

A SOLID WASTE MANAGEMENT STRATEGY FOR THE MALTESE ISLANDS

FIRST UPDATE

CONSULTATION DOCUMENT
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Ministry for Resources
and Rural Affairs

Contents

| | | |
|------------|--|-----------|
| | Foreword | 1 |
| 1.0 | Introduction | 3 |
| 2.0 | Contextualising the Strategy | 5 |
| 3.0 | Policy Dimension | 8 |
| 3.1 | Legislation | 8 |
| 3.2 | Monitoring and Enforcement | 9 |
| 3.3 | Consultation | 9 |
| 3.4 | Technical Standards / Codes of Practice | 10 |
| 3.5 | Compliance | 10 |
| 3.6 | Land Use Planning Policy | 10 |
| 3.7 | Producer Responsibility / Compliance Schemes | 11 |
| 3.8 | Implementation of Waste Management Principles | 11 |
| 3.9 | Private Sector Involvement | 12 |
| 3.10 | Research | 12 |
| 4.0 | Institutional Frameworks | 13 |
| 4.1 | Ownership | 13 |
| 4.2 | Malta Environment and Planning Authority | 13 |
| 4.3 | WasteServ Malta Limited | 14 |
| 4.4 | National System for hazardous Waste Management | 15 |
| 4.5 | Municipal Solid Waste (MSW) Collection Service Contracts | 15 |
| 5.0 | Economic and Financial Measures | 17 |
| 5.1 | Charges for Waste Management Facilities and Services | 17 |
| 5.2 | Charges for Local Councils in the Collection of MSW | 17 |
| 5.3 | Excavation, construction and demolition wastes | 19 |
| 5.4 | Responsibilising Waste Producers | 20 |
| 5.5 | Preferential public sector procurement policies | 21 |
| 5.6 | Incentives for locally manufactured recycled products/ recycling processes | 21 |
| 5.7 | Export of recycled products / recyclable materials | 21 |
| 6.0 | Technical / Operational Measures | 22 |
| 6.1 | Construction and Demolition Waste | 22 |
| 6.2 | Agriculture and Animal Husbandry Waste | 24 |
| 6.3 | Municipal Solid Waste | 26 |
| 6.3.1 | Management of Bring in sites | 27 |
| 6.3.2 | Sources Segregation and Separate Collection of Recyclables from MSW | 28 |
| 6.3.3 | Collection Systems – The Modus Operandi | 29 |
| 6.3.4 | Waste Collection Practices | 29 |
| 6.3.5 | The Gozo Dimension | 30 |
| 6.4 | Hazardous and other Industrial Waste | 30 |
| 6.4.1 | Port and Airport Waste | 31 |
| 6.4.2 | Asbestos | 33 |
| 6.4.3 | Other Developments | 33 |
| 6.5 | Facilities for the Management of Solid Waste | 33 |
| 6.6 | Responsibilising All Actors | 35 |
| 6.6.1 | Producer responsibility | 36 |
| 6.6.2 | Civic Responsibility | 37 |
| 6.7 | Contextualising Our Actions | 37 |
| 7.0 | Education and Communications | 39 |
| 7.1 | Communications | 39 |
| 7.2 | Education | 39 |
| 7.3 | Embracing NGOs | 41 |
| 7.4 | The Need for Data | 42 |
| 7.5 | Research | 43 |
| | Way Forward | 44 |

Foreword

It gives me great pleasure to launch this first revised edition of the Solid Waste Management Strategy for the Maltese Islands. Over the past eight years we have witnessed a vast number of developments that have raised the profile of waste management in Malta to a level that had not been witnessed ever before.

We could no longer afford a piecemeal approach towards waste management. Hence, the leap in quality and the stronger measures that we have introduced. Malta's membership of the European Union has brought with it binding commitments in this area. We are on the right track and the benefits of EU membership are being translated both through the operational improvements registered as well as through the financial assistance that has been forthcoming.

It needs to be emphasised that this document does not intend to radically change the original strategy – on the contrary it is to be seen as complementary to the 2001 Strategy which remains the foundation of the vision that we enshrine for this sector. Hard decisions over the past years have meant that we can now look ahead and plan the next important steps. The challenge is far from over and a great deal of work lies ahead. Our long term aim is to have a zero waste scenario, in which all waste is changed into a resource. This can be achieved by either re-using the material or else using the same material as a source of energy generation.

In fact, this Strategy puts strong emphasis on the issue of energy generation from waste. The previous strategy focused more on the planning and completion of the basic waste management facilities needed for the storage and treatment of waste. Now that we have made significant improvement in these areas, we can forge ahead with our ambitious plans to maximise waste as a resource.

The setting up of WasteServ Malta Limited has proved to be a success in that we now have an entity that focuses upon the provision of waste management services and facilities without impinging on the potential development that may occur within the private sector. On the contrary, WasteServ is intended to act as a catalyst for such operators and will only act as the 'operator of last resort'. WasteServ has, since its inception, contributed to provide new construction and demolition landfills operating at zero cost to Government, ensured the closure of our dump sites at Magtab and Qortin, provided for an engineered landfill at Ta' Zwejra whilst also moved forward with the development of the state of the art facility at Sant' Antnin.

This plant is aimed at providing a facility that will contribute towards improved waste management practices whilst at the same time introducing for the first time the concept of recovering energy from waste. Through WasteServ we have also embarked upon a process that will see a culture change within Maltese society to ensure that we separate our waste in a manner which ensures that our obligations in terms of the recycling targets set by the European Union are met.

It is not our intention to 'go it alone' and through the various initiatives that are put forward it is our intention to provide ample space for the private sector to participate, as well as to shoulder its responsibilities, and to encourage further the workings of Local Councils and to promote their operation within defined regions that ensure greater economies of scale.

This Waste Strategy is also intended to create a synergy with Government's efforts in other areas, namely renewable energy and climate change. It is of greater importance that this Waste Strategy is being launched shortly after the presentation of the Climate Change Strategy. This Climate Change Strategy touches upon waste management, amongst other areas, because if untreated, waste contributes towards climate change too.

Whilst thanking the Waste Strategy Team that was appointed to undertake this task, in particular the Chairman who was involved in the constant updating of this final document, I also take the opportunity to invite all those interested parties to put forward their comments that would permit the Strategy to be refined even further.

Our past achievements in this sector fill me with confidence that we will manage to implement a challenging strategy such as this. This confidence is also strengthened by the fact that the people

have so far reacted well and responded positively to the changes that were introduced in this sector. I augur that a serious discussion will ensue and which will be built upon political maturity. I trust that the discussion will revolve on the long-term gains that we stand to achieve from this Strategy. We should be bold enough to look beyond the short-term advantages that some arguments might bring.

The people, and the country, simply do not afford to re-live the controversies which accompanied the implementation of certain aspects of the previous strategy. May I point out that the 2001 strategy was the result of a thorough public consultation process which ultimately garnered everyone's support. That notwithstanding, the implementation was far from plain sailing and precious time and effort were lost in the process.

I trust that everyone, not least Government, banks on past experiences when analysing and discussing this document. I am sure that further improvements in waste management will benefit the people, the environment, our country and most importantly, our future generations.

George Pullicino

Minister for Resources and Rural Affairs

January 2009

Current waste management policies reflect those set out in Malta's first ever strategy document entitled "A Solid Waste Management Strategy for the Maltese Islands" published by Government in October 2001.

This first update to the 2001 Strategy must be seen in the context of the numerous developments that have occurred in this sector including:

- the setting up of WasteServ Malta Limited to provide facilities and services in relation to waste management
- the closure of the Maghtab and Qortin landfills;
- the opening of an interim landfill facility at Ta Zwejra;
- the introduction of bring-in centres;
- the identification of sites for the development of civic amenity sites;
- the design of the upgrading of the existing Sant Antnin composting facility;
- the introduction of cooking oil collection systems for its conversion to biodiesel;
- the introduction of construction and demolition (C&D) landfills and the halting of the dumping of C&D waste to the engineered landfill; and
- the evaluation of the potential for the introduction of waste to energy facilities as has been intended in the new thermal facility at Marsa and the upgraded plant at Sant' Antnin.

Since the 2001 strategy, there have been a number of developments which, although in synch with the strategy itself, have gone beyond its provisions. We have witnessed a reshaping of the macro environment which sets the tempo for this Strategy's context - the volatility of oil prices and the consequences of spikes in the price of crude oil; the first year of a new political administration; the reality of structural funds – all of which call for a revision to the 2001 Strategy with a view to pointing all stakeholders in the appropriate direction.

This update must not be interpreted as a singular updating effort. The updating of this Strategy has been a process that commenced in early 2005 when the Strategy Team entrusted with the first updating was appointed to put forward recommendations to Government.

The first updated document was drafted by the Strategy Team appointed by the then Ministry for Resources and Rural Affairs, the lead Ministry for this Strategy, and which consisted of:

- o Perit Kevin Gatt , Management Efficiency Unit (Chair)
- o Dr Ing. Christopher Ciantar, Ministry for Resources and Rural Affairs
- o Mr Kevin Mercieca, Malta Environment and Planning Authority
- o Professor Alfred Vella, University of Malta.

It was also at that time that a separate, yet complementary, Working Group was appointed to study the feasibility of waste to energy technologies.

This final version builds on the aforementioned submission and recasts this Strategy to reflect the current landscape. This update has been commissioned by the Ministry for Resources and Rural Affairs.

The Ministry and the Strategy Team are indebted to all those organisations and persons who have contributed to this document.

This update is not intended to represent a new direction, but one which acts as a complementary document to the 2001 Strategy and whilst adhering to all provisions and targets established by European Union (EU) legislation, seeks to fine tune the scenarios put forward in 2001. Therefore the reader should digest this document in conjunction with the basic assumptions and information that was put forward in the 2001 Strategy document.

At the outset it must be pointed out that this Strategy Update is intended to serve as a policy document, that is, a statement of the intended direction to be pursued by Government. Consequently, the initiatives proposed are kept at a high level and the specificities will be pursued through subsequent detailed working papers that will be developed with a view to securing the implementation of the initiatives proposed.

In fact, in parallel with this exercise Malta has prepared a National Waste Management Plan which homes in on certain implementation aspects that need to be addressed and undertaken.

At the same time it is Government's intention to ensure that the measures being proposed are equally applicable to both Malta and Gozo. The island of Gozo is seen to have a strategic dimension not only because of its geographical characteristics but also because of its importance as a tourism destination as well as offering the potential to serve as a pilot area where projects can be implemented and subsequently mirrored in Malta. In order to achieve these targets and maximise our objectives, the outlook for Gozo will be a strategic one offering state of the art facilities and projects of excellence.

It is hoped that this document can foster a constructive debate on the way forward in waste management with a view towards sustaining and enhancing the developments within the sector and to provide the Maltese Islands with efficient and sustainable waste management practices that whilst offering scope for the private sector to see this as an opportunity for investment will also result in the local and visiting population having a better appreciation of our environment.

In concluding this brief introduction, a final word is dedicated to the consultative aspect of this updated Strategy. Government has, and continues to believe in the benefits of a consultative process towards the formulation of its policy. There are two options that one can adopt – that of consulting and formulating the policy document or that of formulating, consulting and incorporating subsequent feedback. The choice has been in favour of the latter. Government believes that all the relevant stakeholders have a demanding agenda and therefore believes that by adopting an approach which provides a framework for debate, it can structure thoughts more efficiently for all those concerned. This does not mean that this draft is in any way cast in stone. Government remains open to all forms of suggestions which, if ascertained to be of a constructive nature, will be evaluated and if proven to be of added value to the waste management scenario, incorporated. This is the solemn promise that is made.

2.0

Contextualising the Strategy

This Strategy document is not meant in any way to be a standalone document but one that fits within the priorities of Government at a national level.

It is opportune to recall that Government's five year plan, as cited in the President's address on the occasion of the opening of Malta's eleventh Parliament, foresees an increased commitment to waste management. However, more importantly, Government's five year plan is to be underpinned by its commitment towards sustainable development as a keystone of all its decision making. Sustainable development brings with it the integration of the economic, social and environmental pillars into decision making with a view towards ensuring that whilst our resource utilisation pattern satisfies the needs of today, it does not in anyway compromise those of tomorrow. Government is inviting all towards entering into a sustainable development pact. Government needs to be at the forefront of such initiatives and therefore this Strategy will aim to embrace this vision.

As part of its electoral manifesto, whilst recognising the progress made in the waste management sector, Government has committed itself to "*intensify this strategy (waste management) further until the waste issue is completely under control*". This statement, whilst giving this Strategy its dimension of importance also places a significant responsibility on the main actors responsible for the implementation of its component parts. Furthermore it is worth citing the proposals which were made by the Party in Government and which are to be implemented during this 5 year timeframe. These include:

- 166 Research will study how energy derived from waste can be used to produce drinkable water.
- 168 The strengthening of waste management infrastructure.
- 190 We shall increase our efforts to collect more waste for recycling, even through cooperation with the private sector.
- 191 From the coming 1st April, the system of separation of waste at source will come into effect¹.
- 192 We will continue to upgrade and put into effect the waste management strategy, with emphasis on the principles of reducing and recycling and on advanced technology.
- 193 We will work with environmental organisations and residents who live close to waste treatment plants to reduce the inconvenience and gain as many benefits as possible.
- 194 We will give incentives to the private sectors to take responsibility for the material that is placed on the market, in particular packaging, electronic products, batteries, cars and others.
- 195 Solid and liquid waste management facilities for boat remains will be set up in the harbour areas².
- 196 A plan will be drawn up and implemented to manage burnt oil. This waste has increased now that the maritime industry has developed.
- 197 We shall strengthen enforcement in order to lessen the disposal of abusive waste in urban and rural zones.
- 198 Every producer that joins a packaging waste management scheme will be exempt from eco-contribution.

