methane is around 20 times more effective at trapping heat in the atmosphere than carbon dioxide (CO₂).

Further to these concerns, Malta's climatic conditions, in particular the high temperatures aggravate odours and health hazards. This explains Malta's existing waste collection systems, in which mixed household waste is collected on a daily basis except for Tuesdays (and other days in certain localities) when dry-recyclables are collected¹⁵. The daily collection of waste from households by refuse collection vehicles (RCVs) during the early hours of the day, may lead to traffic congestion which could be a contributor to air pollution. Coupled with this, the disposal of mixed household waste in landfills is a major contributor to air pollution besides emissions of greenhouse gases, in particular methane.

The main issues are:

- 2.1. Health impacts of air pollution.
- 2.2. Risk of soil and water contamination (including ground water).
- 2.3. Existing waste collection systems may generate traffic congestion, which leads to additional air pollution.
- 2.4. Collection and disposal of mixed household waste.
- 2.5. Limited collection of source separated household waste.
- 2.6. Contribution to greenhouse gas emissions.

¹⁵ Some localities still provide for the collection of mixed household waste (at different times) on days in which dry recyclables are collected.

3. The waste hierarchy: Prevention, re-use, recycling and recovery

The new waste framework directive (Directive 2008/98/EC) refers to the waste hierarchy, which is to be applied as a priority order in order to achieve sustainable waste management outcomes. The hierarchy identifies waste prevention as the most sustainable option followed by preparation for re-use, recycling and recovery. Disposal, including landfilling and disposal at sea, is at the bottom of the hierarchy, suggesting that this type of waste management option is the least sustainable of all.

With limited waste prevention measures in place, landfilling over 60% and recycling only 16% of the total waste generated, waste management in Malta still depends on management options that lie at the bottom of the waste hierarchy. Landfilling is the least sustainable waste management option due to the loss of potential resources which could be reclaimed. Besides the loss of resources, ongoing landfilling eventually leads to the loss of space, the risk of groundwater contamination and greenhouse gas emissions. The low percentage of waste being recycled is the result of various factors, in particular the economic viability of investing in local waste recycling facilities and the costs associated with waste exports. Furthermore, the disposal of inert wastes at sea is also considered to be an unsustainable waste management option besides having a negative impact on the marine environment.

Malta, as an EU Member State, under EU waste legislation, and in line with the National Environment Policy, is committed to preventing waste generation, deviating biodegradable municipal solid waste from landfills and increasing its rates of re-use, recycling and recovery for certain waste streams in line with the targets identified in Section 2 of this paper. These targets have been set with the intention of reducing the impacts from waste generation as much as possible through prevention, and to reduce stress on raw materials by re-using, recycling and recovering materials and energy stored in waste.

Energy Recovery options from waste include the generation of energy through appropriate treatment technologies. Current infrastructure in Malta includes a mechanical biological treatment plant, the anaerobic digestors linked with the sewage treatment plants as well as energy generation from the Ghallis and Zwejra engineered landfills via a Combined Heat and Power unit. MBT plants in the North of Malta and Gozo are also in the pipeline with the planning permit for the former having already been issued. Waste management options taken holistically can also assist in part fulfilling of Malta's obligations relating to use of renewable energy sources for electricity generation. Further efforts to have municipal solid waste separated at source will increase the potential of having the organic fractions generating more energy and thus helping to further contribute to the national renewable energy targets.

Following the treatment options related to waste from different sources, the energy embedded in certain high calorific components can still be harnessed as a form of renewable energy. Refuse derived fuel, as the name implies, is a fuel in its own right and is made up of high calorific waste (e.g. contaminated plastic), largely originating from municipal waste. The subsequent treatment of RDF via thermal treatment also presents substantial potential gains in our renewable energy targets but requires

dedicated facilities to ensure that embedded energy is recovered. Collection of used cooking oils for local biofuels production is also an important indigenous source of energy.

Failure to achieve these stipulated targets will primarily lead to the loss of potential resources, resulting in stress on raw materials, and will also result in the breach of EU legislation. These considerations suggest that waste management in Malta is not yet sustainable, and that should current practices persist, future generations could face even more intractable challenges.

The main issues are:

- 3.1. Waste management practices that are low on the waste hierarchy cause environmental, social and economic impacts.
- 3.2. Disposal at sea.
- 3.3. Malta must put in place more waste prevention measures.
- 3.4. The obligation to achieve EU set targets.

