

6. CYPRUS

6.1 Legal Framework – Waste Management Plans and Strategies

6.1.1 National Legislation concerning CDW

Cyprus has transposed the revised EU Waste Framework Directive 2008/98/EC on Waste (WFD 2008/98/EC) [45] into national law (Waste Law of 2011 N. 185(I)/2011[46] and subsequent amendments [47]).

In addition, The Solid and Hazardous Waste (Management of Excavation, Construction and Demolition Waste) Regulations of 2011 (P.I. 159/2011) [48] and subsequent amendments [49] impose conditions and measures for the proper management of Excavation, Construction and Demolition Waste (ECDW) in accordance with the Waste Law of 2011 N. 185(I)/2011 [46] and subsequent amendments[49].

6.1.2 Waste management plans (WMP) and Strategies

The Waste Management Plan of Cyprus [50] was published in 2004 by the Department of Environment and contains a section for the management of CDW. However, its CDW generation data for the period (1996-1999) and the management options are considered outdated and do not reflect the current situation in Cyprus [51]. No other document specifically related to CDW has been published by the Department of Environment.

6.1.3 Legal framework for sustainable management of CDW

According to the Construction and Demolition Waste Management in Cyprus Report [51] existing pieces of legislation which promote the sustainable management of CDW are listed as follows:

National/Regional Obligation for Selective Demolition

No specific National/Regional Obligation for Selective Demolition exists.

National/Regional Sorting Obligation (on-site or in sorting facility)

No specific National/Regional Sorting Obligation exists.

National/Regional Separate Collection Obligation for Different Materials (such as iron, steel, plastic and glass)

No specific National/Regional Separate Collection Obligation for Different Materials exists.

Obligation for Separate Collection and Management of Hazardous CDW

Yes-The Solid and Hazardous Waste (Management of Excavation, Construction and Demolition Waste) Regulations of 2011 (P.I. 159/2011) [48] and subsequent amendments [49].

Related Green Public Procurement Requirements

No

Obligation for Participation to, or Establishment of CDW Management Systems, by the Construction/Demolition Project Contractors

Yes-The Solid and Hazardous Waste (Management of Excavation, Construction and Demolition Waste) Regulations of 2011 (P.I. 159/2011) [48] and subsequent amendments[49].

Obligation to Submit Detailed CDW Management Plan for the Amount of CDW Generated from the Construction/Demolition Activities by the Project Contractors

Yes-The Solid and Hazardous Waste (Management of Excavation, Construction and Demolition Waste) Regulations of 2011 (P.I. 159/2011) [48] and subsequent amendments[49].

Obligation of Contractors to follow the Principles of the Waste Hierarchy Throughout the Duration of the Construction Project

Yes-The Solid and Hazardous Waste (Management of Excavation, Construction and Demolition Waste) Regulations of 2011 (P.I. 159/2011) [48] and subsequent amendments[49].

Obligation of Contractors to Maintain Detailed Register of CDW Quantities Generated, by Waste Type and its Treatment Options

Yes-The Solid and Hazardous Waste (Management of Excavation, Construction and Demolition Waste) Regulations of 2011 (P.I. 159/2011) [48] and subsequent amendments[49].

Obligation of Contractors to Increase the Use of Recycled Materials and Receive Recycled Materials from the Official CDW Management Systems for Use in the Construction Projects

Yes-The Solid and Hazardous Waste (Management of Excavation, Construction and Demolition Waste) Regulations of 2011 (P.I. 159/2011) [48] and subsequent amendments[49].

Obligation of Collection of CDW Only by the Certified Systems of Alternative CDW Management

Yes-The Solid and Hazardous Waste (Management of Excavation, Construction and Demolition Waste) Regulations of 2011 (P.I. 159/2011) [48] and subsequent amendments[49].

Obligation for the Re-use or Return Back to the Supplier of Any Recycled Construction Materials Not Used in the Construction Project

Yes-The Solid and Hazardous Waste (Management of Excavation, Construction and Demolition Waste) Regulations of 2011 (P.I. 159/2011) [48] and subsequent amendments[49].

6.1.4 Targets

The only target applicable to Cyprus related to CDW is the 70% target for re-use, recycling and recovery by 2020 in accordance with WFD 2008/98/EC [45]. No targets for the re-use, recycling or recovery of specific CDW materials used in construction have been set.

6.1.5 End of Waste (EoW) status

At present, no End of Waste (EoW) criteria exist in Cyprus.

6.2 Non legislative instruments (best practices, guidelines, recommendations...)

There is very limited use of non-legislative instruments (i.e. best practices, guidelines, recommendations etc.) in Cyprus, which deal with the re-use, recycling and recovery of CDW.