¹ This measure has already come into force.

² This measure is more commonly referred to as the provision of port reception facilities.

The aforementioned initiatives speak for themselves in terms of the expectations that Government is setting in the field of waste management.

One issue that has risen to the forefront of the international agenda is the fight against climate change. This debate has dominated the world's centre stage and has been recognised as an international priority both by the United Nations as well as by the European Union which has entrenched climate change as an integral part of its Lisbon objectives. The Inter Governmental Panel on Climate Change (IPCC) Fourth Assessment Report 2007 puts forward some bleak projections in terms of the climatological patterns that are likely to prevail. The reduction of greenhouse gases is a must and not an option. Hence, waste management must, to the extent possible, lend itself towards the reduction of Green House Gases (GHG) by exploiting the energy embedded in waste and to recover this with a view to contribute towards Malta's reduction of its dependency on fossil fuels.

On a related note, we have witnessed the consequences of a spiraling effect in the international price of oil and although market prices have now reduced dramatically, the fallout from the previous scenarios persist. Such patterns not only contribute towards inflationary pressures but has also add to the financial burden of Government and the private sector alike. It is therefore important to reduce our dependency on fossil fuels in order to mitigate against the economic impact of unpredictable surges in oil prices. It is to this effect that this waste management strategy will point.

Malta's Operational Programme I, aimed at charting out Government's intended priorities for the disbursement of structural funds, clearly recognises that there is more to achieve in this sector. The specific development objective of Priority Axis 5 is to continue with the upgrading process of the country's environment infrastructure, particularly in the areas of solid waste management and risk prevention. Minimising landfilling of waste, the rehabilitation of disused landfills, as well as the increase in the capacity for waste treatment for energy recovery and recycling purposes feature amongst the operational objectives of this Priority Axis.

Waste minimisation remains a critical strategic objective. There is a need to minimise the effects of waste on the environment and society and to fully comply with EU Regulations. Extensive awareness campaigns play an invaluable role in this regard and will continue to do so in the years to come. Malta's strategic vision also encompasses the possibility of exploiting the potential energy embedded in waste. The overall aim is to reduce the amount of waste and divert the remaining residues for recycling, the recovery of resources and the efficient utilisation of waste for energy production. This Priority Axis not only foresees the continuation of investment in infrastructures for sound waste management practices, but builds upon the latter by enhancing through interventions to promote waste prevention. On a National level, Government will continue exploring the possibility of introducing Producer Responsibility schemes. A first attempt to collect packaging waste through a kerb-side collection system, and to be eventually financed by the private sector, has already commenced.

Land use constraints in Malta and Gozo make the use of landfills a far less desirable option. Government has set itself the target of commissioning the establishment of two mechanical biological treatment plants, one for Gozo and another one for Malta. The latter plant will also include a bi-digester to recover biogas from the waste management complex, complete with ancillary facilities to reduce the amount of landfilling required. This Axis will also co-finance measures for the rehabilitation and restoration of former landfills. Mitigation measures financed through EU Structural Funds have been underway and should be concluded by the end of the current year.

Apart from all this, waste management can also contribute towards Malta's targets to reduce its dependency on fossil fuels, and hence emission levels.

It is worth pointing out that the Strategy Team's work was instrumental in the development of this Operational programme and a witness to the integration and evolution of Government's working in the sector.

Malta's waste management strategy, as revised by this document, will continue to be underpinned by the key principles identified in the 2001 Strategy document, that is:

1. Sustainable development
2. Proximity principle and self-sufficiency
3. Precautionary principle
4. Polluter pays principle
5. Waste hierarchy
 - a. Waste prevention / reduction
 - b. Re-use
 - c. Recycling
 - d. Recovery
 - e. Disposal
6. Best practicable environmental option
7. Producer responsibility.

The success of the waste management strategy is not solely dependent on Government's commitment and resourcing. It depends also on the contribution and commitment of each and every one of us, be it in our capacity as entrepreneurs, administrators, politicians and above all citizens of the Maltese Islands. The end result is not a plaudit for Government but a leap in the quality of life of each and every one of us.

3.0

Policy Dimension

The Solid Waste Management Strategy for the Maltese Islands was drawn up and completed by the consultancy firm Carl Bro Global Environment Consortium in October 2001, and subsequently endorsed by Cabinet.

The Strategy set out the targets to be achieved over a period of years up to 2014 and that included the required waste handling and treatment facilities to be established together with the institutional and resource requirements needed. As a Strategy represents the intended policy direction at a point in time spanning over a period of years, it is of utmost importance to review that Strategy at regular intervals with a view to monitoring whether the assumptions and recommendations that were made at the time of writing are still valid or whether they need to be modified in order to reflect certain prevailing circumstances. In fact it was proposed that the Strategy was to be reviewed on an annual basis up till the year 2005 and subsequently at two- year intervals.

In January 2005, Government appointed a Strategy Team that was chaired by the Management Efficiency Unit consisting of members from the University of Malta, WasteServ Malta Limited and the Malta Environment and Planning Authority (MEPA). Furthermore, stakeholder Ministries have been asked to appoint a contact person to represent the Ministry and provide information in relation to this issue. This Strategy updating process has been phased out in three key stages:

- **Phase 1:** A Situation Audit of the Strategy;
- **Phase 2:** An Update of the Strategy; and
- **Phase 3:** Implementation Plans.

A situation audit of the Strategy was carried out in January 2005. This was followed by an updating of the Strategy which has now been further fine-tuned to incorporate the salient developments since the submissions of the relevant recommendations. It must be pointed out that this Strategy Update should be read in conjunction with the original Strategy document prepared for the Government of Malta by Carl Bro.

Through a TAIEX project carried out with Germany, a Waste Management Plan for the Maltese Islands covering the period 2006-2010 has also been prepared and which is intended to complement this Strategy document

To be effective and to take cognisance of the dynamic nature of waste management evolution, the Strategy should be updated on a bi-annual basis in order to review the progress achieved, incorporate any new policies or legislation and revise the way forward until 2020.

Legislation

Since accession to the European Union, waste management legislation in Malta has grown significantly. The Environment Protection Act (Cap 435) today acts as an enabling legislative instrument for a suite of other regulations that result from the transposition of Directives into national law.

Equally important is the Eco-Contribution Act (Cap 473) which was aimed to play a decisive role in the management of waste, or end-of-life products, by levying an eco-contribution on a selected number of products which generate such waste.

Legislation reflects Government's policy and direction towards achieving specific objectives. Legislation which is not properly enforced not only becomes defunct but will pose an increased challenge towards retaining its credibility and will be difficult to revive.

It is therefore pertinent to take stock of the existing legislation in place with a view to determining its scope and targets, where applicable, and to determine whether these objectives are being met and whether there is the need for revisiting any portion in order to positively contribute towards Government's goals in the waste management sector.

Monitoring and Enforcement

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 fulfil these tasks. In order to specify and quantify these requirements more precisely, Government shall be:

- 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;
- specifying and then providing or acquiring sufficient human and technical resources based on the results of the assessment;
- developing and implementing integrated systems and procedures for monitoring, inspection and enforcement; and
- periodically reviewing 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 being 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 Environment Protection Department (EPD) within MEPA; and
- recruitment is the last yet inevitable option.

Government will ensure that MEPA is 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. Notwithstanding, Government is directing the Malta Environment and Planning Authority to prove its cost effectiveness and to put forward proposals to ensure that its current and future operations become as financially independent from Government as possible.

Consultation

A central theme of this Strategy relates to the consultative aspect that will be employed in the finalisation of this Strategy as well as for the various initiatives that will be undertaken.

This Strategy, which is being released in Draft format, is but the first consultative effort that will be undertaken with a view to seek input into the strategic aspects of the Strategy. Once again it is to be reiterated that this Strategy is a policy document from which the detailed plans will evolve.

Throughout the past four years, Government through its agencies, embarked upon a number of sectoral studies which are being referred to in this document. It is foreseen that each of these sectoral studies will lead to the release of a topic paper intended to stimulate the debate on how a particular waste stream will be managed. Thus one can already anticipate that sectoral topic papers will be released for:

1. Construction and demolition waste
2. Hazardous waste
3. Agricultural and animal husbandry waste
4. Waste oils
5. Biodegradable Municipal Waste (BMW)
6. Packaging waste

The aim of these topic papers would be to stimulate a debate that will lead to the choice of the best sectoral approach possible.

Technical Standards / Codes of Practice

Technical standards / codes of practice are aimed at establishing minimum technical requirements for the quality of certain goods or resources, and /or the operation and performance of specified activities.

The standards currently being used in Malta are those adopted in the United Kingdom. Malta needs to establish its own national standards that would have a strong legal backing. These standards / codes of practice are to be tailored to suit Malta's particular needs and circumstances in the waste management sector. These standards must be made official through the Malta Standards Authority.

Priority will be given to developing and implementing technical standards and related codes of practice with respect to:

- the management of wastes that pose a potential risk to public health and environment and therefore require special methods of handling treatment e.g. used batteries, used oils, healthcare and other potentially hazardous wastes;
- the landfilling / final disposal of wastes (including thermal treatment); and
- the management of waste within the Public Sector to complement the efforts of the Green Leaders appointed within all Government ministries.

With respect to hazardous waste, immediate action has to be taken so that the current practice of storing such wastes, where they arise, would be terminated.

The relative competent authorities are therefore being instructed to develop the necessary Codes of Practice, whether through the adoption of foreign equivalents or through the development of specifically tailored documents that are made legally binding through the legal provisions vested in the Malta Standards Authority. Moreover, such authorities should ensure that a suitable communications and information campaign is designed in order to ensure the dissemination of such standards after having ensured an adequate consultation process amongst key stakeholders and interested parties.

Compliance

Government has embarked upon a housekeeping process with a view towards ensuring that its waste management facilities are compliant with the various legislative provisions. Although this has taken some time to achieve, due to circumstances which could not be avoided, it is now appropriate to place compliance to existing waste management legislation at the forefront of Government's agenda with a view to securing a level playing field in the sector and to work towards the goals and objectives of sound waste management governance.

To this effect Government will be taking stock of all current waste management facilities with a view towards ensuring that the appropriate level of compliance is being achieved.

Land Use Planning Policy

One of the main land use issues in Malta related to waste management facilities is site identification. In view of such facilities being of an industrial nature, a joint committee composed of Malta Enterprise, Malta Industrial Parks Limited, MEPA and Ministry for Resources and Rural Affairs (MRRA) should consider identifying suitable sites for facilities that promote proper waste management concepts. The use of industrial land for such facilities is also favoured by the Draft Waste Management Subject Plan for the Maltese Islands.

Land use issues related to existing and new waste related development should be guided by Waste Management Subject Plan. MEPA is to give preference to waste recovery/recycling in assessing and determining future applications for the development of new waste management facilities, in line with the principles established in the Draft Waste Management Subject Plan.

These initiatives will be implemented as soon as Government approves the latter mentioned Plan.

Moreover, in determining the "planning gain" that is to be requested from developers as a mitigation measure for the environmental impact resulting from their development, it is recommendable that

initiatives that are in line with waste management priorities should be actively considered and promoted.

Producer Responsibility / Compliance Schemes

Several categories of waste have been identified (through the relevant Producer Responsibility directives) for which the producers / manufacturers of the products giving rise to such wastes should bear responsibility for arranging and paying for their management and disposal in accordance with relevant legislation. These include:

- used packaging materials;
- used batteries and accumulators;
- used mineral oils;
- end-of-life electrical and electronic goods; and
- end-of-life vehicles.

Furthermore, the Eco-Contribution Act (Act No XII of 2004) enacted in September 2004 puts greater emphasis on producers / importers to either develop recovery schemes or pay for the costs incurred by Government when the specific product ends in the general waste stream. In the case of the former, producers will have control over the cost structure of their own recovery scheme as opposed to paying for a central public service for which they do not have direct cost control. Recommended recovery schemes are to be analysed on various aspects. For example, Government needs to determine whether eco-contribution will be charged in full or in part depending on the firm commitment of the 'take back' scheme to recover products from the market. Apart from meeting the obligations, such schemes translate in an enhanced waste separation initiative thereby improving the overall quality of Municipal Solid Waste (MSW).

MEPA has formulated guidelines of how schemes are to be licensed with recommendations on how to waive the eco-contribution charge if responsibilities for waste are shared. The policy document "Authorisation/Registration of Schemes – Eco Contribution Exemption/Refund Mechanism" provides incentive schemes that play a determining role in the achievement of Malta's waste management targets in conjunction with possible amendments to the Eco-Contribution Act to offer additional incentives to such schemes.

To facilitate implementation further, Government appointed an Eco-Contribution Commission to advise on the implementation and enforcement of the Eco-Contribution Act as well as to recommend recovery schemes. This Commission submitted its report to Government in February 2005. This Commission should be reactivated with a view to taking stock of the current situation, three years from the submission of its recommendations, in order to determine any further amendments that merit consideration in the light of the current reality.

MEPA is to ensure, possibly even through stronger enforcement regimes, that the targets negotiated with the EU for the recycling and recovery of packaging and packaging waste is reached within the agreed transitional periods in accordance with the 'Polluter Pays' principle.

Implementation of Waste Management Principles

It is Government's intention to base the drafting as well as the implementation of this Strategy on the waste management principles identified earlier.

From a hierarchical perspective waste reduction will remain Government's overall objective. To this effect, and in conformity with the polluter pays principle, every generator of waste has a responsibility to work towards this objective. In the absence of voluntary compliance, Government will look into other mechanisms which could provide incentives and disincentives to secure this goal.

