18. MALTA

18.1 Legal Framework – Waste Management Plans and Strategies

18.1.1 National Legislation concerning CDW

The Waste Regulations (L.N. 184 of 2011) [210], which implement the EU Waste Framework Directive (2008/98/EC) [211] in Maltese Law is still in effect. Everything included in this directive is valid for Malta and provides the legal foundation for CDW management.

Further applicable laws include:

- Legal Notice 168 of 2002 focusing on Waste Management (Landfill) Regulations
- Legal Notice 382 of 2009 focusing on Deposit of Waste and Rubble (Fees) (Amendment) Regulations
- Legal Notice 344 of 2005 focusing on Abandonment, Dumping and Disposal of Waste in Streets, and Public Places or Areas Regulations
- Legal Notice 295 of 2007 focusing on Environmental Management Construction Site Regulations
- Approved Supplementary Planning Guidance concerning inert waste disposal in quarries.

18.1.2 Waste management plans (WMP) and Strategies

The Waste Management Plan (WMP) is still in place for the Maltese Islands (2014-2020), which takes a resource management approach. There is a separate section for CDW which analyses the current situation and sets future targets. A Waste Prevention Plan (WPP) was also created, with an extensive section concerning the prevention of CDW.

A strategic document specifically targeting CDW released by the Maltese government is 'Recycling of Construction and Demolition Waste in Malta – Strategy for short-term implementation' [212], consisting of the theoretical basis and analysis of the potential of recycling CDW in Malta.

18.1.3 Legal framework for sustainable management of CDW

At the moment, there are few legal frameworks concerning the sustainable management of CDW. There is, however, an obligation for the separate collection and management of hazardous waste from C&D operations outlined in LN 184 of 2011. This is a national obligation.

18.1.4 Targets

The WMP aims to:

- Minimise CDW through reuse activities and to promote the recycling and recovery thus minimising the impacts on raw materials.
- Recover 70% of CDW by 2020

In the WMP suggested that the possibility of shifting from recovery to recycling and prevention should be assessed.

18.1.5 End of Waste (EoW) status

The Council Regulation (EU) No 333/2011 on EoW of scrap metal and Commission Regulation (EU) No 715/2013 on EoW of copper scrap are relevant to Malta. These regulations are relevant for CDW, though they do not refer specifically to CDW materials.

Currently, no EoW criteria has been created for Malta. The decision would have to be made case by case as designated by regulation 6 of S.L. 504.37, Waste Regulations 2011.

18.2 Non legislative instruments (best practices, guidelines, recommendations…)

According to a news article [213], there are currently construction and tunnel project underway that would result in a sizable amount of CDW, which would 'increase the political pressure for land reclamation projects like the ones being proposed in Portomaso in St Julian's and Jerma in Marsascala'. It is possible that this kind of solution will be more popular in the coming years, having been suggested in 2006 during a similar construction boom as the one that is happening in Malta currently.

18.3 CDW management performance – CDW data

The last published information on CDW management was taken from2004-2011. The table can be seen below. Currently, CDW is considered the largest share of waste that is generated by the Maltese islands.

Table 59. CDW management over the period 2004 to 2011 [214]

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

Landfilling is still the preferred option of management, although a percentage of that which is landfilled in understood as backfilling (permitted as inert landfills). This percentage was then moved to 'recovered' in 2011. The intension is for 'backfilling spent quarries, together

with recycling recyclable CDW [to] aid Malta [in achieving] its 2020 target of recovering 70% inert [CDW] [214].

18.3.1 CDW generation data

There seems to be an increase in construction projects currently taking place in Malta, possibly resulting in an estimated 2 million cubic metres of construction waste from the Paceville mega-projects alone [216]. This means that there will be more discussion on CDW in the coming year, including a possible redirection of the waste to either recycling or dumping.

In a news release [215] by the National Statistics Office – Malta (NSO), new numbers were reported for all waste generation, including construction and demolition waste. These numbers can be found in the Table 60.

