Construction and Demolition Waste management in Malta V2 – September 2015







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Screening factsheet

1. Summary

Construction and Demolition Waste (CDW) management in Malta historically consisted of extensive backfilling and land reclamation activities. According to the latest data available and taking into account the latest definitions provided by Eurostat for backfilling, Malta is considered to have reached a very high recovery rate of CDW and has already achieved the target of the Waste Framework Directive (2008/98/EC) for CDW.

Construction and Demolition Waste (CDW) management national performance

The Malta Environment and Planning Authority (MEPA) maintains comprehensive data series of CDW generation and treatment by waste code (according to the European List of Wastes) and by treatment code (R-D codes, Annex I and II of the Waste Framework Directive). The latest available data is for 2012.

CDW (tonnes) in 2012	Generated	Recycled (R2-R11)	Backfilled
Non-hazardous CDW (excl. soils)	528 564	139 181	393 462
Hazardous CDW (excl. soils)	758	0	0
Total CDW (tonnes)	529 332	139 181	393 462

Data provided by the National Statistics Office (NSO) of Malta included the waste codes (following the European List of Wastes classification) relevant for calculating the WFD target, excluding soils and naturally occurring materials. Additional data was provided concerning the generation of hazardous CDW, which consist almost entirely of construction waste materials containing asbestos.

Taking into account the latest Maltese data and following the calculation method described in Commission Decision 2011/753/EU, Malta reached a recovery rate of 100% in 2012. However, it should be noted that the amount of CDW reported as treated in 2012 appears to be higher than the amount generated in the same year. Therefore, it is concluded that a certain amount of CDW was generated in the previous year (2011) and its treatment was reported at a later stage (shifting in reporting) in 2012. This means that the reporting of CDW data contains some uncertainty in defining the exact recovery rate for 2012. In any case, the CDW recovery rate of Malta is very high, meaning that almost all CDW generated in Malta is recovered in one way or another and thus diverted from landfilling. According to the Malta Environment and Planning Authority, the major part of mineral CDW is used for backfilling operations (reclamation of old quarries, use on construction works, etc.).

CDW management practices

The principal CDW management practice in Malta is backfilling. CDW is transported by obliged construction works contractors or private waste management operators to private quarries for backfilling. Due to lack of space in landfills, the voluminous CDW stream is redirected to old quarries (either spent or still in operation) in order to save remaining capacity for other waste streams.

The legislative framework concerning waste is governed by the 'Waste Regulations' (L.N. 184 of 2011) which transpose the EU Waste Framework Directive (2008/98/EC) into Maltese law. There is no other specific legislation concerning CDW management and as a result the obligations and responsibilities within the CDW management chain are diffused.

The new Waste Management Plan (WMP) for the Maltese Islands includes specific provisions for the development of reuse and recycling of CDW in Malta, recognising the need to move away from backfilling to recovery operations higher in the waste hierarchy. Furthermore, it stresses specifically the significance of reuse of traditional Maltese building materials (e.g. Maltese stone) and CDW prevention, by promoting refurbishment of old buildings instead of demolition.

There is no market for recycled materials in Malta and no facilities for recycling other materials from CDW such as plastics, metals, wood, etc. As a result, all of other recyclable materials (except mineral CDW) are exported for recycling.

Main obstacles to sustainable CDW management

- Lack of clear legislative framework and roles of actors in CDW management
 - Existence of general legislative framework not specific to CDW management
 - · Lack of clearly defined roles concerning the management of CDW
 - Lack of coordination and synergies between stakeholders
 - Lack of pro-active initiatives of stakeholders
- No market for recycled CDW
 - Lack of trust in recycled materials, perceived as of lower quality by builders and developers.
 - No market/no demand for recycled CDW, natural materials are always preferred over recycled materials in the construction works.
 - Lack of tax to natural resources that could render recycled CDW cheaper compared to natural products
 - Significant slowdown in the construction sector for the last years, resulting to low quantities of materials for recycling
- Limited treatment options no standards for recycled CDW
 - Except from recycling of CDW into aggregates, there are no other recycling options available at the moment in Malta for recycling other materials in CDW.
 - No standards for recycled CDW available.
 - No technical specifications for selective demolition.
 - No EoW criteria for inert CDW.
- CDW reporting issues
 - Methodological issues in the reported data, since unbalanced figures are observed between generated and treated amounts of CDW (stockpiling).

Main drivers to sustainable CDW management

- Adequate network of facilities for receiving CDW (for recovery/backfilling), consisting mainly of spent or operating quarries belonging to private entities.
- Economic incentives (lower tax) for restoration of old buildings instead of demolition.
- Obligation prior to construction permitting for setting up a Waste Management Plan concerning the construction project, by the contractor.

2. Definitions concerning construction and demolition waste (CDW) and management

In this section the definitions of CDW management in Malta are presented.

2.1. Definition of waste

The Waste Framework Directive (WFD) 2008/98/EC was transposed in Maltese legislation by 'The Waste Regulations' in 2011 (L.N. 184 of 2011)¹. The definition of waste used in Malta is in line with that in the WFD.

'waste' means any substance or object which the holder discards or intends or is required to discard;

2.2. Definition of construction and demolition waste (CDW)

The definition of CDW used in Malta follows the definition found in Commission Decision 2011/753/EU for verifying compliance with WFD targets. Specifically:

'construction and demolition waste' means waste corresponding to the waste codes in Chapter 17 of the Annex to Commission Decision 2000/532/EC (List of Wastes), excluding hazardous waste and naturally occurring material as defined in Category 17 05 04.

The definition of CDW in Malta does not distinguish between waste arising only from construction activities or demolition activities. It includes waste arising from both activities.

2.3. End of Waste (EoW) status

Relevant regulation for End of Waste criteria in Malta is applicable for scrap metal and copper scrap² pursuant to Council Regulation (EU) No 333/2011 on EoW scrap metal and Commission Regulation (EU) No 715/2013 on EoW copper scrap. Although these regulations do not refer specifically to materials arising from CDW, they are still relevant since these materials are present in the CDW stream. However, in order the criteria to be applicable, the metal waste from construction and demolition should be separately collected and treated. There is no possibility of meeting EoW criteria of metals in mixed CDW fractions.

No National end-of-waste criteria have been established³. These are to be decided on a case by case basis according to regulation 6 of S.L. 504.37, The Waste Regulations 2011.