Due consideration will be given to initiatives that are aimed at achieving the re-use or recycling of waste as well as the recovery of energy or material from waste.

The responsibility for waste management can no longer be seen to be solely as the responsibility of Government and all actors, small and large, are to be called to honour their obligations.

Private Sector Involvement

Government feels that we are approaching a time which merits the increased involvement of the private sector in waste management governance. Government will be examining all its current roles with a view to prioritising those which can be devolved or partnered with the private sector. This will be a process which will be discussed with the constituted bodies and which will be subsequently issued for consultation prior to adoption.

By means of this Strategy document, the private sector is herewith invited to put forward its suggestions as to the roles it can assume as a result of this process.

Research

Government recognises the potential that waste management offers towards achieving Malta's goals and objectives in various areas – energy recovery, re-use of construction and demolition waste and land maximisation being but a few target areas.

Government intends to support research initiatives in this area. To this effect Government is considering the following initiatives:

- establishing formal working groups with local and foreign research institutions with a view to establishing a research interest in the field of waste management;
- creating a Fund which from time to time will support research initiatives in this area;
- work towards providing fiscal incentives for those undertaking research in waste management.

4.0

Institutional Frameworks

The implementation of the Strategy requires communication and close cooperation between the Office of the Prime Minister, who is responsible for Waste Policy, the Ministry for Resources and Rural Affairs, who is responsible for the implementation of this strategy, other ministries and Government institutions. A strong mandate from Cabinet is being requested for the provisions of this strategy to be given priority and for line Ministries to give these proposals their due urgency.

Moreover, this same mandate needs to include an escalation mechanism that will ensure that non compliant Ministries will be sanctioned by Cabinet.

Ownership

The Situation Audit identified that the Inter-Ministerial Group appointed to steer the Strategy did not achieve the desired results and it was in fact only convened for a limited number of times with the project team ultimately being incorporated within WasteServ. As a result, the Inter-Ministerial Group ceased to function. Not surprisingly it has been found that various entities have each embarked upon their waste management strategy independently and no central co-ordination is being achieved. This might lead to serious consequences in that an informed decision on the type of technology and waste facility chosen might be taken on only part of the information that is available. It is in this light that it is suggested that the Strategy be owned by the Ministry for Resources and Rural Affairs which through its implementation arm would be empowered and responsible to ensure that all stakeholders are adhering to the proposed timeframes and that it is kept informed of all steps being taken to ensure the achievement of the Strategy defined policy goals. The Ministry's implementation arm is proposed to be the Directorate responsible for Policy & Programming in the restructured Ministry.

Furthermore it is important that each and every stakeholder appoints its own Executive with whom the Ministry for Resources and Rural Affairs can dialogue on the implementation of the Strategy. Such Executives need to be conversant with their Ministry's plans and need to be empowered to take decisions that may be required from time to time.

One element that has been certainly missing is the project management aspect. The Strategy needs to be considered as one project, which is managed in a professional manner. The Directorate responsible for Policy & Programming, in the absence of the Programme Implementation Directorate, should assume this role.

It is Government's intention to commission periodical independent reviews of the progress of the Strategy as a means to benchmark the level of progress achieved with the policy direction set by Government.

Malta Environment and Planning Authority

MEPA was established following the merger between the former Planning Authority and the Environment Protection Department, on 1st March 2002. This was a departure from the original plan contemplated by the Strategy that seemed to indicate the creation of a separate Authority; however, in operational terms the creation of MEPA still serves to fully implement the creation of an autonomous entity responsible for regulating environmental matters as outlined in action B2 of the 2001 Strategy.

The functions of the Authority are drawn out in the Environment Protection Act, which states that:

'The Authority shall be the principal means whereby the Government shall implement its duties under this Act. The Authority shall advise the Minister in the formulation and implementation of policies relating to the promotion of sustainable development, protection and management of the environment and the sustainable management of natural resources, and on such other matters as may be necessary for the better carrying out of the provisions of this Act.'

The primary tasks of the Authority are intended to be:

- the issuing of licenses or permits for waste management facilities and activities;
- monitoring and inspection to ensure that the license or permit conditions are being adhered to;
- taking enforcement action where applicable;
- providing input to the OPM in the formulation and implementation of plans and policies relating to waste management; and
- advising the OPM on Malta's position on pipeline waste management EU Acquis.

This Strategy recognises that MEPA therefore has a crucial role to play in the implementation of this Strategy, cognisance of which shall be taken accordingly. However, MEPA is being directed to provide Government with timely and practical advice in conformity to current regulations, every time it is called upon to do so in terms of waste management.

The functions of the inspectorate section within the former Environment Protection Department were taken up by MEPA. Inspectors have been delegated full enforcement and inspection powers as provided for by the Environment Protection Act.

MEPA is being directed to ensure that its Waste Management Inspectorate has a plan of action which is aimed at monitoring compliance of existing waste management facilities and initiatives. MEPA is being directed to provide a plan of action for its Waste Management Inspectorate and to present this to the Ministry for Resources and Rural Affairs within 6 months of the publication of this strategy document.

WasteServ Malta Limited

WasteServ Malta Limited was established in November 2002 as a limited liability company responsible for organising, managing and operating integrated systems for waste management including integrated systems for minimisation, collection, transport, sorting, re-use, utilisation, recycling, treatment and disposal of solid and hazardous waste.

The establishment of WasteServ and MEPA has managed to achieve a clear institutional separation of the Government's powers and functions as a legislator, as a regulator and as a provider of waste management facilities and services. WasteServ was established to:

- provide Waste Management facilities and services;
- finance as much as possible Waste Management facilities and services;
- retain ultimate responsibility; and
- serve as an operator of last resort.

WasteServ has been instrumental in the setting up of a number of waste management facilities and services. The closure of the former dump sites, the establishment of the Ghallis engineered landfill, the ongoing upgrading of the Sant' Antnin solid waste treatment facility, the takeover and upgrading of the Marsa abattoir incinerator, the network of bring-in sites and the educational campaigns undertaken are just a flavour of the evolution that WasteServ has brought within the sector.

In line with Government's declared intention not to use WasteServ as a barrier to private enterprise involvement in waste management services, an evaluation of this agency needs to be carried out in order to assess its effectiveness of service and cost as well as the strategic direction that is to be adopted with a view to planning for facility devolution. This is not a process which is anticipated to be completed overnight but one which needs to be set in motion in order to determine the ideal strategic direction to be adopted.

At this point in time Government wishes to reiterate that it does not intend to involve WasteServ in activities that compete with or impinge upon the services that could be offered by the private sector. Notwithstanding, in line with WasteServ's mandate to act as an operator of last resort, Government will be forced to ask WasteServ to enter into additional services should the private sector not fill in the demands that are being created.

National System for Hazardous Waste Management

MEPA has a hazardous waste consignment procedure in place. A consignment note must accompany every movement of hazardous waste. All persons wishing to transfer hazardous wastes within the Maltese Islands should first apply for a permit on an appropriate form (CP form). Following the issue of the CP permit, all subsequent waste movements authorised under this permit need to be notified to the Authority on the CN form. Detailed guidance on the consignment note system is available from MEPA offices and on the MEPA website.

Cognisant of the small amounts of hazardous waste that may be generated by a significant number of operators in Malta, and the need to facilitate its interim storage prior to disposal, Government remains committed to provide interim storage and pre-treatment facilities prior to export at the hazardous waste landfill at Ghallis and/or local treatment at the Marsa abattoir of hazardous waste generated in the Maltese Islands.

There is the need for a national characterization and implementation plan for hazardous waste. This should take into account:

- the establishment of final destination points where export of such waste is accepted; and
- negotiations with the major commercial banks to provide guarantees to shippers exporting such waste.

Government, through MEPA and WasteServ, has benefited from a Twinning Light project entitled "Hazardous waste inventory and technical assistance in regulatory aspects of hazardous waste management". The overall objective of the project is to further strengthen Malta's capacity to comply with the EU Environmental *Acquis* in the field of waste management. Its purpose is to enhance the ability of the Malta Environment and Planning Authority and WasteServ Malta to manage hazardous wastes and provide Malta with the capacity to comply with monitoring and inventory obligations pursuant to the relevant EU Directives and Regulations.

Government will be embarking on the setting up of an Action Plan for the implementation of this report.

Municipal Solid Waste (MSW) Collection Service Contracts

MSW collection services have been assigned to Local Councils. However their operations in respect of the collection of MSW have largely been an individualistic effort with only a limited number of the smaller Councils teaming up to provide a more cost-effective service. It is evident that greater economies of scale can be achieved by regionalising the collection of MSW.

For the purposes of certain services, Local Councils have been grouped into six regions. The selection of the proposed regions was based on the groupings of Local Councils in respect of the devolution for the maintenance and provision of street lighting.

It is felt that this degree of regionalisation has the potential to enable a more rationalised and cost effective collection of MSW to be achieved. However, in order to further promote the role of Local Councils, Government, in consultation with the Local Councils Association, will be conducting feasibility studies to determine whether it would make economic sense to make use of the regionalised concept.

Government in collaboration with the Local Councils Association should seek to reform the way in which municipal waste is collected. The efforts made by WasteServ in drawing up a waste collection draft contract need to be brought to fruition not least through the necessary consultations with interested stakeholders. Local Councils have also been advised to issue yearly MSW collection service contracts so as to facilitate the introduction of the new contract format, once an agreement is reached. The revised conditions are to apply once a new waste collection setup is launched. Therefore, while the new contract has been drafted, it is not yet being adopted by Local Councils.

Any waste collection system introduced will give cognisance to the autonomy and jurisdiction assigned to Local Councils. In this context, Government will continue to promote the concept of bring-in sites within their localities. The frequency of these bins should conform to the national average, that is, one

bring-in site for every 300 homes. In any proposed setup, all entities involved must work closely together to ensure a joint effort and an efficient outcome in this respect as well as to determine whether the standardisation of such sites should be pursued for better identity management. Notwithstanding, it is of utmost importance that the source segregation and separate collection of MSW be raised both through bring in sites as well as through the weekly separate kerbside collection of dry recyclables in order to contribute towards Malta's obligations in terms of packaging waste and European re-use and recycling targets (a minimum of overall 50% by weight by 2020).

Government and Local Councils need to work together with a view towards securing the process by which bring in sites will be eventually devolved to Local Councils within the context of a reform in the financial allocations in respect of waste management.

For similar reasons, it will be important that the supervision and control of MSW collection service providers is strengthened and undertaken on a more professional basis in future.

Government intends to provide regions with a person to act as a waste manager with a view to supervise and control service providers effectively thereby providing a focus on waste management in all regions. Government commits itself to train the waste manager in overseeing adequate systems / procedures for enhanced service quality and reliability. The waste manager may need a sufficient resource in order to perform effectively but this depends on the region in question.

5.0

Economic and Financial Measures

Charges for Waste Management Facilities and Services

The experience of the pegging of charges for disposal at authorised construction and demolition landfills with the charges being incurred by Government was introduced over a three year period and today mirrors the principle of full cost recovery. These charges are thought to have been well absorbed by the construction industry as the amount of landfilled C&D waste kept rising year after year.

Government should ultimately aim towards ensuring full cost recovery of all its existing and new waste management facilities without causing any significant social or economic disturbances. WasteServ Malta Limited was created with the main objective of providing waste management facilities and services as a last resort operator. It is hence Government's aim for WasteServ to farm out as many of these facilities and services as possible and to ensure that their building and operation comes at zero cost to Government. Waste management operations all over Europe are generally carried out by private entities whose business depends on the manner in which they operate. As these European Operators usually manage to derive profit and sustainability from such facilities there is no reason to believe that the case in Malta should be any different.

WasteServ should be used to safeguard the interests of the public such that any very expensive service continues to be provided by WasteServ particularly if this can be provided at a cheaper cost. However, the financial regulations for the sector should ideally set parameters which delimit fees, in proportion to the characterisation of the associated costs, which any private operator would be allowed to charge.

Waste management facility financing should ultimately be derived from the fees that are charged for the disposal of waste to be managed by the same facility. Most of the waste arriving at facilities results either from municipal solid waste, collected by Local Councils, from individual households or directly from individual (or a group of) producers.

It must be borne in mind that EU co-financing mechanisms³ require the recovery of costs on behalf of beneficiaries to occur in a manner which ensures that subsidies may be eliminated.

To this effect it is proposed that all gate fees of Government owned facilities be revised to reflect the true cost of managing that waste. This will also require adjustments of the financing that is currently made to WasteServ and Local Councils for the management of waste. Moreover, such a scenario would pave the way for the divestment of the management of such facilities by Government thereby leading to a more competitive market in the waste management sector.

Charges for Local Councils in the Collection of MSW

Local Councils are currently entrusted with the collection and disposal of municipal solid waste from households. Under the current system Local Councils pay a contractor to collect and dispose of the municipal solid waste generated by households. Government is of the firm believe that Local Councils play an important part in achieving the necessary separation at source with a view to contributing towards recycling targets for packaging waste as well as for producing a 'cleaner' input to the digestion plants proposed. Government also believes that Local Councils should play an active role in this process and should take initiatives to contribute towards such objectives. In return, Government should provide the necessary incentives to encourage individual actions at a Local Council level.

Current charging systems should be modified to ensure that the fees chargeable to Councils originate in two forms namely:

³ Co-financing mechanisms involve partial financing by the EU and part by the beneficiary of projects accepted for this kind of financing. However, such financing is usually characterized by conditions such as those requiring the beneficiary to ensure full cost recovery of capital and recurrent expenditure.