A notable exception is the non-profit Cyprus Recycling Organisation (OAK) which was the first Excavation, Construction and Demolition Waste (ECDW) Management System to be authorized in 2014. During its first year of operation, 120 out of 2200 registered construction contractors in Cyprus became its members. In its Annual Report for 2014 [52], OAK estimated that its members, which only represent 7% of the total number of contractors in the country, generated 220000 tonnes of ECDW (approximately 49% of the total amount of ECDW generated in 2014). The above amount of ECDW was managed in accordance with national and European legislation leading to the recovery of 200000 tonnes (recovery rate of 90%). However, the report raised strong concerns regarding the fate of 230000 tonnes of ECDW (including hazardous ECDW) which were generated by the vast majority of contractors which are not members of OAK.

In 2015, a second ECDW Management System known as Cypriot Organisation for the Treatment of Waste (KODA) was licensed by the Cypriot Ministry of the Interior.

6.3 CDW management performance – CDW data

6.3.1 CDW generation data

In Cyprus, CDW generation data is obtained by the Statistical Service of Cyprus (CYSTAT) through surveys in accordance with Regulation EC No. 2150/2002 On Waste Statistics [53]. The above data is supplemented with estimations provided by the Statistical Office of the European Union (EUROSTAT). Statistical estimations are necessary in order to fill in gaps and improve the low-accuracy of existing data. However, large quantities of generated CDW are not properly reported. Consequently, official data on CDW generation based on surveys and estimations might not be representative of the real situation in the country [51].

EUROSTAT data for mineral CDW generation (NACE R2 Code: F, Waste Code: W121) for years 2010, 2012 and 2014[54] are shown in Table 15 below.

Table 15. Mineral CDW generation data in Cyprus for years 2010, 2012 and 2014 (Data published by EUROSTAT)

Year	CDW Generation		
	Hazardous [tons]	Non-hazardous [tons]	Total [tons]
2010	11404	145369	156773
2012	0	130369	130369
2014	0	148384	148384

The reliability of the above data is questionable since no hazardous CDW was reported in 2012 and 2014 compared to 11404 tons generated in 2010.

6.3.2 CDW treatment data

In Cyprus, CDW treatment data is obtained by the Statistical Service of Cyprus (CYSTAT) through surveys in accordance with Regulation EC No. 2150/2002 On Waste Statistics [53]. The above data is supplemented with estimations provided by the Statistical Office of the European Union (EUROSTAT). Statistical estimations are necessary in order to fill in gaps and improve the low-accuracy of existing data. However, large quantities of generated CDW are not properly reported. Consequently, official data on CDW generation based on surveys and estimations might not be representative of the real situation in the country [51].

EUROSTAT data for mineral CDW treatment (Waste Code: 121) for years 2010, 2012 and 2014[54] is shown in Table 16.

Table 16. Mineral CDW treatment data in Cyprus for years 2010, 2012 and 2014 (Data published by EUROSTAT)

Year	Deposit onto or into land		Recovery other than energy		Total CDW Treated (Hazardous + Non-hazardous) (tonnes)
	Hazardous (tonnes)	Non-hazardous (tonnes)	Backfilling Non-hazardous (tonnes)	Except Backfilling Non-hazardous (tonnes)	
2010	11410	148360		481	0
2012	0	54801		21291	62129
2014	0	68949		0	42283

Comparison of Table 15 and Table 16 reveals an ongoing discrepancy between the reported quantities of mineral CDW generated and managed. However, as more ECDW Management

Systems become operational the above discrepancy will be significantly limited, leading to more accurate data [55].

6.3.3 CDW exports/imports data

At present, no data is available related to exports/imports of CDW.

6.3.4 CDW treatment facilities data

Currently in Cyprus, there are three licensed facilities for treatment of CDW. These are M. S. (Skyra) Vassas Ltd [56], Skyra Lima Ltd [57] and CH Mylonas Quarries Ltd [58]. The facilities are licensed to perform D1 (Landfill), D13 (Blending or mixing prior to submission to any of the operations numbered D1 to D12) and D15 (Storage pending any of the operations numbered D1 to D14) disposal operations in accordance with the classification in Annex I of the WFD 2008/98/EC [45]. They are also licensed to perform R4 (Recycling/reclamation of metals and metal compounds), R5 (Recycling/reclamation of other inorganic materials) and R13 (Accumulation of material intended for any operation numbered R1 to R12) recovery operations in accordance with the classification in Annex II of the WFD 2008/98/EC [45]. There is no available data regarding the capacity of the above facilities for recovery or disposal operations.