2.4. Definitions of waste treatment operations

The definitions for re-use, recycling and recovery used in Malta are found in the legislation document **'The Waste Regulations'** (L.N. 184 of 2011)¹ and they are the same as those found in the WFD and follow the categorisation in Annex II of the WFD. Specifically, they are define as:

- 're-use' means any operation by which products or components that are not waste are used again for the same purpose for which they were conceived;
- 'recovery' means any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy. Annex II sets out a non-exhaustive list of recovery operations;
- 'preparing for re-use' means checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so that they can be re-used without any other pre-processing;

¹ <u>https://www.mepa.org.mt/LpDocumentDetails?syskey=1358</u>

² <u>http://environment.gov.mt/en/document%20repository/waste%20management%20plan%202014%20-%202020%20-%20final%20document.pdf</u>

³ Communication with MEPA – Malta Environment and Planning Authority

 'recycling' means any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations;

The National Statistics Office (NSO) follows the guidelines of Eurostat in reporting⁴. Prior to reporting waste data to Eurostat the National Statistics Office liaises with the Malta Environment and Planning Authority in order to make sure that the data of both organisations is coherent and definitions are applied correctly.

Up until the reporting to Eurostat in 2012, the amount of waste deposited into spent quarries was reported as landfilled. However, the purpose of the disposed amounts of inert CDW was reclamation activities of the exhausted quarries and therefore a change in the classification was required in order to reflect the recovery operation of *'backfilling'*. Currently, the amounts of inert CDW used for backfilling are reported under the specific category of backfilling as defined in Eurostat statistics. This means that a large amount previously reported as landfilling, now is reported as recovery and contributes to the fulfilment of the WFD targets.

Waste Statistics Regulation data for 2012 was reported by the National Statistics Office in June 2014. CDW which was disposed in quarries was then considered as being landfilled. During the first quarter of 2015 the Malta Environment and Planning Authority informed the NSO that this waste should be classified under backfilling. NSO shall revise its data with Eurostat in June 2016 when the 2014 reporting is due⁴.

The main fraction of CDW disposed in spent quarries is inert construction and demolition waste and clean geological material excavated during the construction works. There are no inert landfills in Malta since inert CDW is used for the rehabilitation of exhausted quarries through backfilling operations. This is considered as backfilling operation in accordance with the definition laid down in Commission Decision 2011/753/EU, whereby backfilling is defined as a recovery operation where suitable waste is used for reclamation purposes in excavated areas or for engineering purposes in landscaping and where the waste is a substitute for non-waste materials.

Backfilling is defined in the Waste Management (Management of Waste from Extractive Industries and Backfilling) Regulations, 2009 (L.N. 22 of 2009)⁵ as follows:

"backfilling" means refilling an excavation void, after extraction of the mineral, for rehabilitation or construction purposes related to the mineral extraction process, such as the building or maintenance within such a void of means of access for machinery, haulage ramps, bulkheads, safety barricades or berms; and "backfilled" shall be construed accordingly.

However, this legislative document refers to extractive industries and is not related to CDW and the notion of inert waste arising from construction and demolition activities. However, the properties of inert CDW are the same as those of inert waste deriving from extractive industries and therefore there is no differentiation in their treatment process in backfilling as recovery operation.

3. Legal Framework – Waste Management Plans and Strategies

In this section the legal framework governing CDW management in Malta is presented.

3.1. Legislation concerning CDW in Malta

The legislative framework for waste management in Malta is defined by **The Waste Regulations (L.N. 184** of 2011)⁶ which transpose the EU Waste Framework Directive (2008/98/EC) into Maltese law. All provisions in the WFD related to CDW are valid for Malta and form the legal basis for CDW management in the country.

Further legislation, regulations and guidelines concerning CDW in Malta include:

 Legal Notice 168 of 2002, Environment Protection Act (Act No. XX of 2001) – Waste Management (Landfill) Regulations⁷, as amended by Legal Notice 70 of 2007 Environment Protection Act (CAP.

⁴ Communication with the National Statistics Office of Malta

⁵ https://www.mepa.org.mt/LpDocumentDetails?syskey=952

⁶ <u>https://www.mepa.org.mt/LpDocumentDetails?syskey=1358</u>

345) – Waste Management (Landfill) (Amendment) Regulations⁸, which is essentially transposing Council Directive 1999/31/EC of 26 April 1999 on the landfilling of waste⁹, describes the rules concerning landfills and landfilling of inert waste, and the use of inert waste which is suitable in redevelopment/restoration and filling-in work, or for construction purposes, in landfills.

- Legal Notice 279 of 2010, Environment Protection Act (Cap. 435) Deposit of Waste and Rubble (Fees) (Amendment) Regulations¹⁰, amending the primary Legal Notice 128 of 1997 Environment Protection Act (Act No.V of 1991) - Fees Ordinance (CAP. 35) Water Services Corporation Act (Act No. XXIII of 1991) Deposit of Wastes and Rubble (Fees) Regulations¹¹, setting a fee for the disposal of rubble in public waste disposal sites. Specifically, 'Any person who deposits rubble in a public waste deposit site shall pay the sum of \in 3.21 excluding Value Added Tax to the government entity entrusted with the responsibility of waste management strategy implementation for every metric tonne of rubble to be deposited: Provided that the deposit of domestic rubble in the public waste deposit sites (Civic Amenity Sites) indicated in Legal Notice 382 of 2009 Environment Protection Act (Cap. 435) – Deposit of Waste and Rubble (Fees) (Amendment) Regulations¹², by the householder generating that waste, is exempt from payment of this fee.' Rubble is defined in Legal Notice 128 of 1997 as follows: "rubble" means rubble originating in Malta and which is not soil and includes such material as dust, lime-stone or other kinds of stone, concrete, floor-tiles, ground stone, sand, gravel and rubble which results from excavations, ground preparation, demolition of buildings, road works and other similar works.
- Legal Notice 344 of 2005, Environment Protection Act (CAP. 435) Abandonment, Dumping and Disposal of Waste in Streets, and Public Places or Areas Regulations¹³, setting out fines (article 10(3)) for the dumping of CDW (among other waste) in streets and public places.
- Legal Notice 295 of 2007, Development Planning Act (CAP. 356) Environment Protection Act (CAP. 435) Environmental Management Construction Site Regulations¹⁴, describing waste removal activities and maintenance of the construction site free from accumulated waste rubble. Specific technical guidelines are provided in Schedule I and Schedule IV of the legislation.
- Approved Supplementary Planning Guidance concerning inert waste disposal in quarries¹⁵ describing the conditions of recycling of inert waste in operational quarries and conditions about dumping in quarries as well as recycling in disused quarries. The Guidance also describes the typical conditions of a permit for dumping and recycling of inert waste in quarries.