- (a) a transportation fee for the collection and carriage to the waste facility; and
- (b) a fee based on the weight of waste deposited which is charged directly to the Local Council and not the carrier. This would take place through the introduction of consignment notes which Local Councils would hand over to their waste collector and which would identify the quantity and origin of waste.

Furthermore, Government should adopt a differential pricing policy for all separated waste that is taken to the Sant' Antnin waste treatment plant and subsequently to other waste management facilities. Incentives to promote such pricing policies should be introduced to facilitate its adoption.

This system would incentivise Local Councils to take required measures and initiatives in order to ensure that their community is encouraged to minimise waste requiring door-to-door collection through the possible modification and alteration of behavioural patterns, the use of bring-in sites and any other measures deemed appropriate. Moreover, it would incentivise Local Councils to encourage the Recycle Tuesday initiative with a view towards providing larger quantities of source separated recyclables and bio-waste fraction for treatment at the waste digester.

A national debate should be initiated as to the ideal manner in which financing should be secured for the operation of facilities as well as regards to the introduction of incentives to promote better waste management practices. This should also be complemented by other initiatives that entice Local Councils to minimise on the waste generated within their locality and on the collection of a marketable recyclable fraction that will allow their charges to be lower than those of their peers whilst at the same time providing an equally good service in line with prevailing waste management principles. Local Councils may choose to team up with established schemes to further minimise their waste. This is mirrored by the fact that industry pays for collection and disposal of its voluminous waste. Households equally contribute to significant quantities of waste which although negligible on an individual basis, when aggregated, contribute to a significant expense in terms of what is spent on waste management.

Producers who deposit their waste at any landfill facility should also be charged at an appropriate rate that instils a change in their waste management practices towards more sustainable trends. The principle is to ensure that all producers are responsible for the waste they place for treatment. Whether it is industry or the private household does not really matter for it is the nature of the waste, volumes generated and the treatment process that need to be looked into. Government must ensure that its facilities are sustainable and welcomes proposals from stakeholders on methods to achieve such. At the same time producers must also be responsible towards their Producer Responsibility obligations in order to meet the legal targets.

It is therefore of utmost importance for Producer Responsibility schemes to be promoted in a rational manner that permit economies of scale to be achieved.

WasteServ Malta Limited has recently been allocated funding for 300 locality based bring-in sites and 200 sites within schools. It is important that these bins be put to good use and that Local Councils, who are responsible for waste collection, forge a partnership with Government in order to further contribute towards the gradual introduction of separating waste at source. Government reiterates that it shall be adopting a policy of securing that WasteServ does not compete with private enterprises unless it is forced to do so as an operator of last resort or in the light of unforeseen difficulties. Government will continue to pilot a packaging waste collection scheme which will eventually see a locality based collection system which differentiates between organic/mixed waste and dry recyclables. Whilst the collection of organic/mixed waste will continue to be financed by Government, the collection of dry recyclables will be financed through a mechanism which will see local councils being serviced by licensed schemes which would in turn be funded by importers/producers who place such dry recyclables on the market.

This would provide the country with the necessary infrastructure needed to ensure compliance by producers. Secondly, all major stakeholders would in this way be involved in this process leading to a better utilisation of Government resources and the fostering of a strategic partnership between Local and Central Government and the Private Sector.

Waste management facilities need strong regulatory and financing mechanisms to maintain their sustainability. European policy and legislation on this issue is very clear in that waste producers are

expected to pay, through appropriately devised charges, the full costs of the service and facilities required to manage their wastes in an environmentally sound manner. Therefore it is equally important for the local competent authorities to ensure that not only are environmental conditions being observed but that the fee structure for such facilities is one that is approved and regulated in a professional manner that truly reflects the real cost of treating waste at that facility whilst at the same time safeguarding the social and economic realities of Malta's people.

The deposit refund scheme mechanism on local beverage bottles has been a useful experience that confirms that this kind of mechanism has a positive effect on the local community in that it is seldom the case that such bottles are found within the waste stream. The introduction of any form of incentive-based mechanisms to other waste fractions is seen to be a strategy that could help to contribute towards reducing mixed waste fractions.

Notwithstanding, it would be impossible to have an incentive-based scheme on each and every type of packaging material and therefore Government recognises the need of other setups in particular where packaging waste is concerned.

Excavation, construction and demolition wastes

In order to achieve Malta's targets for reducing and recovering excavation and construction and demolition wastes and to limit the use of landfills for this type of waste, Government intends to enforce the current system of development permits granted by MEPA, in which planning permits oblige construction and demolition waste to be disposed of at authorised C&D landfill facilities and, as far as possible, try to channel excavation waste for recycling. This will assist Malta in achieving European targets for preparing for re-use, recycling and other material recovery (a minimum of overall 70% by weight by 2020). Enforcement is envisaged to increase in order to improve compliance rates so that all the developers of major projects submit a Construction Management Plan, waste management, demolition and dismantling arrangements, for MEPA to review.

A five-year contract had been awarded to a private entity to acquire and manage on behalf of WasteServ a number of licensed sites, usually quarries, for the disposal of construction and demolition waste. Subsequently, WasteServ had introduced a scheme which permits quarry owners to enter into a joint venture with WasteServ with a view towards ensuring that the latter manages the quarry as a construction and demolition landfill. However, Malta must not become overconfident that it has unlimited disposal volumes available and a study on the true potential of other C&D sites as well as in respect of future C&D related strategies needs to be undertaken. This should include the use of disposal of C&D waste at sea as a temporary measure when no facilities for disposal on land are available as well as allowing developers of large projects to move from excavation to quarrying techniques for the purposes of space creation below ground, with the resulting stone blocks being authorised for export purposes.

This situation needs to be tackled from a sustainability point of view and due consideration should be given to the introduction of fiscal initiatives, such as the abolition of VAT on the sale of recycled building materials, in order to potentially serve as an incentive to trade in this resource.

The use of such materials to create assets that are in the national interest will also be considered. It is important to open the debate on the potential of reclamation as well as that of the creation of islands, initially as an embellishment feature for our beaches, in order to transform what is now considered as waste into a resource.

Should unsustainable trends prevail Government will consider further raising the cost of disposal to C&D landfills to disincentivise the excessive generation of C&D waste.

Responsibilising Waste Producers

The Eco-contribution Act introduced in 2004, aimed to encourage the recovery of potentially hazardous and recyclable products. Government acknowledges that this objective will not be achieved solely through the current fiscal structure of the eco-contribution since:

- the contributions stipulated in the Act are too low and are based on price relativity;
- the current system allows for partial refunds to be applicable;
- the range of products covered is too narrow; and
- payment is effected on the first sale of the product subject to eco-contribution.

Government remains fully committed towards the producer responsibility and polluter pays principles and until the development and growth of fully fledged private sector based schemes, Government will retain responsibility for producer induced waste and its eco-contribution. As producers start to subscribe to schemes they will become exempted from Eco-Contribution charges. Provisions for those who opt for self compliance will be based on refunds subject to compliance audits.

Government will consider revising the Eco-Contribution Act if the producer fails to shoulder part or all of its waste management responsibility. The major changes proposed envisage:

- a wider range of products subject to eco-contribution to minimise potential cross-subsidisation;
- the revision of contribution rates, on existent and new products to be covered by the Act, to reflect the actual cost of disposal of a product; and
- the eco-contribution payment will have to be effected upon importation or local manufacture.

The introduction of a rebate system would ensure that those producers who take up full responsibility for the disposal of their product are refunded the contribution paid upon proof of recovery. The rebate system coupled by a fiscal regime would also provide an incentive for producers to invest in cleaner technologies. Demanding payment on importation or manufacture will reduce the possibility of under-declaration. Partial payment should be considered as a measure to mitigate against producers' cash flow problems.

A competent body has been set up to manage and monitor eco-contribution. This body acts as a reference point on matters relating to eco-contribution in order to reduce the number of free-riders.

Producers must be provided with alternatives prior to the revision of the eco-contribution and the increase in enforcement and penalties. For selected waste streams, Government intends to provide for, through legislation, the establishment of licensed schemes. Consideration will also be given to legislating in favour of one mandatory scheme per sector where economies of scale are an issue. These licensed schemes need to be encouraged, through the provision of adequate incentives. MEPA consequently has a determining role to play for it is believed that such schemes will actually "take off" once MEPA communicates its intention to commence the enforcement of Regulations pertaining to this aspect. An intention by MEPA to enforce such regulations should stimulate the industry to react within a reasonable timeframe.

These licensed schemes would be responsible for the collection and final disposal. If Government had to allow for one mandatory licensed scheme per sector, sound justification would be demanded to concede such an arrangement. Justification would be granted if pre-determined criteria are met.

The establishment of licensed schemes would be consonant with promoting producer responsibility and the recovery of resources. These licensed schemes would induce a change in behaviour and would encourage waste producers to shoulder responsibility for the treatment and disposal of the waste generated.

Preferential public sector procurement policies

In October 2006, Government published a draft Green Public Procurement Action Plan for consultation. The thrust of the plan is that in future the government will give added weight to environmental considerations when it purchases goods and services. Government is a major purchaser of public goods and services with around €90 million worth of contracts being awarded annually over the past three years and hence its influence on the environment and health of a properly-directed "green" procurement policy is considerable. A preliminary draft for General Conditions of Contract on the Environmental Performance of Public Procurement has also been drafted. These conditions place a duty on the Contractor to ensure the safeguard of the environment at all times and in every aspect related to the project.

It is time to move forward on such concepts!

The introduction of "green" purchasing could also bring the wider benefit of setting an example in reducing the use of natural resources and reducing pollution. It influences the market place in those areas where public purchases are particularly significant, such as computers, energy-efficient buildings, public transport, packaging, transportation of products, electricity consumption and how a product is disposed of at the end of its use.

The new "green" procurement policy will include criteria, as part of the tender bidding process, affecting not only the quality of a product or service but also minimum environmental requirements. Moreover, in establishing a "green" procurement policy, Government will lead by example and provide the impetus to industry to adopt "green" technologies.

Government is to be a prime supporter of the local market promoting waste recovery by giving preference to recycled products manufactured locally in its procurement policies. The Strategy suggests that this initiative initially attempts to focus upon:

- products and materials recovered from excavation and construction and demolition wastes, recycled oils and waste-derived compost products;
- consumables such as paper, toners and other stationery items; and
- furniture and fittings produced from recycled materials.

Government intends to publish guidelines for departments to refer to in order to ensure adherence within both the public sector and public service. Moreover Green Leaders are being given an annual budget in order to 'green' the public sector/service.

Incentives for locally manufactured recycled products/recycling processes

The Business Promotion Act (BPA) should include a specific article entitling companies that manufacture recycled products or perform recycling processes to the incentives provided for under the BPA. These incentives, which may include reduced tax rates, research and development allowances, export promotion allowances and other allowances, are to be provided for these companies. The incentives, provided by Malta Enterprise encourage investment in waste recovery technologies and promote re-use while reducing the waste stream. Given the limited capacity of the local market, the output of such plants will have to be exported thus improving the national balance of payments position.

Export of recycled products / recyclable materials

The success, sustainability and profitability of waste treatment facilities attempting to recover resources, necessitates the opportunity for the exporting of recyclable products and materials. Given the scale of the local market, recyclables would have to be exported. The current rates charged by port service providers do not help the export potential of such products. Partial exemptions of port charges in the case of recyclables are needed to supplement the mission and the results obtained through the implementation of the aforementioned initiative.

6.0

Technical / Operational Measures

Having set the context within which the strategy has to operate, it is important to look into the technical aspect of the operation itself. The aim of this section is to provide an illustration of Government's strategic direction and not to enter into a debate on the specifics of the proposed implementation of such measures. There will be an appropriate forum for such debates.

Construction and Demolition Waste

Construction and demolition waste comprises an average of 84% of the total waste arisings in the Maltese Islands. It is therefore a good strategic decision to treat this type of waste on its own and to have a strategy which is directed at the management of this type of waste. Moreover the Thematic Strategy on the prevention and recycling of waste (COM-2005-666) will serve as a beacon to complement Malta's strategy in this regard.

As from January 2005, the subsidy on the disposal fee of construction waste has been removed and therefore the waste generator now pays the true cost for the disposal of the waste generated. Although a drop in the amount of C&D waste handled was observed between 2004 and 2005, this amount has crept up slightly between 2005 and 2006. The amount of C&D handled by WasteServ in 2007 still continued to show a rise although a reversal in this trend is anticipated for 2008. Government remains committed to:

- increase the observance of waste-avoiding measures in the construction planning phase;
- explore ways how the useful life of buildings and parts thereof may be prolonged;
- provide assistance on the use of recycled materials in the construction of new buildings; and
- advise on toxicity of construction materials before licensing.

The 'Recycled Building Materials Working Party' as proposed in the 2001 Strategy was set up under the auspices of the Building Industry Consultative Council (BICC) together with other representatives from relevant entities e.g. Malta Environment and Planning Authority, Malta Resources Authority, Malta Standards Authority, together with a Producer Responsibility Group representing the main waste producers and producers and suppliers of construction materials.

The proposed aims of the Working Party were primarily to propose ways to recover and recycle materials from excavation, construction and demolition wastes.

In October 2002 the Waste Management Working Party within the BICC delivered a technical report to the Works Division. Most of the recommendations made in the report, focused specifically on practical guidelines for action, applying the three R's (Reduction, Re-use and Recycle), strategy to waste management, emphasising on the impact of C&D waste and its long-term impact on the building construction industry at large.

Government shall ensure that the recommendations made in this report are taken up in order to establish the feasibility and scheduling of their implementation.