4. Financial and organisational aspects

Waste management companies, including waste collectors and waste brokers provide a service related to managing waste. Similar to any other service provider, such services come at a cost. Household waste is managed by Local Councils, whose budget is provided by central Government. In this context, the collection, transport and treatment of household waste is paid for by public funds, however, householders may not be aware of the cost of the service provided for disposing of their waste.

WasteServ Malta Ltd., a government-owned company established in 2002, has been assigned the task of implementing the Solid Waste Management Strategy for the Maltese Islands (2001) through the establishment of waste collection sites and waste facilities for the treatment of household waste, municipal solid waste and abattoir waste. Besides these activities, WasteServ also provides a service to local industry, in particular, the incineration of some hazardous waste streams¹⁶ and the landfilling of certain non-hazardous wastes. During 2010 WasteServ were allocated 18 million Euros (excluding EU funded projects) for the implementation of Malta's National Waste Management Strategy and for the waste services provided¹⁷.

The financing of local waste management may also need to be assessed in the light of the producer responsibility principle. Eco-contribution is regulated by Act No XII of 2004 (Chapter 473) where the producer (manufacturer/importer) is responsible for the charging/collection of the eco-contribution. Legal notices issued under the Eco-contribution Act give the possibility for payers to be eligible for a refund of the contribution paid or an exemption from paying such an Eco-contribution. The delegated

¹⁶ Hazardous wastes include: organic solvents, waste inks/paints, and clinical wastes.

¹⁷ MFEI, 2011

Competent Authority in this respect is the Approving Body constituted under the provisions of LN 84 of 2010 and LN 158 of 2011. The actual revenue for 2011 and 2012 amounted to €8,025,478 and €6,908,470 respectively.

Besides the expenses related to the financing and organisation of waste management services, almost all of the recyclable material recovered from local facilities is exported abroad for recycling. This entails additional waste management costs due to transportation and the recycling market prices. Export expenses may at times outweigh the financial profits gained from recycling waste, making exports economically non-viable.

The main issues in this section are:

- 4.1. Achievement of sustainable waste management services.
- 4.2. The current financing of waste management may not be totally in line with the producer responsibility principle.
- 4.3. Environmental enforcement.

Strategic Considerations

Within the context of the issues that have been highlighted the following strategic considerations emerge.

The waste management sector is strongly regulated through various EU Directives and Regulations. As a Member State Malta is obliged to comply to the provisions set out in these legal instruments. Failure to do such would place Malta in a negative light and classified amongst the laggards in the sector, something which Malta needs to avoid. Our obligations also necessitate that, as a society, we embrace change and adopt a forward looking mentality aimed at recognising and adopting modern environmental objectives to guide our lifestyle. Implementing the waste management acquis is not a bed of roses and we must capitalise on the opportunities compliance offers.

Sustainable waste management systems need to offset any potential threat to business competitiveness with the creation of opportunities for more private sector involvement in waste management operations. This could be the result of further devolution of government operations in the sector to the private sector or else through the opportunities for new business operations that compliance brings with it.

Market based instruments are key towards providing a carrot and stick regime. Good behaviour needs to be rewarded if it is in line with the objectives set out at a national level to achieve our obligations. However, abuse and lethargy cannot be tolerated and unsustainable practices should no longer be acceptable. Government will look at ways and means to assist operators and individuals to embark upon a change programme that aligns them with the national objectives in recognition of their key role in influencing a national greener shift.

Last, but not least, Government intends to pursue funding opportunities from the EU as actively as possible not only from its own perspective, that is funding for its entities. Government is committed to provide the necessary assistance to legal or natural persons wishing to tap into external funding opportunities by providing support through its own institutions as may be required. This to encourage and promote the maximum possible investment in waste management operations.

There is no doubt that society makes or breaks any system. This is not an exception in the case of waste management where the different categories of society will determine the level of success we achieve. Whether a user, manufacturer or simply someone who places a product on the market, it is our individual choices which, when aggregated, will give us the measure of success we achieve. Whilst the larger part of society has been exposed to various awareness raising initiatives the time has come for individuals to make their commitment unto this cause without benchmarking against the performance of others. Social responsibility is also called for in waste management principles to ensure that sustainable waste systems also factor in social sustainability principles.

Regulated and environmentally sensitive waste management operations have the benefit of contributing to a healthier environment, one which can be enjoyed by the largest possible faction of society. This requires a change in attitude in the way we behave, in making more responsible choices directed by the consequential impact on waste generated and ultimately, one which subscribes to that extra effort to change our practices into more sustainable ones.