There is no policy on landfill diversion in Malta, neither a landfill ban for recyclable materials in CDW. There is however a deposit fee for CDW as described above in Legal Notice 279 of 2010. The level of the fee is at 3.21 EUR per metric tonne deposited to a public deposit site (excluding VAT) irrespective of the site, either being a landfill site, treatment facility or other temporary storage site.

Currently landfilling of waste (any type of waste) is charged at 20 EUR per tonne at the only engineered nonhazardous waste landfill in operation in Malta. There is no landfill tax in Malta. However, it is noted that there is a preference in avoiding CDW disposal in this landfill site and the diverted quantities are either backfilled in spent quarries or disposed at sea.

According to WasteServ Malta Ltd., in July 2003 clean inert waste was no longer accepted for disposal at uncontrolled landfills. From then on, WasteServ Malta Ltd started utilising privately owned facilities to provide a public service through contracts with the private sector.

⁷ https://www.mepa.org.mt/LpDocumentDetails?syskey=364

⁸ https://www.mepa.org.mt/LpDocumentDetails?syskey=652

⁹ <u>http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31999L0031</u>

¹⁰ https://www.mepa.org.mt/LpDocumentDetails?syskey=1236

¹¹ https://www.mepa.org.mt/LpDocumentDetails?syskey=432

¹² https://www.mepa.org.mt/LpDocumentDetails?syskey=1203

¹³ https://www.mepa.org.mt/LpDocumentDetails?syskey=531

¹⁴ https://www.mepa.org.mt/LpDocumentDetails?syskey=710

¹⁵ https://www.mepa.org.mt/LpDocumentDetails?syskey=263

3.2. Waste management plans (WMP) and Strategies

The new Waste Management Plan (WMP) for the Maltese Islands¹⁶ was put in place early in 2014 and covers the period 2014-2020, adopting a resource management approach. The WMP includes a specific section for CDW, analysing the current situation and setting future targets, discussing the need for and foreseeing developments in the management framework of CDW in Malta. The WMP aims:

- To minimise CDW through reuse activities and to promote the recycling and recovery thus minimising the impacts on raw materials.
- To recover 70% of C&D waste by 2020.

The Waste Prevention Plan (WPP) for Malta, as required by Article 29 of the Waste Framework Directive (2008/98/EC), is included within the Waste Management Plan for the Maltese Islands. There is an extensive section concerning the prevention of CDW, trying to identify the actors involved and define the enabling conditions that will result in reduced CDW generation. The WPP within the WMP of Malta, defines two indicators in order to track progress of CDW prevention. These are:

- The number of redevelopments undertaken not involving demolition; and
- volumes of inert waste generated.

There is another strategic document specifically targeting CDW, named 'Recycling of Construction and Demolition Waste in Malta – Strategy for short-term implementation'¹⁷. This document was produced as part of an EU funded 'Twinning project' between the Ministry of Rural Affairs and the Environment of Malta and the Austrian Environmental Protection Agency in 2008. This document consists of a theoretical basis and analysis of the potential of recycling CDW in Malta based on Austrian experiences and know-how. The extent of application of this short-term strategy had little impact in the management of CDW in Malta, since the short-term strategy was not accompanied with any solid policy or other regulatory or voluntary initiatives.

According to the WMP, until 2011 landfilling was the main waste management option for CDW in Malta, by disposing significant amounts of inert CDW in spent quarries. However, this activity theoretically is considered to be backfilling and not landfilling and thus it is suggested in the WMP that Malta had shifted from landfilling to backfilling operations, a fact which would imply an overall recovery rate of about 98%.

In the WMP it is also mentioned that although backfilling operations contribute to recovery of CDW, it would be worth exploring the possibility of shifting from recovery to CDW recycling and prevention. In this context, the following measures are considered for future development:

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

%20final%20document.pdf

¹⁶ http://environment.gov.mt/en/document%20repository/waste%20management%20plan%202014%20-%202020%20-

¹⁷ <u>https://environment.gov.mt/en/Documents/Downloads/09_recyclingdemolition.pdf</u>

Description	Level of occurrence (Yes/No) Key Scope/Exemptions	Year established and policy reference	Further detail, information source, related web-site
National/regional obligation for selective demolition?	NO Considered for implementation in the new Waste Management Plan for the Maltese Islands 2014 – 2020	Waste Management Plan for the Maltese Islands 2014 – 2020 Published in January 2014	<u>Link</u>
National/regional sorting obligation (on- site or in sorting facility)?	NO Considered for implementation in the new Waste Management Plan for the Maltese Islands 2014 – 2020	Waste Management Plan for the Maltese Islands 2014 – 2020 Published in January 2014	<u>Link</u>
National/regional separate collection obligation for different materials (iron and steel, plastic, glass, etc.)?	NO Considered for implementation in the new Waste Management Plan for the Maltese Islands 2014 – 2020	Waste Management Plan for the Maltese Islands 2014 – 2020 Published in January 2014	<u>Link</u>
Obligation for separate collection and management of hazardous waste from C&D operations? Please specify	YES – National	LN 184 of 2011 Environment and Development Planning Act (Cap. 504) - The Waste Regulations, 2011.	<u>Link</u>
Related Green public procurement requirements	NO Considered for implementation in the new Waste Management Plan for the Maltese Islands 2014 – 2020	Waste Management Plan for the Maltese Islands 2014 – 2020 Published in January 2014	<u>Link</u>

3.3. Legal framework for sustainable management of CDW

3.4. Targets

The only quantitative target for CDW in Malta is the target set in the Waste Framework Directive and transposed in national legislation by The Waste Regulations (L.N. 184 of 2011). In the Waste Management Plan of the Maltese Islands there is also a qualitative target concerning CDW prevention, re-use and recycling and promoting resource efficiency: '[...] minimise C&D waste through re-use activities and to promote the recycling and recovery thus minimising the impacts on raw materials.'

There is no target concerning specific materials in the CDW stream in Malta.

Malta uses the calculation method laid down in Annex III of Commission Decision 2011/753/EU and follows the specifications laid down in Article 11.

Waste Codes included in the calculation method are: 17 01 01, 17 01 02, 17 01 03, 17 01 07, 17 02 01, 17 02 02, 17 02 03, 17 03 02, 17 04 01, 17 04 02, 17 04 03, 17 04 04, 17 04 05, 17 04 06, 17 04 07, 17 04 11, 17 05 08, 17 06 04, 17 08 02, 17 09 04.