In addition, a Twinning Agreement with an Austrian Environment agency (MT-05-IB-EN-01) dealt with the options available for the management of construction and demolition waste and this is envisaged to assist the Recycled Building Materials Working Party in designing a C&D management strategy with, amongst others, the following terms of reference:

- determine the structural feasibility of using demolished and newly-dressed stone in new buildings;
- identify financial incentives for the use of such recycled products;
- examine existing financial provisions in respect of C&D waste and propose any amendments thereto;

- quantify existing space for disposal of C&D waste;
- consider the disposal of C&D waste at sea as an emergency solution when C&D landfill space is not available;
- develop guidelines for the quarrying of large sites earmarked for development and allowing the export of extracted stone blocks;
- examining the potential for reclamation as well as converting what is today deemed as waste into a resource for the embellishment of Product Malta; and
- identify other possible alternatives that could positively contribute towards the management of C&D waste.

Twinning Project MT05-IB-EN-01 - Recycling of Construction and Demolition Waste in Malta: Strategy for Short-Term implementation – between Malta and the Austrian Umweltbundesamt provides a number of recommendations for the management of C&D waste. The recommendations put forward to introduce recycling in the construction industry in the final document focus around the following:

1. Full implementation and enforcement of EU Legislation

- Inert landfills
- Waste acceptance (incl. chemical analysis where necessary)
- Waste documentation
- Construction products

2. New National Legislation for:

- Separation of C & D waste (incl. collection centres for large construction sites)
- Disposal levy
- Levy on resources ("landscaping levy")
- Documentation of waste streams
- Enforcement of Permit Conditions for Quarries (refilling, restoration)

3. Standards and Guidelines for

- Recycled materials from civil works
- Recycled building materials
- Deconstruction works

4. Develop basic economic conditions for a market of recycled products:

- No illegal dumping
- Product standards/requirements
- Establishing a market under ecological conditions

5. Allocation of storage areas for

- Mineral C & D waste
- Recycling products

6. Introduction of Separation & Collection, that means:

- Separation at the site (demolition, new construction)
- Collection Centres (large construction sites)

7. Installation of a sorting plant (hand sorting)

8. Installation of a Mobile Plant or a Stationary Plant for Recycling of mineral C & D waste

9. Initiatives on Re-use & Recovery; this could be:

- Re-use of recycled Concrete for Aggregates (batching, blocks, pre-casting) or road construction
- Re-use of recycled Asphalt for fresh asphalt and/or road construction
- Soft stone recovery on industrial level for reconstituted stone ("Eco block")
- Re-use of Building elements (e.g. shaping of used blocks for new purposes), incl. installation of a computer based exchange market

- Refurbishment of non-used buildings

10. Development of Disposal Strategies and allocation of the necessary facilities:

- Quarries for clean excavation material and quarrying residuals
- Inert waste landfill (if the material is really “inert”)
- Non hazardous waste landfill for mineral waste
- Non hazardous waste landfill for residuals
- Hazardous waste landfill
- Land reclamation at sea (for clean excavation material), if technically, economically and environmentally feasible

11. Initiatives on Public Procurement with focus on:

- Public tenders (Provision of alternatives for recycled materials)
- Preference for recycled materials in certain public construction activities (sidewalks, landscaping etc.)
- Elaboration of standardized documents for public procurement, where recycled products are included

12. Information and Public Awareness Raising:

- Teaching waste management & recycling technologies (schools, University)
- Promoting the use of recycled products in general and specified technical media
- Organize instruction courses on the use of standards and guidelines (e.g. modular training on deconstruction, proper use of recycled materials, waste acceptance at landfills etc.)

13. Improvement of the Data Management with regards to:

- Quarrying activities
- Construction activities
- Building materials
- C & D waste production
- Prices

14. Encourage and support research activities (Pilot Projects, Task Forces) for

- Reconstituted stone ("Eco Block")
- Organised stripping of a building and separate collection
- Collection centre for a large construction site
- Processing of C&D waste in a test recycling facility & re-use of recycled material at a test site (roads, buildings)
- Elaborating Standards/Guidelines & modular training system
- Possible testing of the “diamond-wire-cutting-technique” for soft stone excavations.

Government intends to follow this through the issue of a Topic Paper for public consultation with a view to outlining strategies for this waste stream.

Agricultural and Animal Husbandry Waste

The Ministry for Resources and Rural Affairs had awarded a consultancy services contract related to the compilation of an Agricultural Waste Management Plan for the Maltese Islands. This Plan has been submitted to Government.

The plan proposes to set up agricultural waste treatment plants to treat cattle, poultry and rabbit manure with the consequent biogas co-generation power and soil improvers production. This provides a treatment alternative whilst recovering embedded energy and providing an alternative to imported fertilizer. The possibility of treating other (non-manure) agricultural waste (fallen stock, slaughterhouse waste, fish waste and other waste from industry) estimated at 7000 tonnes per annum is also considered in the draft plan.

The Agricultural Waste Management Plan has sought to identify a solution that is tailored to Malta's unique requirements and which entails least costs and minimal space requirements taking into account the social, economic and environmental realities of, and objectives for, the Maltese Islands.

The recommended option for the treatment of manures and agricultural slurries in the Maltese Islands involves:

- the construction of a centralized manure treatment plant in Gozo to treat all the manures generated in Gozo, to be combined with WasteServ's Mechanical Biological Treatment (MBT) plant for MSW.
- the construction of a regional manure treatment plant in the north of Malta to treat the manures generated in the north of Malta, to be combined with WasteServ's MBT plant for MSW in Malta North. A site for these treatment plants is to be identified by WasteServ. This plant will initially treat approximately 30% of all the manure and slurry generated in Malta.
- the construction of a regional manure treatment plant as close to the centre of gravity of the residual farms to treat the manures and slurries generated in the north-west, central and south of Malta. This plant will treat approximately 25 - 35% of all the manure and slurry generated in Malta.

The plan recommends that the treatment plants be of modular construction so that plant capacity may be increased if required.

The recommended solution of the Plan is intended to give the following advantages:

- provide a staged approach to mitigate against the inherent uncertainties associated with the animal husbandry sector
- seek to combine treatment facilities for MSW, sludge and manure within a limited number of sites for enhanced operational flexibility and economies of scale
- provide a future solution for the treatment of all agricultural manures and slurries, including pig slurry, and thereby achieve a considerable reduction on the loading of the new sewage treatment plants
- removal of approximately 50% of the nitrogen in manure, which today is causing pollution of the groundwater
- produce a high-quality fertilizer product, which is stable and easy to use, and may even reduce the import of commercial inorganic fertilizer
- provide a means of controlling the distribution and application of fertilizer and the recording of fertilization rates
- produce a significant amount of electricity from a renewable source (approximately 33,000 MWh per year if one also takes the biogas production from the MBT plants into account)
- reduce the amount of greenhouse gas emissions currently being released from the manure heaps and the improper management of manure

This Strategy also takes into account the commissioning of three new sewage treatment plants. All efforts should be made to synergise the treatment of similar waste streams in Malta and to avoid the duplication of facilities, at the expense of greenfield sites. This would also in turn provide increased economies of scale both for the treatment aspect as well as for the generation of electricity.

It is Government's intention to issue the Agricultural Waste Management Plan for consultation in respect of how to best develop our strategy for the treatment of this waste stream which whilst consolidating facilities within established boundaries provides also for different lines to treat the different waste streams to enhance the re-use potential of the ensuing product.

Municipal Solid Waste

The yearly average increase since 2001 for this stream amounted to around 2.4% per annum (NSO, 2008). Efforts to minimise waste going to landfill must continue to be implemented to counter balance efforts to increase the qualitative growth of the national economy. By default this increase in economic activity entails greater flow of goods. The increase in single households, the change in consumer's consumption habits to packaged products as well as the wider range of disposable products continue to push the generation of MSW up. The availability of more electronic equipment per household basis has also resulted in more specialised waste fractions being produced. The growing success towards the separate collection and recovery of recyclables must continue to be re-enforced. This underlines the importance of measures being taken so far. These measures also form an important condition for the success of waste prevention and hence must be further intensified. One aspect must always be borne in mind, waste prevention and recovery measures are not boundless. Measures require significant funding and must be affordable, comprehensive, viable and attractive to the consumer to participate.

Since 2003, the total volume of separated waste collected from Bring in Sites has risen from 157.88 tonnes to 2255.24 in 2006 (NSO, 2008). Notwithstanding, taking 2006 figures only, the amount of waste collected from Bring in Sites amounted to 1.35% of total municipal solid. During its initial period the Recycle Tuesdays' Initiative has managed to collect 140 tonnes per week of separated waste which if projected over a 52-week period would increase separated waste by 7280 tonnes. Hence this system together with that for bring in-sites might yield 5.71% of all total MSW arisings assuming there is no migration from those who used bring in sites to the kerb side system. The quantity of recyclable waste collected via the Recycle Tuesdays initiative from 5th May 2008 until December 2008 was 4248 tonnes. The maximum collected per week was 140.98 tonnes which translates to 0.35 kgs per week per capita based on a population of 407,810 inhabitants. This means that efforts are still required to ensure desired penetration levels of separation.

The Ghallis engineered landfill has a total capacity of 1.6 million cubic metres. On the basis of total waste arisings going to landfills in 2006 which amounted to 247,255.58 tonnes, a further 278,501 tonnes in 2007 and 283960 tonnes in 2008 and taking into account the annual 71,000 tonnes capacity at Sant' Antnin and a potential 6,500 tonnes of separated waste, the total amount of waste which would go to landfill would render its lifespan very short. It is clear that annual landfill volumes are still on the rise!

The size of Malta is one of its main limitations and hence the choice of new landfill sites is not an easy task. Hence the current scenario is questionable in terms of sustainability.

Industry too is an important player in the success of household waste prevention. The need to minimise use of materials and energy during production, the use of low-waste products and packaging design, the introduction of incentive-based and education-based initiatives for the recovery of packaging and products as well as the marketing of ecologically preferable products should continue to be prioritised. Substituting the type of materials that are put in circulation, more so if the hazardous content of such material is high, is also a step in the right direction. Anything short of this, Government will explore ways to penalise the non-conformers as the Eco-Contribution Act highlights.

Further potential for separate collection and subsequent recovery of up to 36,000 tonnes of recyclables and 35,000 tonnes of clean organic fraction exists. The recyclable fraction is actually expected to increase further through the participation of private schemes. One must keep in mind that there exists a threshold when greater tonnages of both the recyclable and the clean organic fraction are no longer environmentally or economically feasible to recover. This happens due to the increased effort needed to recover smaller fractions of material.

The residual waste (approximately 150,000 tonnes) must be treated to reduce waste going to landfill. Mechanical-biological processes separate the high calorific waste from the organic matter, inerts and metals with the ensuing fraction requiring landfilling being drastically reduced. The high calorific fraction may be used for energy recovery whilst the organic fraction may be stabilised for use as landfill cover in a digester from which energy may also be recovered. One needs to highlight potential implications namely, that if an authorised Refuse Derived Fuel (RDF) incineration facility is not provided in the same time as the RDF is being produced the RDF may have to be "stored" in a landfill.

Although this material could potentially be mined in the future for use as RDF, in the short term Malta would still be faced with potential infringement proceedings due to failure to meet Malta's obligations with respect to the landfill directive targets.

The hazardous household waste must start to be extracted from the residual waste. This is being encouraged through the development of Civic Amenity Sites. The Magtab, Hal-Far, Mriehel and Luqa Civic Amenity Sites are open for use from Monday to Sunday, 7.30am to 5.30 pm including weekends and public holidays with the Tal-Kus Civic Amenity site effectively ready but which can only become operational when the road works leading to it are completed. Bulky and other wastes which can be taken to a Civic Amenity site and deposited separately include:

- Paper, cardboard, glass, metal, plastic
- Furniture, mattresses, carpets, tiles and other white goods such as fridges, cookers and microwaves
- Garden waste
- Edible oil and lubricant oils
- Batteries, solvents, neon tubes, medicine, chemicals, paint and other hazardous domestic waste
- Computers, monitors, mobile phones, printers, toys, transmitters, electronic tools
- Small quantities of household construction waste
- Tyres.

Management of Bring in sites

Government, in association with the local councils, intends to achieve 400 'bring-in sites' to facilitate public participation in the collection of clean, source-segregated recyclable materials. Such centres are conveniently located in or near to areas easily accessible to the public that could include car parks, supermarkets, recreation areas, etc, and equipped with labelled and colour-coded containers for receiving and temporarily storing different recyclable materials. To facilitate the acceptance of these facilities, bring-in sites shall be located at a frequency of one site per 300 households and should be maintained in good working order.

Bring-in sites have already been introduced in some localities. As a start, Government allocated €3,494 to each local council that participates in the scheme. Localities which have a 'no bins policy' had the funds withdrawn.

Local Councils are also encouraged to locate one site for every 300 households. In the meantime, when sites are identified, WasteServ Malta Ltd will assist in the acquisition of all the necessary permits to install the bring-in site, the capital expenditure of which will be co-funded through Structural Funds secured precisely for this reason. The recurrent expenditure for the daily operation of these sites is foreseen to be met as follows.

WasteServ Malta Limited has been allocated funding for 300 bring-in sites within localities and 200 other sites within schools. It is important that these bins are put to good use and those local councils, who are responsible for waste collection, could form a partnership with Government in order to further contribute towards separating waste at source.

Bring-in sites combined with a separate kerbside collection system of packaging waste financed through producer subscriptions to licensed schemes should provide the country with the necessary infrastructure to ensure that a producer complies with the relevant regulations. This would ensure that all major stakeholders would become involved in this process leading to a better utilisation of Government resources and the fostering of a strategic partnership between local and central government.