6.3.5 Future projections of CDW generation and treatment

Currently, there are no official future projections of CDW generation and treatment. However, CDW generation data is directly related to the performance of the construction industry and CDW Management Systems such as OAK use the data provided by CYSTAT to estimate future CDW generation [51].

6.3.6 Methodology for CDW statistics

In Cyprus, the methodology used for collecting data on CDW generation and treatment complies with EUROSTAT guidelines [51].

6.4 C&D waste management in practice

6.4.1 CDW management initiatives

No CDW management initiatives outside the existing legal framework are known to exist in Cyprus. However, efforts are being made by OAK to raise awareness of its members (construction contractors), their clients, regional/national administrative authorities and the public regarding the benefits of proper treatment of CDW. This is mainly done by organising frequent seminars all over the country and publishing relevant information online [59] - [65][36].

6.4.2 Drivers / barriers to increase CDW recycling

Factors which act both as drivers and barriers for increasing CDW recycling include legislation and regulation, number of regional treatment facilities, number of CDW management systems, data reporting and construction work contracts. More specifically:

- Creation of a legal framework for CDW management by transposing WFD 2008/98/EC [45] has acted as a driver for increasing CDW recycling. However, there is a clear lack of implementation of the above legislation due to low organisational capacity of the public administration. In addition, the mentality of most construction contractors in Cyprus is that CDW is not an important issue. It can be disposed more or less anywhere and left there as it is mostly inert material which is not hazardous for humans or the environment [51].
- The recent construction of a third licensed facility for CDW treatment (CH Mylonas Quarries Ltd) has significantly increased the CDW treatment capacity of the country. However, there is still not sufficient capacity. In addition, existing facilities are not able to satisfactorily cover the entire country. As a result, CDW generated in many areas of the country has to be transported over long distances for treatment. This significantly increases the treatment costs leading to uncontrolled disposal in illegal landfills [51].
- The existence of two collective (OAK and ΚΟΔΑ) and three single-member (established by a single construction contractor/producer of CDW) CDW Management Systems [66] has acted as a driver for increasing CDW recycling. However, there is a significant lack of knowledge and experience when it comes to design and implementation of CDW management activities. In addition, the mentality of most construction contractors in Cyprus regarding proper management of CDW acts as a barrier.
- The obligation of the licensed CDW Management Systems to report data obtained by their members on CDW treatment has acted as a driver for increasing CDW recycling. In addition, their estimates on future CDW generation and treatment point towards the right direction. However, CDW management systems are only obliged to report CDW treated quantities. Estimates on CDW generated quantities might not be very accurate [51].
- The obligation of construction contractors to prepare waste management plans as part of the project permitting process has acted as a driver for increasing CDW recycling. However, mandatory requirements for sustainable management of CDW are usually absent when it comes to the tendering of public works [51].

The main factors which act as barriers for increasing CDW recycling are the market conditions and the lack of standards, guidelines, recommendations or best practices.

- The financial crisis of 2012 has led to a significant contraction of the construction activity in Cyprus. Consequently, much smaller quantities of CDW were generated from 2012 onwards. This subjected CDW management systems to a lot of pressure since the quantities of CDW requiring treatment were also significantly reduced. In addition, lack of environmental taxes (such as the landfill tax or the aggregates levy in the UK) means that natural raw construction materials are cheaper and easier to access compared to recycled ones [51].

– There are no guidelines, recommendations or best practices for selective demolition or design standards for use of recycled materials in new construction. In addition, there are no EoW criteria for inert CDW. Finally, there is no official policy for either the promotion or use of recycled materials from CDW [51].

6.5 CDW sector characterization

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

Product description and applications

There are no recycled materials from CDW in Cyprus. There are no financial incentives such as the introduction of environmental taxes or the establishment of EoW criteria for creating a market. Natural raw construction materials are cheaper and easier to access compared to recycled ones. Finally, no design standards for the use of recycled materials in new construction have been developed [51].

Quantitative analysis

Please refer to Section “Product description and applications”

Recovery techniques

Please refer to Section “Product description and applications”

Environmental and economic impacts of CDW waste management

Please refer to Section “Product description and applications”

Drivers / barriers to increase recycling

Please refer to Section 6.4.2

6.5.2 Recycled materials from CDW

Please refer to Section “Product description and applications”.

6.5.3 Market conditions / costs and benefits

There is no developed market for CDW recycled materials in Cyprus. In addition, recycling of CDW is considered by most construction contractors, which are struggling to keep their businesses afloat (due to a severe reduction of 80% of the construction production index during the period 2008-2014 [67] as an extra cost they have to avoid paying.