Backfilling is used extensively as a treatment option in Malta for inert waste, including CDW. Backfilling within the definition laid down in Article 1(6) of Commission Decision 2011/753/EU is classified as *'recovery'* in Malta.

4. Non legislative instruments

In this section, any other instruments that may specify how the country is addressing the question of CDW management maybe highlighted as these instruments might be creating conditions for a sustainable management of CDW.

Description	Level of occurrence (Yes/No) Key Scope/Exemptions	Year establishe d and policy reference	Further detail, information source, related web-site
Sustainability standards that cover CDW (e.g. BREEAM)	Not established, however BREEAM certification in one building in Malta.	First building certified in 2013	http://www.greenbooklive.com/search/buildingmapgoogle.jsp
Extended producer responsibility scheme in operation?	NO		

Description	Occurrence (Yes/No) Mandatory (Yes/No) Scope & exemptions	Year established	National or regional (specify if regional)	Details of Public sector and Industry enforcement/ involvement/ collaboration	Levels of performance e.g. tonnes recycled,% coverage	Further information/ web-site
Requirement for pre-demolition audits	YES Not mandatory	2010	National	Malta Environment and Planning Authority (MEPA)	n.a.	https://www.mepa.org.mt/LpDocumentDetails?syskey=%201260 Demolition activities are subject to permits issued by the Malta Environment and Planning Authority (MEPA). During the application process for demolition, MEPA assesses and requests and additional information on the demolition activity prior to approval.
Standards for recycled CDW	NO				n.a.	Although there are no specific national standards for recycled CDW, any recycled CDW to be placed on the market would have to cease to be a waste in accordance with regulation 6 of the Waste Regulations (S.L. 504.37). This procedure ensures that recycled CDW complies with construction products standards in accordance to the Construction Products Regulations (L.N. 462 of 2011).
Selective demolition/ plan for large demolition sites/demolition standard	YES Project Description Statement, Construction Management Plan, Waste Management Plan.	2011	National	Malta Environment and Planning Authority (MEPA)	n.a.	Are these obligations enforced in practice? YES

Description	Occurrence (Yes/No) Mandatory (Yes/No) Scope & exemptions	Year established	National or regional (specify if regional)	Details of Public sector and Industry enforcement/ involvement/ collaboration	Levels of performance e.g. tonnes recycled,% coverage	Further information/ web-site
Other CDW planning requirements	YES Planning Development Permits	2010	National	Malta Environment and Planning Authority (MEPA)	n.a.	http://www.mepa.org.mt/development-applications

Other Macro-level initiatives

Description of guidance/ tool	Scope	Year established/ produced	National or regional (specify if regional)	Public sector and/or Industry lead organisation	Levels of use (high/ medium/low) or specify	Further information/ web-site
Waste Management Plan for the Maltese Islands 2014 – 2020	Waste Management Policy	Published in January 2014	National	Ministry for Sustainable Development the Environment and Climate Change (MSDEC)	n.a.	<u>Link</u>

Hazardous CDW is stored and exported overseas since Malta does not have any hazardous landfills or hazardous treatment facilities. The local transport of hazardous CDW from the site of generation to the storage facility would have to be covered by a consignment permit and accompanied by a consignment note during the transfer¹⁸. Exports of hazardous waste are then carried out according to Regulation 1013/2006.

Data concerning the generation of hazardous waste from construction and demolition activities in Malta is presented in Table 1. Due to lack of appropriate facilities for hazardous waste handling, hazardous CDW is exported for landfilling or recovery. The main hazardous waste type from construction and demolition is asbestos-containing waste (waste codes 17 06 01* and 17 06 05*). There are no other specific hazardous waste materials reported in Malta, except a very small quantity of mixed hazardous CDW. Due to the dangerous nature of this group of waste, all hazardous CDW is reported and appropriately managed according to Maltese regulations. In the opposite case, CDW would not be treated properly in Malta and therefore might result in severe risk of harm to human health and the environment.

5. CDW management performance – CDW data

In Malta, data on CDW originates from waste treatment facilities which records the waste inputs and outputs by List of Waste (LoW) codes. These facilities are obliged to provide their data to the Malta Environment and Planning Authority (MEPA) on an annual basis. Through this approach, there is a possibility that a fraction of CDW is not accounted for. Waste illegally disposed, bypassing the designated treatment facilities and disposed uncontrolled to the environment, or disposed in private facilities without holding appropriate permits and therefore not obliged to report to MEPA, is not reported in the official statistics of Malta and goes unnoticed.

As a result, data on CDW in Malta represents the amounts of waste treated (or stored for/and exported for further treatment) and not the total amount of waste generated. According to data from official sources (MEPA, NSO), it seems that the reports include only the total treated CDW in Malta and do not estimate the total amount of CDW generated. The latter step might not be necessary if the assumption that 100% of CDW generated in Malta is also treated and/or disposed through legal and documented sites across the Islands is true. However, this is an issue of environmental law enforcement.

Moreover, it is not possible to distinguish between waste coming from construction, demolition or renovation activities, since the data are reported at the input of the treatment facilities and most of the times (if not all) the specific source of the waste is not stated, other than the fact that it is CDW. It is also difficult to distinguish between household CDW and CDW from economic activities of buildings construction, demolition, or other civil engineering and public works. However, the share of household CDW can be approximated by the amount of CDW received at the five designated Civic Amenity Sites throughout the Maltese Islands. The role of Civic Amenity Sites is to enable the general public to dispose safely a big variety of waste, including recyclables, garden waste and waste arising from renovation activities in households and small businesses.

Data deriving from waste treatment facilities cover the whole economy of Malta, including households, and is not limited to the construction sector (NACE Rev.2 code F).

Data on CDW treatment is collected on a yearly basis with the same format and methodology. The data is validated by MEPA and forwarded to the National Statistics Office (NSO) of Malta. According to NSO, the methodology used for gathering data on CDW follows Eurostat guidelines as explained in the manual on waste statistics.

5.1. CDW generation data

Data on CDW generation is presented in Table 1. Data for soils and naturally occurring materials from excavation activities (codes 17 05 04 and 17 05 06) are not included in CDW statistics, according to the methodology followed by the National Statistics Office of Malta (NSO).