Until such an arrangement is in place, Government is willing to continue to provide and maintain all the bring-in sites designated for each locality at €3,494 per locality. These funds will be allocated by the Department of Local Councils. Alternatively, a Local Council may opt to be provided with all the required bins and with the €3,494 per annum to organise the maintenance of the bins in the respective locality on its own steam. Which ever arrangement will be adopted, the standard frequency of 1 bring-in site for every 300 homes shall be adhered to.

Source Segregation and Separate Collection of Recyclables from MSW

Government intends to consult respective stakeholders on the possibility of legislating in favour of source segregated and the separate collection of all domestic, commercial and industrial waste. The reasons for this are threefold. Firstly, source segregation and separate collection of organic waste may be used as feedstock for the upgraded facility at Sant Antnin (once this is commissioned). Secondly, the source segregated and separate collection of packaging waste contributes towards meeting Malta's waste management targets. Thirdly, every effort must be made to ensure that commercial and industrial outlets have a contract in place for the collection of solid waste. Such a practice should also help to focus the attention of waste producers on the amount and value of their waste and stimulate waste avoidance.

Furthermore, Government intends to continue consulting closely with local councils and all interested stakeholders on the manner in which source segregation and separate collection of waste may continue to be extended. Initiatives already in place are the bring-in-sites that are available in almost every locality and which offer the possibility for the public to separate their recyclables and the Recycle Tuesdays' Initiative which offers a weekly kerbside collection of dry recyclables – paper, plastic and metal. Following agreements with the localities, the separation may be strengthened by the further kerb side collection of the separated waste. In the event of non compliance, Government intends to introduce the necessary legal mandates to ensure compliance even through its own direct intervention.

What is certain is that both businesses and citizens have to rise to the occasion and work in tandem with Government in order to solve a potentially national problem. Statistics from the first four weeks of the Recycle Tuesdays Initiative provided by WasteServ show that the peak amount that was collected was 144660kg which when divided by the national population produces a per capita contribution to the separated fraction of 0.35kg per person per week.

When one considers the Domestic Waste Composition Survey data (NSO, 2002) it emerges that on the parallels drawn from that exercise one would expect, on average, to have the generation of plastic, paper and metal to amount to around 1.26kg per person per week. Hence the Recycle Tuesdays initiative has so far only managed to contribute around 27.27% of what is perceived to be the statistical potential. This needs to improve and not at the expense of the waste that is deposited in bring in sites.

With respect to bring in sites, statistics for the period 2003-2007 are reproduced in Table 1 hereunder.

Table 1 – Waste Deposited at Bring in Sites 2003-2007 (tonnes)

| | | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|----------------|----------|-------|--------|--------|---------|---------|---------|
| | Material | | | | | | |
| Bring in sites | Paper | 82.64 | 476.41 | 892.04 | 1084.76 | 1344.95 | 1793.37 |
| | Plastic | 25.76 | 163.95 | 266.14 | 352.39 | 537.42 | 769.84 |
| | Cans | 15.76 | 81.20 | 135.48 | 165.34 | 218.73 | 256.38 |
| | Glass | 33.72 | 241.02 | 494.77 | 632.75 | 897.39 | 1287.28 |

It is evident that if one were to compare the amount of paper, plastic and cans collected via bring in sites in 2007 (2101.1 tonnes) and compare it to a straight line annual projection based on the maximum amount of waste achieved during the first four weeks of the Recycle Tuesday initiative (6026.8 tonnes), it appears that this latest initiative has the potential to increase the amount of separated waste that is collected separately. Figures for 2008 show an increase in the amount of waste deposited at bring in sites, a fact which so far complements other separation initiatives.

Notwithstanding, it is imperative that separation rates are increased in order to meet the targets that are set within the suite of environmental directives as well as to recover as much as possible of the embedded resources within these fractions.

Collection Systems – The *Modus Operandi*

There are various strong arguments in favour of reorganising MSW collection service provision into fewer yet larger regions. As a result, Government intends to pursue further the need for waste collection to be regionalised. One must emphasise that the more waste prevention and recovery initiatives take off, the less residual waste remains and the greater the number of separate collections to be carried out. To overcome the existing diseconomies of scale, it is essential that the concept of regionalisation be taken into account in MSW collection processes as well as in other waste collection contracts. Government will support this activity through the setting up of the necessary legislative and administrative framework within which regions for the collection of waste will function. In addition Government is also committed to deploying personnel from within its own resources to act as full time waste manager/s within each region. All these initiatives shall be carried out in collaboration with Local Councils through the Local Council Association.

The introduction of new systems for the source segregation and separate collection of recyclable materials from MSW will provide an opportunity to optimise collection frequencies and reduce vehicle idle times so that, for example, wet organic waste may be rationalised to be collected four times per week, while essentially dry materials are collected periodically. Rationalisation of collection frequencies in this way has the potential to improve the productivity and reduce the costs of collection services substantially. Government is also committed to explore further the possibility of adopting additional practices and audits that aim at responsabilising individuals towards better waste management behaviours. This will be explored further through separate consultation papers outlining the possible waste collection options available.

This and other measures relating to the collection of MSW mean that the draft contract for the provision of MSW collection services, prepared in mid-2002 for the Department of Local Councils and presented to local councils in January 2003, needs to be updated and adopted by local councils particularly in the light of the proposed reform in the Local Councils system.

Government will explore the adoption of financial incentives that are best suited for both households and local councils and that encourage them to adopt more environmentally acceptable waste management. This could involve charging local councils for waste on a *per tonne* basis and providing incentives for the deposit of properly separated dry recyclables at the Sant' Antnin plant. This would not only ensure increased waste separation and composting initiatives at local level but also instigate the local council to monitor the contractor to ensure that household waste is not contaminated *en route* to the waste facility. Government will remain responsible to educate on a national level and to provide the entire necessary infrastructure to support these initiatives.

Waste Collection Practices

Government plans to introduce a guidance document for MSW service providers. Waste collection is governed by environmental regulations, as well as regulations and standards related to public health, occupational health and safety, vehicle regulations, local council by-laws, police laws and possibly others. This guidance document will set out the necessary criteria that service providers must aim for. In line with this requirement, local councils will need to introduce a standard procedure for pre-qualifying potential bidders for MSW collection contracts against the requirements stipulated in this guidance document. This will be a further step towards implementing, successfully and in a sustainable manner, new waste management principles in the Maltese Islands.

Government may explore the possibility of assisting the upgrading of all waste collection practices to conform to ISO accreditation. Government will also consider favouring the use of appropriately sized Refuse Collection Vehicles (RCV) with a view to improving congestion that is currently created as well as to improve accessibility within village cores and other narrow streets.

The Gozo Dimension

Government considers Gozo to be a priority area within the Maltese Islands. It is therefore only natural for innovative waste strategies to be applied to Gozo with a view to making it a centre of excellence in the field which will create new business opportunities whilst also enhancing its image as a tourist destination and its self-sufficiency from a waste management perspective. The eco-Gozo initiative will also link with the concepts of sustainable waste management practices.

An outline development planning process for the permanent waste transfer-loading facility at Tal-Kus has been completed and the full development application process is about to be completed. Notwithstanding, Gozo will also benefit from a facility that will treat both animal waste as well as municipal solid waste. This facility will enable the recovery of energy embedded in such waste thereby contributing to Gozo's Renewable Energy Sources amounts.

Hazardous and other Industrial Waste

The Ghallis landfill has the facility for disposing of certain hazardous waste. This is a small facility suitable only for receiving and disposing of a limited range of solid hazardous waste with a capacity of 100,000 cubic metres. There is also the inclusion of a facility for the temporary storage, pre-treatment and transfer of hazardous waste. For logistical and economic synergies, this facility has been located in close proximity to the main landfill facility. This landfill accepts only non-organic type of waste which needs to meet two strict specifications – reactivity and leachability. No hazardous waste is to be landfilled unless it is pre-treated to meet the criteria mentioned above. The hazardous waste facility incorporates a sorting, storage, neutralisation and solidification plant. The solidification plant will pre-treat certain hazardous wastes, eg. fly ash, by converting it into monolithic blocks to be strategically placed within the hazardous landfill cell.

The hazardous waste received at this facility will divide basically into two streams:

- those that can be treated and disposed of safely and cost-effectively in Malta; and
- those that will need to be accumulated, bulked-up, stored and subsequently exported for treatment and disposal overseas.

Given the lack of reliable data on hazardous waste arisings, this project component will, to some extent, have to evolve in response to actual needs and experience. However, at this stage, it is envisaged that this component will include *inter alia*:

- a reception area and facility for inspecting, weighing and recording vehicles and wastes arriving at, and leaving, the facility;
- a laboratory for analysing and determining the basic characteristics of hazardous wastes received at the facility (as other tests will be carried out in accredited laboratories); and
- a facility for pre-treating mainly inorganic hazardous waste using conventional (and relatively simple and low-cost) physical and / or chemical treatment processes.

A facility for bulking, packing or re-packing and temporarily storing mainly organic hazardous waste prior to export for treatment / disposal overseas of:

- potentially hazardous wastes;
- spent batteries and accumulators;
- asbestos;
- oily sludges; and
- consumer durable and electronic goods.

The primary objective of this waste management plan is to maintain a high level of independence for waste treatment. However, the export of waste may of course prove to be viable and efficient as a result of economies of scale.

The Working Group on the Treatment of Clinical Waste was jointly appointed in 2006 by the then Ministries for Rural Affairs and the Environment and that for Health and Care for the Elderly with a view to determining the options that are available for the management of clinical waste as well as to determine the feasibility of utilising the abattoir thermal treatment facility for the treatment of clinical waste.

Malta did not have any authorized facilities for the treatment of clinical waste. Healthcare waste from St. Luke's hospital was being incinerated in an on-site incinerator. With certain modifications, the new plant, situated at the civil abattoir in Marsa, gave rise to an opportunity to consider the treatment of clinical waste at this facility. It was proposed to consider upgrading this facility so as to permit the co-incineration of clinical and industrial waste according to EU standards related to environmental emissions in particular in a manner that will be safe for the neighbouring community.

The Working Group recommended that there could be a strong potential to treat healthcare waste at the new abattoir facility for the following reasons:

- Incineration of clinical waste at the abattoir is a solution that can be immediately implemented and also seems to provide a viable solution for the long-term. The upgraded abattoir facility provides the quickest solution to terminate the temporary solution and to shut down the non compliant St. Luke's incinerator and that at the Gozo hospital;
- It fulfils Government's obligation to provide a proper facility for the treatment of clinical waste;
- The new abattoir incinerator conforms to national and international regulations;
- The treatment of clinical waste will not jeopardize compliance of the facility;
- It is the least costly environmentally-acceptable option available at present time;
- Clinical waste, in addition to abattoir waste, would assist the new incinerator to be able to achieve the thermal capacity for which it was designed. This will contribute to making the facility operate efficiently with fixed overheads being absorbed by higher waste volumes and waste with higher calorific values;
- The treatment of clinical waste at the upgrade facility will not induce additional capital cost over and above those foreseen for the required upgrade.

At the same time it would also make sense to attempt to quantify the total potential generation of pharmaceutical waste in order to ensure that the abattoir facility has the sufficient capacity to treat all clinical waste and for its management to assess the amount of industrial waste that can be accommodated within this facility.

As a result, Government has commissioned a permanent waste treatment facility at the Civil Abattoir at Marsa originally intended for the thermal processing and destruction of waste arising from public and private slaughterhouses, certain food-processing industry, port and airport risk wastes. A separate report assessing the potential of any spare capacity at this facility to be used for the treatment of clinical and certain hazardous waste had concluded that, with some modifications to the existing facility, this potential could be achieved.

In fact the abattoir incinerator was upgraded to be able to treat hazardous waste and is now in operation. It is envisaged that this facility will go a long way to provide for the local treatment of hazardous waste which will prove to be a benefit, both administratively as well as financially, for local industry.

Port and Airport Waste

Most vessels deliver their solid waste either at ports chosen by their owner or at ports where the waste collection is free. A survey carried out in 2003 identified that over 93% of the vessels visiting Maltese waters requested the separate collection of waste from ashore (land side). Sadly, none of this waste was delivered separate to public licensed facilities.

All port or terminal operators were required to prepare a waste management plan with respect to the provision and use of port reception facilities in consultation with all stakeholders by the 14 November 2004. The waste management plan is to comply with all the requirements of Schedule 1 of legal

notice 278 of 2004 Port reception facilities for ship-generated wastes and cargo residues regulations. These regulations further require that the Master or the agent of a ship notify the Malta Maritime Authority about the waste on board and the arrangements needed.

The former Ministry for Competitiveness and Communications had reported that 18 waste management plans had been submitted for the following port areas:

1. VISET Malta plc.
2. Portomaso Marina
3. Waste Oils Company Limited (- Revised)
4. San Lucian Oil Co Ltd.
5. Grand Harbour Marina Limited
6. Cassar Ship Repair Ltd.
7. Oil Tanking Malta.
8. Malta Shipyards - Tank Cleaning Facilities (Ricasoli) (6 Word Docs)
9. Medserv Ltd
10. Enemalta Corporation - Petroleum Division, M'Xlokk / Birzebbugia
11. Enemalta Corporation - Petroleum Division, M'Xlokk / Birzebbugia (updated & revised)
12. Malta Shipyards - Bormla Site
13. Enemalta Corporation - Delimara Power Station Terminal
14. Bezzina Ship Repair Yard Ltd.
15. Enemalta Corporation - Gas Division.
16. Malta Freeport Terminals Ltd.
17. Yachting Centres including plans for Msida Marina, Ta` Xbiex, Mgarr Marina GOZO.
18. Port of Valletta Waste Management Plan
19. Waste Management Plan for the Fishing/Leisure Ports of Malta

Waste separation is carried out in a number of sea vessels. In fact, inspections carried out during 2008 showed that all vessels ranging from cargo to passenger ships had a waste separation system in place. Recent communications with the entities of concern has shown that at the Maltese terminals waste being handed over to the waste carriers was being mixed in the process and the resultant waste was being landfilled at the Ghallis non hazardous waste landfill.