Societal involvement is key towards determining which measures should form Malta's most sustainable plan. In doing so Malta requires an informed society devoid of perceptions which may not be properly founded. Government therefore appeals to all to be better informed on the waste management options that are available and to analyse them without any bias in order to reflect however their adaptability to the Maltese context.

Technological advancement is ongoing. Technologies which may have had certain negative characteristics have today been optimised further. As a society we need to be aware of the wide range of technologies available to address particular problems or particular waste streams. This is applicable to all stages of the waste management cycle be it in the technology used in production, the collection of waste and its subsequent treatment, recovery and disposal characteristics. Such technologies can mitigate against Malta's main weakness in waste management operations – that of its over dependency on landfilling and hence the use of its limited land resources for such purpose. Landfilling is at the lowest level of the waste hierarchy and all efforts to harness technology to move up the waste hierarchy should be encouraged. Ultimately we need to secure a move from waste management to resource management.

R&D initiatives should also be encouraged whether these are at a local level or whether we can attract foreign R&D as has been the case in other sectors which builds on the ability and knowledge of Maltese society.

Environmental issues are predominately influence by our current dependency on landfilling. Whilst technology has been identified as a means to mitigate against such dependency, the common environment is another motivator for each and everyone to contribute towards a better environment. Landfilling takes up vast amounts of land areas from an already limited amount in the light of Malta's size. Unsustainable waste management practices can only lead to a continued encroachment of landfill space on the built and rural environment. With Malta's high level of urbanisation as well as its NIMBY culture, new facilities will always get closer to the built environment if our attempts at minimising waste remain so weak. Due consideration should also be given towards a holistic environmental solution to our waste management scenario where it would be unacceptable to solve our waste issues at the expense of escalating problems in another environmental dimension, hence the need for a sustainable development mentality in making our choices.

The legal implications of our obligation to have a Waste Management Plan which specifically takes into account Waste Minimisation issues is driven by the legal obligations Malta has under the Waste Framework Directive. Attempting to shroud our response is not an option but we need to secure the meeting of our legal obligations at the minimum cost possible and with the highest benefit accrued.

There is no doubt that we need stronger enforcement in this area in order to secure that the direction selected is met by all so as to achieve convergence with our objectives. This will require administrative capacity building in the area but will also encourage those of good intentions to put forward self regulatory regimes which may alleviate the administrative burden from within the public administration.

Government is also aware of the difficulties some producers and operators have encountered with the existing eco-contribution regime. Government is committed to endeavour to find the right balance to respect the polluter pays principle and as such calls upon operators to put forward sound and realistic proposals in this respect, proposals which put forward win-win situations for society.

It is in this context that this Issues Paper is being presented to elicit feedback from all strata of society, irrespective of their role in life. It is through active participation that Government can secure the best possible framework that befits Maltese society within a robust governance framework.

Summary of issues

Size, insularity and location	Human health and the Environment	The Waste hierarchy: Prevention, re-use, recycling and recovery	Financial and organisational aspects
<p>1.1. Relatively high volumes of waste generated.</p> <p>1.2. Limited waste facilities.</p> <p>1.3. Loss of potential resources / Resource efficiency.</p> <p>1.4. Land use pressures.</p> <p>1.5. Disposal at sea.</p> <p>1.6. Waste exports are relatively expensive due to distances from recipient countries.</p> <p>1.7. Lack of economies of scale.</p>	<p>2.1. Health impacts of air pollution.</p> <p>2.2. Risk of soil and water contamination (including ground water).</p> <p>2.3. Existing waste collection systems may generate traffic congestion, which leads to additional air pollution.</p> <p>2.4. Collection and disposal of mixed household waste.</p> <p>2.5. Limited collection of source separated household waste.</p> <p>2.6. Contribution to greenhouse gas emissions.</p>	<p>3.1. Waste management practices that are low on the waste hierarchy cause environmental, social and economic impacts.</p> <p>3.2. Disposal at sea.</p> <p>3.3. Malta must put in place more waste prevention measures.</p> <p>3.4. The obligation to achieve EU set targets.</p>	<p>4.1. Achievement of full cost-recovery of services provided, as actual costs may not reflect real costs of waste management.</p> <p>4.2. The financing of waste management indirectly through taxes and eco-contributions is not in line with the producer responsibility principle.</p> <p>4.3. Environmental enforcement.</p>