¹⁸ Communication with MEPA – Malta Environment and Planning Authority

Table 1: CDW generation in Malta¹⁹

CDW generation (tonnes)	2006	2007	2008	2009	2010	2011	2012
Non-hazardous CDW (excl. soils)	2 163 096	2 197 480	1 373 190	445 053	752 691	655 487	528 564
Hazardous CDW (excl. soils)	440	212	28	100	321	190	758

There is a continuously decreasing trend in CDW generation since 2006, with a significant low in 2009 when the economic crisis hit substantially the construction sector in Malta. Since 2009, the generation of CDW increased a little, but it was considerably lower than the previous years, 2006 – 2009. The amount of CDW generated seems quite high, especially when taking into account the generation of CDW per capita, but it should be noted that significant construction in the Maltese island takes place for tourism purposes and not necessarily to cover the needs of housing in the islands.

There is only one authority responsible for collecting and consolidating data on CDW in Malta – the Malta Environment and Planning Authority (MEPA). WasteServ Malta Ltd. and other private CDW treatment facilities are obliged to report annually to MEPA about the amounts of CDW treated. MEPA is collecting, registering and validating the data before sending it to the National Statistical Office for quality assurance and public dissemination. Therefore, there is no possibility to cross-check the officially reported data with other possibly available data in Malta, at treatment facility level.

The quantity of CDW generated in 2012, presented in Table 1, is quite similar to the data in the Eurostat database. There is only a little deviation in the numbers, which can be attributed to the updating of the figures by the national authorities in 2015 which are not reflected in the Eurostat data. However, no great discrepancy is detected between the two datasets, since the source of data in both is the same Maltese national authority, MEPA.

CDW from renovation activities of households, deposited by private persons in the 5 Civic Amenity Sites in Malta is presented in Table 2. These amounts represent only a small share of the total CDW generation in Malta and are directly related to households.

Year	2011	2012	2013	2014
CDW generation from households (tonnes)	9 100	7 316	10 079	10 162

Table 2: CDW deposited in Civic Amenity Sites²⁰

The collection of CDW in Civic Amenity Sites is performed by WasteServ Malta Ltd. and it is free of charge for the citizens. WasteServ is the main waste management operator in the Maltese islands. The company mainly focuses on waste originating from households although it manages also some industrial waste. WasteServ redirects CDW deposited in Civic Amenity Sites to private quarries for backfilling.

5.2. CDW treatment data

Data on the treatment of CDW is presented in Table 3. Data for soils and naturally occurring materials from excavation activities (codes 17 05 04 and 17 05 06) are not included in CDW statistics, according to the methodology followed by the National Statistics Office of Malta.

¹⁹ Communication with NSO – National Statistics Office of Malta (data source: WasteServ Ltd. and MEPA)

²⁰ Communication with WasteServ Ltd.

Table 3: CDW treatment in Malta²¹

CDW generation (tonnes)	2006	2007	2008	2009	2010	2011	2012
Total treatment	2 163 096	2 197 480	1 373 190	445 053	752 691	655 487	528 564
Landfilling (D1, D5, D12)	2 061 340	1 947 273	1 190 991	378 492	636 638	394 034	1 536
Recovery (R2-R11)	101 756	277 230	182 225	68 613	125 437	148 404	139 181
Backfilling	0	0	0	0	534	3 611	393 462

Having a closer look at the figures of total treatment of CDW in Table 3, it becomes obvious that the amounts of CDW treated per year are higher than the amounts of CDW generated (except for 2011 which is lower) in Table 1. This is an issue that needs further investigation and more precise clarifications by the National Statistics Office (NSO) of Malta. The explanation provided by the NSO is that the additional amounts reported each year is the result of shifting in the reporting of treated CDW quantities to the next year than the year of actual treatment. It seems to be a methodological issue rather than an issue of misreporting. The data that MEPA collects from quarries where inert waste is managed is structured in two basic sections: waste inputs and outputs (backfilling/recycling). In any given year inputs do not equal outputs due to stockpiling of material. So for all years, except for 2011, the amount of CDW recycling and backfilling exceeded the inputs into facilities precisely because material which is held in stock by these facilities was used. In 2011 the reverse occurred, inputs exceeded the amount of material which was backfilled/recycled and the difference ended up being held in stock²¹.

Malta had been reporting the amounts of CDW backfilled as Disposal (D codes) to Eurostat in the past and as a result it is presented in the Eurostat waste database that Malta has very low recovery rates of CDW. The National Statistics Office shall revise the 2012 Waste Statistics Regulation data which will send to Eurostat in 2016.

Backfilling of CDW is used extensively in Malta as a management practice. Revision of Maltese data in the past year allowed to reflect the actual situation of CDW management in statistics. Nevertheless, it is not clear if the backfilling in spent quarries is indeed serving as filling material for rehabilitation purposes (and thus classify as recovery) or backfilling is used as a disposal method. In the former case, Malta will have to provide appropriate justification to the European Commission. Provided that backfilling is justified as recovery, then Malta has already achieved the target of the Waste Framework Directive (2008/98/EC).

The WMP of Malta states that waste materials generated by the construction industry such as metal and glass waste are exported abroad for recycling.

Disposal at sea is referred in the WMP as a significant management option for dredged material excavated during cleaning operation of ports and clean geological material excavated during major construction activities.

CDW treated on site is not taken into account in Maltese CDW statistics, since the source of reporting and data gathering is the treatment facilities on the Islands.

5.3. CDW exports/imports data

Latest available data for CDW exports was provided by MEPA²² and refer to year 2012. The amount of CDW exported was 26 891 tonnes, either for recovery or disposal. Exported CDW consists mainly of recyclable materials in CDW, e.g. metals, plastic, glass, for which no recycling options are available in the country.

²¹ Communication with NSO – National Statistics Office of Malta (data source: WasteServ Ltd. and MEPA)

²² Communication with MEPA – Malta Environment and Planning Authority

5.4. CDW treatment facilities data

There are no inert landfills in Malta since inert CDW is used for the rehabilitation of exhausted quarries through backfilling operations²². It is not planned to have inert landfills for inert CDW in the period covered by the national Waste Management Plan, 2014 - 2020. However, there is one landfill for non-hazardous waste in operation that might accept a certain amount of CDW, but this practice is very limited since the landfilling capacity is reserved for other waste streams for which no or little other treatment options are developed so far.

CDW is generally treated in quarries where it is used for the restoration of excavation voids or recycled by means of crushing and reutilised as aggregates. Current capacity is in excess of demand for the disposal / treatment of such waste. As at 2015, there are 20 quarries which are permitted to treat CDW waste for backfilling and/or recycling. There are also 7 pending applications for such operations. Furthermore, there are 13 waste management facilities which are permitted to accept waste classified under chapter 17 of the European List of Wastes, for storage, processing and export²².

There are no recycling facilities available for non-mineral CDW, e.g. plastic, etc. and the amount of separately collected non-mineral CDW is exported for recycling.