Table 60. CDW generation data

CDW generation (tons)	2010	2011	2012	2013	2014
Mineral waste from construction & demolition (NHAZ)	746.666	643.412	500.883	541.909	145.531
Mineral waste from construction & demolition (HAZ)	0	0	5	0	0

There has been a clear decrease in mineral waste from construction and demolition for non-hazardous waste. From the news release, it is unclear why exactly this decrease in generation is occurring, however the economic market and consequently the demand could have something to do with this.

Eurostat released information for the construction sector in Malta, as in Table 61.

Table 61. Generation of waste by waste category - EUROSTAT

Generation of waste by waste category - Construction	2008	2010	2012	2014
Total Waste	**1.698.659**	**988.070**	**1.044.089**	**1.241.079**
Chemical and medical wastes (subtotal)	0	0	:	0
Recyclable wastes (subtotal, W06+W07 except W077)	31.176	28.957	:	36.487
Equipment (subtotal, W077+W08A+W081+W0841)	0	0	:	0
Animal and vegetal wastes (subtotal, W091+W092+W093)	0	0	:	472
Mixed ordinary wastes (subtotal, W101+W102+W103)	0	0	:	2,721
Common sludges	0	0	15	28
Mineral and solidified	1.667.483	959.114	:	1.201.371

The total waste generated from construction has stayed largely the same, with a large portion coming from mineral and solidified waste.

18.3.2 CDW treatment data

The Table 62 shows the Eurostat data for the treatment of the mineral waste generated from construction and demolition activities. As seen from the previous table, mineral and solidified waste is the largest portion of waste derived from construction and demolition, therefore the treatment for this fraction is more readily available.

Table 62. Eurostat data for the treatment of the mineral waste generated from C&D activities

	2014	2012	2010
Total waste treatment	**1,068,245**	**507,563**	**491,912**
Deposit onto or into land	1,325	1,536	128,280
Land treatment and release into water bodies	0	0	0
Incineration / disposal (D10)	0	0	328
Incineration / energy recovery (R1)	0	0	4,747
Recovery other than energy recovery - backfilling	548,290	392,945	0
Recovery other than energy recovery – except backfilling	518,629	113,082	358,557

Currently, the majority of the mineral waste is being used for backfilling operation or recovery activities other than backfilling. The last category more likely refers to the export of CDW to other countries with better facilities to process them.

A certain percentage of the mineral waste from CDW is landfilled, although there is discussions in the news on the need for stricter checks in consideration of the amount of illegal landfilling that was and is occurring in Malta. The illegal landfilling criterion includes the ban on landfilling clean inert CDW within Malta [217]. However, it is still unclear why CDW is being sent to landfill instead of the other treatment options mentioned in Table 63.

Table 63. CDW treatment data

CDW landfilled (tonnes)	2010	2011	2012	2013	2014
Mineral waste from construction & demolition	2.139	922	1.536	860	1.325

18.3.3 CDW exports/imports data

According to the Deloitte report, the last available data for CDW was taken in 2012, showing 26.891 tonnes for CDW exported for recovery or disposal (this consisted mainly of recyclable materials for which there are no recycling options available in Malta) [220]. The majority of CDW generated in Malta is exported for recycling or other uses as Malta does not have a lot of the facilities needed to process the CDW.

18.3.4 CDW treatment facilities data

There are numbers on inert mineral waste, which refers to waste which is mainly made up of stones, concrete, bricks, tiles and ceramics from construction & demolition. It also includes clean geological material from excavation work which should be kept in mind, as shown in Table 64.