In order to rectify the situation and divert the recyclable waste to the appropriate recycling facility, the Malta Environment and Planning Authority, the Malta Maritime Authority and WasteServ Malta Ltd. have decided to take on different procedures to ensure a good common practice. WasteServ Malta Ltd. shall be introducing a differential pricing mechanism whereby through different prices, waste recycling is preferred other than disposal. This measure shall be effective as from the end of this year. Acceptance of the different waste streams at facilities operated by WasteServ shall be subject to a notification procedure. A waste transfer note will be issued by WasteServ upon request by the waste carrier or ship agent at least 3 working days prior to the delivery of the waste. A copy of the waste transfer note sent to the waste carrier or ship agent shall also be made available to the Malta Maritime Authority, who may conduct inspections on the records that should be retained by waste carriers. Consignments not accompanied by a waste transfer note shall be refused entry into the relevant facility. As from the 1st of September 2008, waste carriers entering the different terminals have to be registered with MEPA as part of its new waste carrier registration according to Legal Notice 106 of 2007. This will ensure that all vehicles/vessels that carry waste are up to standard and that waste is delivered to the appropriate facility.

A similar waste marshalling area should be made available at the airport. This will receive, process and store all recyclables off-loaded from aircraft as well as from duty free stores. Other waste,

including hazardous waste from aircraft maintenance, should also be stored prior to it being transported for treatment to a local licensed facility.

Asbestos

Some 2000m³ of asbestos is estimated to be in storage awaiting disposal. Additionally, it is estimated that some 5000m³ of this same material remains installed and will eventually be dismantled as refurbishment works on the older building stock are gradually carried out. Failure by the private sector to export this waste material has led Government to undertake a feasibility study in order to determine the best and most practicable waste management option available for this waste.

Other developments

A Twinning Light assignment between Austria and Malta entitled "Hazardous waste inventory and technical assistance in regulatory aspects of hazardous waste management" has been undertaken and is intended to underpin Government's direction in the management of hazardous waste. The following selected hazardous waste streams are discussed:

- End-of-life vehicles (ELVs)
- Lead (Pb)-Accumulators
- Portable batteries
- Waste from electric/electronic equipment (WEEE)
- Waste oils

A topic paper will be presented for public consultation.

Facilities for the Management of Solid Waste

From the previous discussion it is clear that Malta requires more facilities in order to be in a position to fully treat its solid waste arisings. The treatment capacity available is insufficient to meet the current needs and the behavioural pattern that prevails today will limit the life span of the current engineered landfill forcing the selection of another site for landfilling purposes. Waste which can be diverted to treatment facilities can be treated and resources recovered from it. If such waste is allowed simply to be disposed of at our landfill, this will represent the taking up of unnecessary space from an already finite volume and a rate of consumption of volume which will exhaust the available space in a shorter timeframe. Selecting a new landfill site is indeed an arduous task particularly in the light of Malta's size and density of urban development and we should therefore alter our behaviours with a view towards maximising the amount of landfill space currently available. At the same time, Malta also has an obligation to achieve agreed recovery and recycling targets.

Landfilling of untreated waste remains the least preferred option. Land use constraints in Malta makes this option a far less desirable technique. As a result and during the coming years, Government intends to develop new specialised facilities for the residual waste fraction based on the best available technologies option. Government will commission work to ensure that Malta moves towards meeting its targets for Renewable Energy Sources (RES) from the treatment of solid waste. As a consequence, material flow and cost benefit analyses will be undertaken to determine what fractions will be going to the planned facilities and what additional treatment technologies will be required to recover this embedded energy prior to disposal.

In December 2004, the Cohesion Funds application, submitted by WasteServ Malta Ltd to upgrade the St Antnin facility was approved by the Commission to the total amount of EUR 16,747,500 of which EUR 11,723,250 represents the Cohesion Fund EU contribution. All the necessary permits have been secured and the first phase of the plant, destined to manage the collection of dry recyclables, has been brought into operation. Work is ongoing to finalise the subsequent phases of the plant.

The facility will be equipped with a digestion / composting facility to treat 35,000 tonnes of biodegradable material and a material recovery facility to treat 36,000 tonnes of recyclable material.

Tonnages indicated are on a per annum basis. Other forms of composting, on a localised scale (such as homes and farms) will also be promoted further wherever possible. In order to further ensure the quality of the input to St Antnin and any other digesters, Government should legislate in favour of separate collection and disposal of all catering waste to this facility (hotels, restaurants, hospitals etc.).

Part of this upgrading involved Government developing a Materials Recovery Facility (MRF) for the recovery of recyclable materials such as plastics, glass, paper, metals and wood. This facility will be able to receive clean, source segregated recyclable materials directly from the waste collectors, bring-in sites and other sources. Most materials treated will be sold for export for recycling and recovery. The MRF will be a facility that will be able to accept materials collected by schemes and which will be subsequently certified as having been recycled by WasteServ.

The 71,000 tonnes of input to the St Antnin are initially planned to pass through a Mechanical Treatment Plant (MTP) to recover the metals, inerts, organics as well as the high calorific fraction (plastics, cardboard, etc). The cleaner the fractions become through increased public separation, the less the material that will pass through the MTP.

Two potential, yet diametrically opposed scenarios would revolve around the further consolidation of digestion as the preferred method of treatment or the move towards incineration as a means for securing volume reduction with both methods allowing for the recovery of energy from waste. The choice will have to be based on a number of criteria not least the following:

- availability of sites for landfilling;
- availability of sites for the setting up of other waste management facilities
- population contribution towards effective separation of waste at source;
- meeting the agreed targets;
- energy recovery efficiency;
- environmental considerations.

Government shall endeavour to consolidate as much as possible the waste streams generated with a view to minimising the amount of different waste treatment plants required. To this effect, Government will explore the possibility of consolidating the following waste streams:

- agricultural waste and the organic fraction of MSW;
- sewage sludge and agricultural waste and/or part of the organic fraction of MSW;
- mixed waste and refuse derived fuel (RDF).

A compromise, and possibly more realistic solution, would be to move towards a strategy wherein the incineration of waste will complement the further addition of digestion plants. Malta needs to realistically understand the maximum potential that exists for separation with a view towards determining the magnitude of the residual component of mixed waste. A move towards having a degree of incineration will provide the additional flexibility to maximise the lifespan of the Ghallis landfill which space is being consumed at an alarming rate.

The incineration facility would be in a position to:

1. reduce the amount of waste going to landfill thereby prolonging the lifespan of this facility and postponing the need for new landfill space for some time;
2. permit the recovery of energy from refuse derived fuel which, although currently being produced, cannot be fully utilised. This is particularly significant in the light of current oil prices as well as Malta's commitment to reduce its dependency on the use of fossil fuels;
3. recover energy from the mixed waste fraction which, when disposed to landfill, is, in the main, mostly forfeited; and
4. contribute towards our energy recovery targets.

The Twinning Project between Malta and Austria which resulted in a deliverable entitled "Waste to Energy in Malta – Scenarios for Implementation" provides a number of scenarios which could stimulate further the debate for the incinerated part of our waste.

A decision to opt for the provision of an incineration facility with energy recovery to supplement Malta's biological treatment capacity will not mean that biological treatment will be solely undertaken at the Sant' Antnin facility only. On the contrary, all efforts to achieve the highest volumes of 'pure' organic waste will continue. The aforementioned stratification of waste streams shall also serve as a means to ensure that digesters have an economical volume of waste directed towards them.

Taking into account the various ongoing developments in the sectors that contribute towards solid and liquid waste management, the following specific options will be considered as the most favoured configuration:

1. the development of a second mechanical biological treatment plant towards the North of Malta with a view towards treating organic waste that will not be treated at Sant' Antnin and which will be combined with animal husbandry waste from the same catchment area. This plant would also be in a position to accept sewage sludge from the Malta North sewage treatment plant should the facility operators wish to direct such waste thereto. The Ghallis waste management complex would be Government's preferred site in the light of its committed use in favour of waste management operations but this will be considered in a matrix of alternatives that could potentially house these waste management facilities and operations.
2. the development of a third, small scale mechanical biological treatment plant in Gozo that would treat all the organic fraction of the MSW as well as all animal husbandry waste. This plant would also be in a position to accept sewage sludge from the Gozo sewage treatment plant should the facility operators wish to direct such waste thereto. The Tal-Lewz site is proposed to be one of the sites to be considered in a matrix of alternatives.
3. the development of an incinerator with energy recovery for the treatment of the residual fraction of waste, including RDF derived from the mechanical separation of MSW and rejects from the sorting of dry recyclables at the MRF. In identifying a potential site, it is recommended that cognisance is taken of possible synergies with the Delimara power station. The upgrading works that the power station is to undergo in order to meet increased output demands and the possible use of the tunnels being constructed by Enemalta between Marsa, Marsascala and Delimara to transport RDF to an eventual thermal treatment plant in Delimara are both being considered with a view towards determining the feasibility of sites in the vicinity of the power station for such purpose. Should the Delimara site prove to be technically feasible, it would represent Government's preferred choice for this incineration facility.

One should also note the recommendations put forward by a Twinning Project between Malta and Austria on the Scenarios for implementation of Waste to Energy technologies. In particular the report favours an incineration form of technology, possibly a grate firing incinerator, as other alternatives are not yet well referenced in Europe. Moreover, it cites Delimara as being the preferred site for such a plant. More detailed calculations are envisaged together with logistical arrangements aimed at housing storage facilities for bailed RDF.

All plants will incorporate energy recovery facilities from the waste throughput and should also seek to maximise the generation potential of RES from their respective sites with the latter strategy also being adopted for existing facilities. It is suggested that a Cost Benefit Analysis be integrated into the decision making process at the earliest stage possible.

Responsibilising All Actors

Whether corporate or individual, all actors have a social responsibility in the generation and management of their waste arisings. The consequence of their behaviour is undoubtedly translated into actions required centrally, and the expenditure that is required to counter such behaviours. There is no doubt that waste generation forms part of our daily activity. However, managed appropriately, rather than indiscriminately, waste can be harnessed in order to be treated in the most cost effective manner, recovering as much of its embedded energy as possible.

The choice on the cost and extent of waste management operations depends on each and every individual. Egoism will result in the loading of burdens on fellow citizens!

Producer responsibility

The principle is to ensure that all producers are responsible for the treatment of products they place on the market when they become waste. Whether it is industry or the private household (represented by the local council) the nature of the waste and the volumes generated remain the responsibility of the waste producer until this is accepted for treatment at an authorised facility. Government must ensure that its facilities are receiving permitted waste, recovering all costs incurred and that there is no cross subsidization between operations.

It is therefore of utmost importance for Producer Responsibility schemes, with the full cooperation of local councils, to be set up in a rational manner that permits economies of scale to be achieved.

Waste prevention on an industrial level encompasses the repeated use of a product / material, increased product life as well as changing a product's design in such a way that production waste and its polluting potential is reduced. Above all, the long-term reduction in volume of solid waste produced is only possible by implementing measures that enable the re-introduction of materials into the production cycle and thus reduce the quantity of primary raw materials used. Source segregation and the separate collection of industrial waste facilitates this process since waste originating from one entity might well be the feedstock of another.

Waste prevention entails immediate benefits to industry only if handled at a management (as opposed to an individual) level and the packaging regulations should help the commercial sector understand better its obligations as well as the need to re-use packaging wherever possible.

To further complement the Civic Amenity sites that have been developed (three of which are close to industrial estates), all major industries will be obliged to formulate a waste management plan and set up the necessary storage facilities so that all solid waste generated on these estates is handled / stored separately and transported separately for treatment. A notification procedure will also be enforced. Industry will be obliged to team up on this effort since in many cases one waste marshalling area per estate will suffice.

Effective recovery exchanges of waste require a sufficient supply of information on what is available in the field, otherwise they remain largely unused. The difficulty stems from the fact that there still exists a lack of reference and consulting activities as well as the need to overcome communication barriers.

Help could be established by Government organising a national clearing house (which may be virtual). This entity should manage information of what waste is available and where, on the Maltese Islands, this may be put to good use. Such waste could include construction and demolition waste, solvents, waste oils, etc.

To simplify matters of inter-company recovery, Government will consider issuing legislation not to characterise certain clearly defined waste fractions as waste so that the use of secondary materials will be facilitated. Experiences of other Member States in this regard will be sought.

In any event, a certain quality standardisation for waste generated in relevant quantities would surely facilitate recovery irrespective of any legislation suspending the classification of waste. The need for such a facility is likely to increase further with the introduction of new recovery schemes of specific waste fractions.

The catering sector offers a tremendous potential for providing excellent quality organic waste from its food preparation area. Collected separately from all other waste provides a very good feedstock to digesters. Consequently, Government should actively consider legislating in favour of the separate collection of the organic fraction from all licensed catering establishments at the latter's cost with a view to directing this waste to digestion plants.

Civic Responsibility

As individuals, Government and the private sector have given two main options for the separation of MSW – bring in sites and the kerbside collection of dry recyclables. Volumes, albeit on the increase, are still low. Households need to become more aware of their responsibility towards the management of their waste with a view to assisting the waste management process at a national level.