5.5. Future projections of CDW generation and treatment

There are no future projections available concerning the generation and treatment of CDW in Malta. In the current WMP, Malta has recognised the need to incorporate projections of CDW generation in its planning in order to address future developments and plan the required waste management options. However, no such projections have been produced until now.

Additionally, it is considered by MEPA²² that since the generation of this waste stream is highly dependent on the construction industry, it is difficult to project future developments.

Concerning projections about the future development of treatment capacities of CDW (recycling, recovery, landfilling, etc.), the following measures are envisaged in the new Waste Management Plan:

- Review of existing permits for spent quarries, to enable backfilling operations in accordance with L.N. 184 of 2011, The Waste Regulations and L.N. 22 of 2009 The Waste Management (Management of Waste from Extractive Industries and Backfilling) Regulations, 2009.
- Include measures to separate C&D waste at the site of generation.
- Allocation of storage areas for re-usable C&D material dismantled during demolition works.

5.6. Methodology for CDW statistics

The methodology used for gathering data on CDW follows Eurostat guidelines as explained in the manual on waste statistics²³.

There has not been any change in CDW statistics and data gathering methodology, however there is a change in the way of reporting, but no exhaustive details have been made available. The changes refer to the revised reporting of CDW backfilled. Until recently, CDW backfilled in Malta was reported as landfilling. Following the detailed Eurostat guidance on backfilling²⁴, the National Statistics Office of Malta revised the figures of CDW treatment and the amounts previously reported as landfilled was then reported as *'backfilling'*. Revised data on CDW treatment, taking into account the changes in reporting recovery operations, will be sent to Eurostat by the NSO in 2016 for the reporting year 2014.

²³ Eurostat, 2013, Manual on waste statistics: <u>http://ec.europa.eu/eurostat/web/waste/methodology</u>

²⁴ http://ec.europa.eu/eurostat/documents/342366/4953052/Guidance-on-Backfilling.pdf/c18d330c-97f2-4f8c-badd-ba446491b47e

6. C&D waste management in practice

In this section the CDW management "on ground" in Malta is presented.

6.1. CDW management initiatives

The initiatives listed below were identified through literature review and stakeholders interviews.

Description of initiative	Scope	Year establi shed	National, regional, local (specify which local area/region	Public sector and/or Industry lead organisation	Levels of performan ce e.g. tonnes recycled	Further information/ web-site
Economic incentives in the form of lower tax rates for first time buyers purchasing old property, so as to promote the restoration and rehabilitation of such properties instead of demolition	Rehabilitation of buildings instead of new construction	2014	National	Government of Malta	n.a.	Communication with MEPA
Incentives for the rehabilitation of village cores and protected buildings	Rehabilitation of buildings instead of new construction	2012	National	Government of Malta	n.a.	Communication with MEPA
Ban on landfilling of clean inert CDW	Diversion of clean inert CDW to quarries for backfilling	2003	National	WasteServ Ltd.	Around 2 million tonnes per year diverted to backfilling	https://www.wast eservmalta.com/ constructionwast e

6.2. Stakeholders' engagement

This subsection is addressed to all contacted parties during the stakeholder consultation of the screening phase in order to incorporate their views, insights and hands-on experience on CDW management initiatives already in place in Malta. In the table below, there is a brief presentation of the stakeholders' opinion on a few initiatives presented in the previous sections of this factsheet.

Description of initiative	Scope, year established, actors involved	Advantages/ Enabling factors	Disadvantages/ Obstacles	Further information/ web-site
Economic incentives for rehabilitation of old properties	2014 Government of Malta, MEPA	Increased potential for CDW prevention by avoiding demolition of old buildings.	It might get too costly to maintain for long periods of time.	Communication with MEPA

6.3. Waste legislation enforcement

Waste regulation implementation and waste operations' permits are monitored by the Malta Environment and Planning Authority (MEPA). All waste management operators, including services such as collection, transport, treatment, disposal, import/export and storage of waste, are required by law (L.N. 337 of 2001)²⁵ to obtain appropriate permits for their operations. Failure to comply with permitting obligations, results to an enforcement notice calling the non-complying waste management service provider to proceed to corrective actions within 16-30 days. After this time period, the responsible authority charges the offender with economic penalties and additionally bills the expenses of the enforcement procedure to the offending party.

Enforcement officers of MEPA also monitor the illegal dumping of CDW in unauthorised dumping grounds, charging the offenders with fines and the cost of the clean-up of the amount of CDW illegally dumped. MEPA is well equipped with adequate number of enforcement officers to control the whole area of the Maltese Islands, however not all offences have been dealt with success. Illegal dumping in remote countryside areas is reportedly difficult to control.

CDW management in Malta is in line with the waste hierarchy, as laid down in the WFD (2008/98/EC), since the prominent management option is recovery (backfilling), with over 70% of CDW being backfilled in spent quarries. However, backfilling is considered as a low option of recovery and therefore more effort is needed to increase recycling and ascend the waste hierarchy in the management of CDW in Malta. There is very little recycling while measures for CDW prevention have not been taken yet, but certain measures are planned to take effect according to the WMP of Malta.

There are no infringement cases in EU courts regarding CDW management for Malta.

Factor / characteristic / element in CDW recycling chain	Drivers	Barriers
Legislative Framework	Transposition of the target defined in the WFD for recovery of CDW (article 11)	 Existence of general legislative framework not specific to CDW management Lack of implementation of existing legal framework, concerning specifically the management of CDW
Inspection procedures and CDW legislation enforcement		 Cases of illegal dumping of CDW not uncommon Inspections not always sufficient
Treatment facilities territorial network	 Adequate network of facilities for receiving CDW (for recovery/backfilling), consisting mainly of spent or operating quarries belonging to private entities. 	 No treatment capacity for other materials in CDW than mineral waste. Existence of illegal sites of uncontrolled disposal of CDW (CDW dumps) hampers the potential of the development of sufficient networks of treatment facilities for increasing recovery and recycling of CDW.