Table 64. Inert waste treatment

Waste category		Final treatment	2010	2011	2012	2013	2014
EWC-Stat code	Description						
10.2	Mixed and undifferentiated materials	Disposal at sea	353	0	0	0	0
12.1	Mineral waste from construction and demolition	Disposal in quarries	634,500	393,112	0	0	0
12.1	Mineral waste from construction and demolition	Recycling	119,412	136,329	113,082	83,892	20,158
12.1	Mineral waste from construction and demolition	Backfilling in quarries	0	0	392,945	173,800	97,782
12.2, 12.3, 12.5	Other mineral wastes	Disposal at sea	34,120	8,800	0	0	0
12.2, 12.3, 12.5	Other mineral wastes	Backfilling in quarries	0	0	0	622,732	73,789
12.2, 12.3, 12.5	Other mineral wastes	Recycling	0	0	0	282,466	397,327
12.7	Dredging spoils	Disposal at sea	256,000	140,320	1,037,680	663,940	433,017
Total			**1,044,385**	**678,561**	**1,543,707**	**1,826,831**	**1,022,074**

Notes:
1. Disposal at sea of mixed and undifferentiated materials refers to maize.
2. Dredging spoils data for 2013 was revised.
3. All waste categories included in this table are non-hazardous.

Source: MEPA

Disposal at sea of materials was completely stopped by 2012, although dredging spoils are still disposed at sea at a large scale. The final treatment of the mineral waste from CDW shifted from disposal in quarries to recycling and backfilling in quarries. There has been less generation of CDW which has caused the above numbers to fall as well, however there is a heavy lean towards backfilling in quarries. This could be due to two reasons: there is no mandatory recycling scheme in place in Malta and the financial incentive to recycling may not be attractive enough to cause a shift in treatment.

18.3.5 Future projections of CDW generation and treatment

Similar to what was stated in the EC document on Malta, there is currently no publication of future projections, thought there is a plan put in to place to start this in the current WMP (valid till 2020).

18.3.6 Methodology for CDW statistics

The methodology for the collection of the CDW statistics has been explained at the end of the news release. This also explains why certain waste values may not equal the total amount of waste reported.

18.4 C&D waste management in practice

18.4.1 CDW management initiatives

For the rehabilitation of buildings instead of new constructions, there were two initiatives reported by the Deloitte report:

- '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' (2014), and
- 'Incentives for the rehabilitation of village cores and protected buildings' (2012) [220].

There was also a ban on landfilling [217] of clean inert CDW initiated in 2003. By 2016, 2 million tonnes/year had been diverted to backfilling.

18.4.2 Drivers / barriers to increase CDW recycling

There have been cases of illegal dumping of CDW, which has been found not to be uncommon. A trial was just completed in Malta. The biggest barrier would still be the lack of implementation of the existing legal framework, though there seems to be a greater effort to combat the illegal dumping.

Similarly to many European countries, there is no established market for recycled CDW and as raw materials are still cheaper, there is no financial incentive.

There is a lack of treatment facilities in Malta, causing an increase in illegal dumping sites. However, there is an adequate network of facilities for receiving CDW intended for recovery or backfilling.

18.5 CDW sector characterization

18.5.1 CDW materials (CONCRETE, BRICKS, TILES AND CERAMIC, ASPHALT, WOOD, GYPSUM)

Both the government and the private sector are involved in the management of CDW in Malta. The market forces are led by the private sector; however there are definitions and obligations that emanate from national legislation for the collection, sorting, transport, treatment and final disposal of CDW [220].

The performance of CDW recovery is high and Malta has reached the target of the Waste Framework Directive, but the quality of recycling is considered low and the products are largely used as backfilling material. A large percentage is used for screed and concrete production.

There are no specific numbers for the different CDW materials at the moment from Malta. However, there are numbers from one of the main waste treatment plants on the final treatments of the total waste output, including many CDW materials. Table 65 gives an idea about the final treatment of several materials.