The figure of approximately 28% referred to earlier in terms of what is currently being collected through the Recycle Tuesdays initiative with respect to the total potential that can be collected is very worrying. It is our duty to realise that by not separating waste we are contributing to higher operational costs of our collection and treatment infrastructure as well as limiting the potential for the generation of energy from waste, both of which will have to come out of the taxpayer's contributions. Our behaviour must change, not for legislative compliance, but for the sustainability of our social and economic environment.

Efforts should be made to promote the aforementioned initiatives as well as other initiatives such as the separate collection of cooking oil and the deposit of such oil at central depots for recycling by industry. To this effect, Government should consider incentivising the private sector to contribute towards such initiatives.

Contextualising Our Actions

This revised Waste Strategy is not a document that needs to be seen in isolation. On the contrary, it provides a link to the original strategy. More importantly, it also needs to be seen in the context of other related studies that have been undertaken, some of which through the significant investment of European Union funds and which will form the basis of the various topic papers that have been referred to in this document.

It is also important to realise the current context of the international markets. At the time of writing, world economies are still in turmoil following the scenario in which oil prices had set unprecedented levels around and beyond the \$120/barrel mark. Although oil prices have now come down drastically, as a country which is currently entirely dependent on fuel oil for its energy and transportation requirements, the potentially severe impact on our economy from such events needs to be kept in mind.

Equally important is the fact that, this strategy is being published in the early stage of Malta's structural funds programming period which spans between 2007 and 2013. Cognisance should be given to the provisions of Operational Programmes I and II for the infrastructural and capacity building opportunities that they might offer for the waste management sector. All actors should not read through Malta's Operational Programmes myopically, having an eye solely for waste management related mentions and opportunities. More importantly, all actors should seek to contribute towards other targets, most importantly the generation of RES and the reduction of Malta's dependency on the use of fossil fuels.

This aspect also ties in with the international debate that has seen Climate Change rise to the forefront of the international agenda. Malta needs to focus on adaptation strategies as it is on the receiving end of forecasted impacts. Adaptation focuses on the ability to change our behaviour to take into account changing scenarios.

The implementation of this Strategy should also be seen in the context of the EU's Sustainable Development Strategy and care should be taken to ensure that the implementation of this strategy fulfils the economic, social and environmental balance that sustainable development enshrines. Furthermore, all efforts should be made to entrench waste management as a portion of Malta's National Sustainable Development Strategy prior to this being finalised and adopted.

Finally, let all actors be reminded that every cent that is invested in waste management facilities is one that has been derived from public funds and one towards which most of us have contributed. Malta needs to retain its fiscal consolidation programme and therefore funds required need to be spent

diligently. All actors need to respect public funds as if they were their own and hence contribute towards their effective management.

Education and communications are two fundamental pillars to ensure the effectiveness and sustainability of strategic choices. Education is an important foundation to the process as it provides a more learned workforce that can undertake the challenges required as Malta continues to upgrade its waste management infrastructure.

On the other hand, communication is equally important as it ensures that unilateral approaches are avoided and that all interested stakeholders have a real and true opportunity to participate in a process. Waste management is no exception to this and it is clear that the number of stakeholders involved is wide and varied. Government recognises the need to allay any fears as well as to rope in all those who are willing to contribute concrete and tangible proposals that enhance our waste management capabilities.

The programme will distinguish between the needs for *environmental education / awareness-raising* on the one hand, and the needs for *stakeholder relations and communications* on the other. The former mainly involves a constant one-way process (i.e. selected concepts, ideas and information are continually presented and transferred to particular target groups) aimed at bringing about fundamental **long-term** changes in social attitudes and behaviour, whereas the latter usually entails a two-way process of limited duration intended to generate a specific reaction or response on the part of a target audience or group within the **short-term** e.g. to identify and address the concerns of the local community in connection with the development of a new waste management facility. Although to some extent inter-dependent, each element will require a different approach and different skills / resources.

Communications

Implementing a policy, strategy or plan obviously involves change and the achievement of objectives. In any society or community, the interests and aims of different organisations and individuals do not always coincide. As a consequence, it is usually necessary to overcome a variety of institutional and social barriers if the objectives are to be reached. The main purposes of the planned stakeholder communications programme will be to inform stakeholders on how strategic objectives are being proposed and to respond to any concerns, try and reconcile any conflicting or competing interests, and build consensus for implementing the actions foreseen in this Strategy. At times communication with stakeholders will also be undertaken in order to obtain ideas of how a particular objective may be implemented such that Government, together with interested stakeholders, could take forward together certain initiatives in a collaborative manner.

In fact this update to the original Solid Waste Management Strategy is being launched as a consultation document for all stakeholders to forward their feedback such that the final update reflects Government's position after the consultation process.

Waste management is an issue all the country is facing, including the general public. The message of proper waste management must reach every individual, and each and every one of us must do his/her bit in order to separate waste and be aware of at least the most basic issues as to why certain projects are being undertaken. WasteServ has been instrumental in this respect and has raised awareness through a number of activities. This is set to continue with the use of the various media to convey this message. These initiatives will continue to be encouraged.

In the context of Strategy implementation, communications support will be provided in a variety of ways, for example in order to:

- facilitate the process of consulting on, reviewing and subsequently updating the Strategy;

- obtain information and feedback on key issues from stakeholders during Strategy implementation;
- address concerns and objections, and hopefully win local acceptance and co-operation, with regard to the development of new waste management facilities;
- encourage all entities and players involved within the management of waste to communicate effectively with all stakeholders and strata of society; and
- develop an appreciation and understanding amongst key target groups of the economic realities and practical constraints of waste management, and the importance of cost recovery for waste management services.

Education

While there is evidence to suggest that we have become generally more concerned about environmental issues in recent years, the fundamental shifts in social attitudes and behaviour required to bring about a major and sustainable improvement in waste management have yet to occur. Legislation and standards, and their effective enforcement, provide the cornerstone for environmentally sound and cost-effective waste management.

While acknowledging the need for educating stakeholders about the benefits and necessity of good waste management practices, this revised strategy intends to place an additional effort on the strengthening and taking of actions intended to enforce good practice and to make this initiative an educational tool. This in addition to all the educational efforts that need to be undertaken at all levels of the educational curriculum. It is relatively easy to preach about the benefits of enforcement, however it is by far more effective to educate through action. Increased enforcement initiatives would inevitably place an increased demand for adequately trained enforcement personnel at MEPA, which, as already stressed in other parts of this revised Strategy, are still lacking. Enforcement initiatives should be widely and adequately publicised for increased educational effect.

Priority and greater prominence will continue to be given to waste management issues in educational curricula and programmes. Although the subject of environment and environmental protection in general is covered within existing curricula and programmes, no particular emphasis or attention is currently given to waste management issues, or to promoting changes in social attitudes and behaviour concerning waste management among young people. Today's schoolchildren and students are tomorrow's opinion formers, decision makers and service providers. Moreover, experience in other European countries also shows that schoolchildren and students can exert considerable influence over the attitudes and behaviour of their parents and other older members of society.

The revised Strategy proposes to intensify the campaign for good waste management through the dissemination in all educational institutions of knowledge in respect of environmental information, with particular emphasis on waste management aspects. The implementation of waste separation programmes in schools is also considered to be a priority.

Interventions in the educational field will be carried out in collaboration with the competent authorities but will focus on primary, secondary, tertiary and vocational aspects. It is envisaged that whilst a number of school based road-shows will be undertaken, students will also be exposed to the employment opportunities within the sector. Moreover, existing curricula will also be reviewed in order to attempt to offer more input into students' studies in terms of environmental education.

Education should not be limited only to the formal type. Non-formal education, aimed at the various strata of society, outside formal learning institutions is another crucial aspect of educating society. Outreach programmes by different actors will be encouraged with a view towards securing a positive interaction with learners that should translate into a better understanding of what goals, objectives and process are all about and the importance of a participatory approach towards successful implementation.

A number of projects have already been undertaken in this respect departing from the well known character of Xummiemu to the promotion of home composting, a European Social Fund (ESF) project

to improve the employability of 28 trainees and who visited 50,000 households as part of the programme in order to educate citizens on waste management and another project under the EQUAL programme to conduct small scale recycling activities.

By means of this initiative the Strategy underlines the need for a detailed review and assessment of the human resource and training needs of public sector institutions responsible for or involved in managing wastes. The institutions identified by the Strategy are:

- Waste Managers within Joint Committees
- Malta Maritime Authority
- Malta International Airport
- Ministry for Resources and Rural Affairs
- Ministry for Gozo
- Ministry for Social Policy
- Enemalta Corporation
- Malta Tourism Authority
- Malta Resources Authority
- BICC
- Malta Environment and Planning Authority.

Public sector institutions require a small nucleus of people who are entrusted with the responsibility of waste management within their organisation. The introduction of Green leaders is a step in the right direction and could represent the necessary seed to stem this initiative further. To date no progress has been made in assessing the human resource capacity and training required. Government is committed to carrying out a detailed review and assessment of the human resource and training needs of the aforementioned entities with respect to their waste management responsibilities and functions. Following such review, these institutions should take the necessary actions to comply with this initiative. Notwithstanding, a review of the human resource availability and competencies within WasteServ is also required.

The need for effective monitoring and enforcement will also be a central theme of the educational and communications programme. The enforcement of environmental regulations and standards has been neglected in the past, and the importance of effective enforcement has not yet been fully recognised and accepted by all sections of our society.

Embracing NGOs

There are several active environmental NGOs with a keen interest in waste management. The interests, policies and activities of these NGOs differ in various respects, but all have a declared interest in improving waste management standards and practices and in promoting changes in social attitudes and behaviour regarding wastes. Some NGOs are primarily campaigning organisations, whereas others are focused more on environmental education and working with local communities.

Although it would be unrealistic to expect environmental NGOs to agree with or support all Government policies and actions in this sector, we nevertheless believe there are areas of common ground and potential scope for co-operation and concerted action. We therefore intend to establish a forum for continuing dialogue between NGOs and the Government, and a mechanism for co-ordinating and supporting NGO activities in areas such as stakeholder communications, environmental education and awareness raising. To this effect, a standing committee shall be established by the Ministry responsible for the Environment (Office of the Prime Minister) where key representatives of public agencies meet regularly with representatives of NGOs and other interested stakeholders. The outcome of the work of this standing committee should also feed into subsequent review of the Strategy.

The Need for Data

Communications and information is not a one way process. The main actors need to contribute data to central authorities with a view to enabling the assessment of the national picture, whilst central authorities need to make data available to researchers, the general public and interested parties in order to stimulate the necessary interest and to instil an independent controlling mechanism within the sector. Consequently, there is a need for a data sharing platform to be established.

Data and information on wastes and waste management activities needs to be collected, processed and analysed for a variety of reasons, including:

- to provide essential input to the planning, development, management and control of waste management facilities and services;
- to provide the necessary data and information for effective monitoring, inspection and enforcement;
- to fulfil the reporting obligations concerning waste management required by EU legislation; and
- to inform and facilitate communications with stakeholders, in particular producers and transporters of wastes, operators of waste management facilities and the general public.

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

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

The European Commission has issued a number of decisions and clarifications relating to the collection and reporting of information on waste management.

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

The setting up of such systems, that in any case are essentially required for reporting purposes to the European Commission, would require MEPA to dedicate more trained human resources towards this scope. To date, MEPA's main priorities in this area were on the transposition of the EU's waste management *Acquis*. Little progress has been registered on actually developing waste management data and information systems. This issue needs to be given higher priority during the lifetime of the revised strategy.

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

Research

Research is key in order to address potential solutions to intrinsic waste management problems. The Strategy recognises the importance of research with a view to providing innovative solutions to the needs of the central authorities and the private sector. It is therefore important for Government to encourage such research through a variety of instruments that would make this sector more attractive to researchers.

Way Forward

The aim of this 1st Revision of the Solid Waste Management Strategy for the Maltese Islands is aimed to serve as a Consultation Document aimed at encouraging the widest debate possible in order to refine even further the proposals and strategic direction put forward in this document. This consultation exercise offers the opportunity for all those who are interested in this subject matter, be it from a social, economic, political or environmental standpoint to contribute towards the final objective – sustainable waste management practices that subscribe to both local and international obligations.

The Strategy is aimed to ensure the well-being of every member of society, from whatever walk of life, and in whatever capacity he or she is currently acting. It is a policy document that thinks of future generations and that has to keep inter-generational solidarity at the heart of the directions to be taken.

No matter how large or small an idea may be, no matter whether it originates from an individual, SME or a corporate or multinational enterprise, all suggestions have the potential to spark off improvements in certain areas of the proposals being put forward. We cannot afford to be self-centred and the common good must prevail.

The success of the past augurs well for the challenges we need to undertake for the future. We cannot afford to be laid back any longer. Waste management is no longer solely Government's responsibility. It is **OUR** responsibility and it is only in a collective manner that we can achieve the objectives that befit the Maltese Islands.

Government remains committed towards involving all possible actors, whether corporate or individuals, with a view to improving upon this Draft Strategy which needs to become a National Guiding Document for all alike. Corporate and citizen involvement is not only encouraged but is considered to be of paramount importance towards refining our strategic direction. What needs to be kept in mind is that this document is of a policy nature and is therefore strategic in its direction. This document is not the ideal forum for the inclusion of the specific details of the individual strategic choices – that forum will develop at a later stage when specific topic papers are released. At this stage, Malta needs to firmly refine and re-establish its vision for the forthcoming years in this sector. Together we can succeed.