6.4. Drivers / barriers to increase CDW recycling

²⁵ http://www.mepa.org.mt/LpDocumentDetails?syskey=385

Key stakeholders involvement		 Lack of clearly defined roles concerning the management of CDW Construction sector and other private entities try to avoid the costs of CDW management. Lack of coordination and synergies between stakeholders Lack of pro-active initiatives of stakeholders
Data reporting		 Data reporting at treatment site level – there is a chance that CDW amounts go unreported if managed illegally (e.g. disposed on land or sea) CDW generation and treatment data do not always correspond evenly, leading to higher/lower amounts of CDW being reported as treated than that generated in a given year.
Market conditions	 Economic incentives (lower tax) for restoration of old buildings instead of demolition 	 There is no market for recycled CDW. No financial incentives. Raw natural materials are still cheaper and easier to access than recycled. Lack of tax to natural resources that could render recycled CDW cheaper compared to natural products The relatively low price of stone block, relatively high labour costs as well as the importance of time to the market on the feasibility of the project have all resulted in an attempt to effect construction in the shortest time possible. This same reality continues to prevail, coupled by an increasing vacant dwelling stock
Construction works contracts	• Obligation prior to construction permitting for setting up a Waste Management Plan concerning the construction project, by the contractor.	 No GPP or provisions for recycled content in new construction in public tendering procedures
Recycling process		 No standards for recycled CDW available. No technical specifications for selective demolition. No EoW criteria for inert CDW; Significant slowdown in the construction sector for the last years, resulting to low quantities of materials for recycling

7. CDW sector characterisation

In this section some specific characteristics of the CDW management sector in Malta are presented.

7.1. Sector characteristics

Both the Government and the Private sector are involved in the management of CDW in Malta. The Government is involved by ensuring that legislation is being adhered to, while the private sector will cater for collection, backfilling, demolition, transport etc.

There is no specific legislation articulating clearly the roles of the actors involved in the management of CDW in Malta, however, market forces are led by the private sector such as quarry owners, contractors etc. The roles of the latter are not found in any legislation. Nevertheless, there are definitions and obligations that emanate from national legislation for collection, sorting, transport, treatment and final disposal of CDW.

The actors involved in the management of CDW have adequate capacity to lead to increased recovery of CDW, mainly through backfilling of CDW. The performance of CDW recovery is high and Malta has already reached the target of the WFD. However, the quality of recycling is considered low and the products have no

widespread use, except for use as backfilling material. A significant amount of recycled CDW is used for screed and concrete production.

The network of treatment facilities is enough to treat the amount of mineral CDW generated in Malta, especially under the light of reduced CDW generation amounts resulting from the significant slowdown of the construction activities in the few past years. However deficiencies are observed in the recycling capacities of other materials in CDW such as metals, plastics, etc. For the latter case, Malta is totally dependent on exports as recycling facilities do not exist in Malta.

For setting up new CDW collection, treatment and/or recycling facilities in Malta an application for an environmental (EP) permit is required. Throughout the scrutiny of the latter, further studies might be required in order for a facility to commence its operations. All applications will be assessed according to both local and international enforced legislation. Since CDW generated is being recycled or reused for backfilling purposes in exhausted quarries, Malta currently faces no challenges of exportation for such material. As for other CDW streams such as glass, metal, plastic, etc. the quantities generated are not considered to be economically feasible to set up a recycling operation locally.

Due to Malta's size and due to the fact that almost of CDW generated is used for backfilling purposes, the situation is not considered threatening and therefore no other options are being explored at the moment²⁶. However, in the near future, binding conditions in the development permits may be introduced so that re-usable CDW is reused in new developments. The latter will lead to further extension of the lifetime of backfilling voids.

No data concerning the employment in the CDW activities was found during the course of this study.

7.2. Exports / imports of CDW

Current exhausted quarries are catering for inert CDW, however recyclable materials from CDW are not recycled locally due to the absence of a local recycling facilities and are exported for recycling. The distances of CDW exports are mainly market driven and are not directly linked with locality. Treatment capacities in neighbouring MS is not known by the Maltese authorities, since current local practices have not led to the need for that.

There are no recycling facilities in Malta for plastic, glass and metal wastes. With very limited industrial production, Malta is not in position to recycle most of its waste and divert it back to the economy, and therefore seeks recycling markets abroad to forward the recyclable materials separately collected from all waste streams. There is little separate collection of metals from CDW, or extraction of metals from mixed CDW though pre-treatment, which are sent to recycling. A small fraction of mineral waste however, is actually recycled in Malta. The mineral fraction of CDW is utilised locally for screed and concrete production.

Exports of plastics, metals, glass and other materials from CDW (except the mineral fraction) reflect the lack of recycling facilities in Malta for such waste.

7.3. CDW as landfill cover

The use of CDW for landfill cover is not practiced in Malta. CDW is not used in landfills and diverted to empty quarries for disposal. However, some extracted material (from landfill operations) is used as landfill cover. CDW is alternatively stored for future disposal or recycling of certain materials, and also disposed at sea at a designated spoil ground specified in legislation (L.N. 128 of 1997). The latter option refers mostly to waste made up of clean excavation material originating from large construction projects and/or dredging spoils from port areas. It is uncommon for CDW to be disposed at sea and in almost all cases it is treated in quarry sites.

7.4. Market conditions / costs and benefits

There are no significant financial incentives for CDW recycling. No market is developed for recycled CDW and as a result, it is often difficult to redirect the recovered quantities of CDW back to the economy.

²⁶ Communication with MEPA – Malta Environment and Planning Authority

The waste management sector is seen as an emerging market which can offer opportunities for the private sector to operate in so long as market conditions permit it. The construction sector is increasingly recognising that Maltese stone is a limited resource and that, where possible, all efforts should be undertaken to avoid the generation of construction and demolition waste in favour of a more resource friendly extraction of the stone. The Maltese stone is considered a high quality material that contributes to the specific identity of Maltese architecture. Therefore, efforts will be made to re-use as much of this material as possible 27 .

Although it is considered uneconomical at the moment to recycle CDW in Malta, there is a possibility that resource scarcity issues might become more prominent in the future and ultimately the recycling of CDW would become more favourable. Malta is an island country with limited resources and potential lack of certain materials would require shipments from overseas. Local re-use and recovery of CDW is considered as the most beneficial option across all aspect of sustainability.

7.5. Recycled materials from CDW

Malta does not have a recycling sector for non-mineral CDW materials. Specific materials that can be salvaged from construction sites and can be economically used for recycling, are exported for recycling.

There is a recycling sector for mineral CDW in Malta. In general this waste is crushed and used as screed or for concrete production. Recycled amounts of mineral CDW are presented in Table 4.

Table 4: Recycled mineral CDW²⁸

	2006	2007	2008	2009	2010	2011	2012
Recycled mineral CDW (tonnes)	101 756	277 230	176 159	66 583	119 412	136 329	113 082

Apart from recycling, Malta has also reuse practices which are enforced via the development planning permissions. Conditions relating to the reuse of old and/or weathered stone for the maintenance of old buildings and also for the construction of facades in Urban Conservation Areas (UCA's) are included in development permits issued by the Malta Environment and Planning Authority²⁹.