Table 65. Sant'Antnin Waste Treatment Plan (SAWTO) – total waste output

tonnes

Waste category		Final treatment	2010	2011	2012	2013	2014
EWC-Stat code	Description						
6.1	Metallic wastes, ferrous	Exports for recycling	0	1,324	1,162	1,319	994
6.2	Metallic wastes, non-ferrous	Exports for recycling	0	82	83	85	62
6.3	Metallic wastes, mixed	Exports for recycling	2,192	232	210	348	150
7.1	Glass wastes	Exports for recycling	333	0	1,308	2,846	3,155
7.2	Paper and cardboard wastes	Exports for recycling	7,376	8,357	6,043	6,193	6,557
7.2	Paper and cardboard wastes	Incineration	0	21	0	0	0
7.4	Plastic wastes	Exports for recycling	1,936	2,104	1,829	1,713	1,727
7.5	Wood wastes	Landfill	1	0	0	0	0
8 (excl. 8.1, 8.41)	Discarded equipment	Exports for recycling	0	0	0	18	18
9.2	Vegetal wastes	Landfill	2,456	0	0	0	0
10.2	Mixed and undifferentiated materials	Exports for recycling	324	0	0	0	0
10.3	Sorting residues*	Landfill	8,481	35,551	41,955	40,228	34,093
10.3	Sorting residues*	Anaerobic digestion plant	0	9,192	9,989	12,092	8,672
10.3	Sorting residues*	Exports for energy recovery	0	1,367	1,029	0	0
10.3	Sorting residues*	Exports for recycling	0	1,188	0	645	837
Total			**23,099**	**59,418**	**63,609**	**65,486**	**56,266**

* waste which is generated from waste treatment operations (secondary waste).
Note: All waste treated at Sant' Antnin Waste Treatment Plant is non-hazardous.
Source: WasteServ Malta Ltd.

The majority of the waste in terms of materials (metals, paper and cardboard, plastics, etc.) is exported for recycling.

The news release includes numbers from private pre-treatment facilities and other facilities as well. Please check the [215] for more data.

There is some specific information on limestone from Malta - Guidance on the excavation of limestone with a view to reduce construction and demolition waste is planned, as are discussions between all relevant stakeholders during the revision of local plans to limit unnecessary waste. There is an emphasis on promoting the value of limestone resources at the excavation stage and on harnessing the potential of technology to make the process more resource efficient. For more information, see [218].

Product description and applications

The mineral CDW recycling sector does exist in Malta, with the waste being crushed and generally used as screed or for concrete production.

Other CDW is used for backfilling and Maltese stone is being reused as it is considered a high-quality material and cultural significance.

Quantitative analysis

As mentioned later, there is currently only a market for recycled minerals CDW in Malta. This is shown by the Table 66, showing that there tons being recycled is largely consistant.

Table 66. Recycled mineral CDW

	2006	2007	2008	2009	2010	2011	2012
Recycled mineral CDW (tonnes)	101.756	277.230	176.159	66.583	119.412	136.32	113.802

Table 67 depicts the imports of construction materials in Malta. This refers to new materials being imported.

Table 67. Import of construction materials in Malta [221]

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

Recovery techniques

There is an increasing recognition that Maltese stone is a finite resource and actions are being encouraged to reuse this stone as much as possible. This is further helped by the recognition that Maltese stone is considered a high quality material.

Environmental and economic impacts of CDW waste management

The economic crisis has had a significant negative impact on construction in Malta.

Drivers / barriers to increase recycling

There is a recycling sector for mineral CDW in Malta; however, there is no sector for non-mineral CDW. The materials that can be recovered are all exported for recycling. However, the lack of market for CDW recycling and the lack of financial incentive in one of the greatest barriers to the increase of recycling. Additionally, the need to export all CDW for recycling does not simplify the process.

18.5.2 Recycled materials from CDW

At the moment there is no recycling sector of non-mineral CDW materials. Specific materials that can be salvaged from construction sites are exported. The mineral CDW recycling sector does exist in Malta, with the waste being crushed and generally used as screed or for concrete production.

There are also reuse practices in place that are enforced via the development planning permissions. This specifically relates to the reuse of old/weathered stone for the maintenance of old buildings and also for the construction in Urban Conservation Areas (UCA's) [220].

18.5.3 Market conditions / costs and benefits

The waste management sector is considered an emerging market, expected to grow in case resource scarcity becomes a larger issue [219]. However, as CDW does not have a financial gain involved, it is difficult to motivate the private construction sector to change established habits at the moment. Additionally, there is no strict legislation in place when regarding CDW treatment, perhaps causing a concern for market equality in case certain companies which to participate/initiate voluntary schemes.