7.6. Construction sector make up

The construction sector make up in Malta for 2012 is presented in the table below.

Table 5: Construction sector make up in Malta³⁰

Sector	Production value (million EUR)	Number of enterprises	Number of persons employed	
Construction of buildings	389.5	1 218	3 781	
Specialised construction activities (incl. demolition)	133.8	2 524	5 499	
Other civil engineering (e.g. roads, etc.)	278.4	93	937	
Construction sector TOTAL	801.6	3 835	10 217	

²⁷ http://environment.gov.mt/en/document%20repository/waste%20management%20plan%202014%20-%202020%20-%20final%20document.pdf 28 Communication with NSO – National Statistics Office of Malta

²⁹ Consultation with the Ministry for Sustainable Development, the Environment and Climate Change of Malta

³⁰ Eurostat, Annual detailed enterprise statistics for construction (NACE Rev. 2, F) (sbs_na_con_r2)

Malta is not producing any construction materials, apart from stone and gravel for construction purposes, and is largely dependent on imports to cover the demand of the local construction sector. In the following table, the value and quantities of few indicative construction products is presented, according to Eurostat data (PRODCOM database). The reference period is January-December 2012.

Building material	Value of imports (EUR)	Quantity of imports (t)	
Bricks and tiles	2 421 640	2 184	
Cement	15 765 500	264 080	
Lime	94 170	407	
Plastics (pipes, fittings, windows, door, floorings)	4 768 360	1 396	
Plasters (gypsum, etc.)	1 642 350	12 236	
Natural stones (various shapes and sizes)	231 380	3 181	
Asphalt and bitumen	4 649 090	4 250	

Table 6: Imports of construction materials in Malta³¹

The construction sector in Malta has experienced a strong setback in the recent years following the economic crisis. Moreover, the sector had been disproportionately augmented the years prior to the global economic downturn and as a result about 1/3 of all housing properties in Malta stand vacant. According to the latest Census of Population and Housing in 2011 Malta³² has a total dwelling stock of 223,850 units. Of these 152,770 (68.2%) were occupied, 29,848 (13.3%) were classified under seasonal or secondary use, and 41,232 (18.4%) were completely vacant.

The development of the sector seems to stall for the imminent future. The development of construction permits for residential units in Malta is presented in Table 7.

Table 7: Unadjusted index for residential units for which permits have been granted, excluding residences for communities (2005=100). Values presented at the second quarter of each year.

	2008	2009	2010	2011	2012	2013
Residential buildings	66.9	66.9	64.5	53.3	29.2	29.1
One-dwelling residential buildings	37.6	37.4	52.9	54.0	35.3	48.8
- Maisonettes	29.9	31.0	42.3	47.3	21.6	35.5
- Terraced houses	38.6	55.1	70.5	61.7	58.4	71.6
- Others	102.5	39.7	92.6	89.3	86.0	95.9
Two and more dwelling residential buildings	72.9	73.0	66.9	53.2	27.9	25.1

In addition, there is an extensive network of roads and other civil engineering structures supporting an extended housing area in Malta covering vacant properties. This network would require maintenance works and additional construction/refurbishment CDW might occur.

³¹ Eurostat, Sold production, exports and imports by PRODCOM list (NACE Rev. 2) - annual data (DS_066341)

³² <u>http://census2011.gov.mt/downloads/Census%202011_Final%20Report.pdf/view</u>

References

Interview sources:

- E-mail communication with Mrs Nadine Mercieca, Senior Environment Protection Officer, EU Affairs Team at Environment Protection Directorate – MEPA, on behalf of Malta Environment and Planning Authority (MEPA) and Ministry for Sustainable Development, the Environment and Climate Change (MSDEC) of Malta, April-May 2015
- E-mail communication with Mr Ronald Tanti, Manager at Unit B3: Agriculture and Environment Statistics, National Statistics Office (NSO) of Malta, April-May 2015
- E-mail communication with Mr Clyde Falzon, Operations Officer, WasteServ Malta Ltd., April 2015

Other consulted stakeholders

The following stakeholders have been contacted but did not participate:

- Malta Developers Association (MDA), the Real Estate Developers association of Malta, <u>http://mda.com.mt/</u>
- The Malta Chamber of Commerce, Enterprise and Industry, http://www.maltachamber.org.mt/

Literature sources:

- Car M., Gretzmacher G., Willing E., Zerz H-J. (2008), Recycling of Construction and Demolition Waste in Malta – Strategy for short term implementation, Twinning Project MT05-IB-EN-01, available at: <u>https://environment.gov.mt/en/Documents/Downloads/09_recyclingdemolition.pdf</u>
- Eurostat (2015), Sold production, exports and imports by PRODCOM list (NACE Rev. 2) annual data (DS_066341), available at: <u>http://ec.europa.eu/eurostat/web/prodcom/data/database</u>
- Eurostat (2015), Structural Business Statistics: Annual detailed enterprise statistics for construction (NACE Rev. 2, F) (sbs_na_con_r2), available at: <u>http://ec.europa.eu/eurostat/web/structuralbusiness-statistics/data/database</u>
- Eurostat (2015), Waste database, available at: <u>http://ec.europa.eu/eurostat/web/environment/waste/database</u>
- Malta Environment and Planning Authority (MEPA), Legislation, Policy and Guidance In Force, available at: <u>https://www.mepa.org.mt/LPLegislationPolicyDocs?topic=5&doctype=Please%20choose%20Type...</u> <u>%20&doctypeid=0&docname=none</u>
- Ministry for Sustainable Development, the Environment and Climate Change (2014), Waste Management Plan for the Maltese Islands 2014-2020, available at: <u>http://environment.gov.mt/en/document%20repository/waste%20management%20plan%202014%2</u> <u>0-%202020%20-%20final%20document.pdf</u>
- National Statistics Office (2014), Census of Population and Housing 2011: Final Report, available at: <u>http://census2011.gov.mt/downloads/Census%202011_Final%20Report.pdf/view</u>

Online sources:

- <u>http://faa.org.mt/the-construction-industry-in-malta/</u>
- <u>http://www.maltatoday.com.mt/news/national/6461/10-years-left-to-sort-out-malta-s-construction-waste-mess#.VWxtyo0w-71</u>
- <u>http://www.timesofmalta.com/articles/view/20111231/opinion/lt-s-time-to-halt-the-process.400452</u>
- <u>https://www.wasteservmalta.com/constructionwaste</u>

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