

Construction and Demolition Waste management in

Cyprus

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Screening factsheet

1. Summary

The management of Construction and Demolition Waste (CDW) in Cyprus faces several challenges and appears to be underperforming, despite the fact that a comprehensive legislative framework concerning the management of CDW is in place since 2011 (with several new legislation, regulations and amendments following up since then).

Construction and Demolition Waste (CDW) management national performance

Latest available data for CDW generation and treatment in Cyprus is the Eurostat data for 2012. Data concerning CDW in Cyprus rely mainly on estimations since national reporting is not sufficient to describe the actual situation in Cyprus. Data collection is gradually improving but at a low pace. Preliminary data for 2014, through the reporting of the officially certified CDW Management System organisations, cover approximately half of the CDW amounts generated and treated in Cyprus. The data reported to Eurostat for 2012, do not include soils and naturally occurring materials from excavations.

Waste category	Generated in 2012 (ktons)	Recovered in 2012 (ktons)
Non-hazardous CDW	142.2	83.4
Hazardous waste	0	0
Total CDW	142.2	83.4

In 2012, about 142 thousand tonnes of CDW was generated in Cyprus, of which 62 thousand tonnes were mechanically recovered and about 21 thousand tonnes were used for backfilling. The remaining amount was sent to landfills. CDW generation is decreasing steadily since 2010, due to the significant slowdown in the construction sector and is not expected to recover in the foreseeable future.

CDW generation including soils is estimated to be at least 3 times higher than the figures reported to Eurostat. There is also a significant amount of CDW which slips through the official CDW Management Systems and is not reported or accounted for in any statistics, official or unofficial. Only rough estimations can be drawn for CDW that is illegally managed.

Taking into account Eurostat data and according to the calculation method described in Commission Decision 2011/753/EU for verifying compliance with WFD targets, Cyprus reached approximately 59% recovery rate of CDW in 2012.

However, this doesn't seem to be the case comparing recent data reported by the largest System for Management of CDW in Cyprus (OAK). The definition of CDW in Cyprus includes soils and naturally occurring materials which are also counted in the calculation of recovery rates, as presented in the Annual Report of OAK for 2014. Taking into account the estimated total generation and the actual treatment of CDW (incl. soils) by OAK in Cyprus, the recovery rate for 2014 is calculated at 45%. Excluding soils from the above calculation results in a recovery rate of 14%.

There is a need for transparent reporting and care in the calculation methodology by the Cypriot authorities when submitting their calculation of the WFD targets, in order to avoid any discrepancies and misreporting that might lead to non-compliance with the WFD targets. So far, Cyprus has not officially reported any data on CDW generation and recovery pursuant to Commission Decision 2011/753/EU.

CDW management practices

According to legislation, actors in the construction sector (construction works contractors, demolishers, etc.) are obliged to organise CDW Management Systems (either single legal entity organisations or collective organisations with many participants) for the proper management of CDW from their operations. The CDW Management Systems are entitled to organise the whole waste management chain (from collection to final recovery, disposal and return to the market of the recycled product).

CDW produced in the construction/demolition site is transported to CDW treatment facilities where it is sorted and processed into final recycled products. The fraction of the received CDW that is not materially

recovered is deposited into landfills or used for purposes such as backfilling. The main product of CDW treatment facilities is aggregates for use in road works and other mild landscaping and engineering purposes.

In practice however, large quantities of CDW is illegally managed and as a result none of the above described procedures takes place. In the case of illegal CDW management, the whole load of CDW generated in the construction/demolition site is transported and disposed without prior planning or environmental permitting in natural sites (e.g. mountain sides, water courses, etc.) preferably in remote locations which are difficult to be detected by environmental inspectors.

Finally, large quantities of CDW is re-used on site for landscaping and other engineering purposes. The amount of CDW re-used on site is not reported as CDW generated or treated and thus is not taken into account for the calculation of national/EU targets. There is no official estimation available about the volume of CDW re-used this way on site.

Main obstacles to sustainable CDW management

- Lack of political will
 - There is low political will to tackle the issue of illegal CDW disposal. Major delays in the application of the laws and complementary regulations for CDW.
 - Low organisational capacity for implementation and/or enforcement of the law.
 - Delays in administration of fines or non-conviction of CDW management rules violators
- Mentality in the construction sector
 - General mentality in the construction sector (and of the general public in Cyprus) is that CDW is not considered to be a waste stream that requires immediate attention and treatment. It can be disposed somewhere and left there, since its inert nature makes it harmless for human health and the environment.
 - Contractors prefer to avoid the cost of CDW management.
 - General lack of skills and knowledge to organise effective systems of CDW management.
 - No market/no demand for recycled CDW, natural materials are always preferred over recycled materials in the construction works.
- Lack of treatment facilities and low territorial network
 - The current network of CDW treatment facilities is not sufficient to cover the total amount of generated CDW in the whole territory of Cyprus
- Lack of incentives for recycling
 - There is no landfill tax or other adequately deterrent financial instruments for diverting CDW from landfilling to recovery.
 - Cost of recovery activities is higher than the prices of the recycled end-product. No pull effect from market conditions.
 - No standards for recycled materials

Main drivers to sustainable CDW management

- Existence of a well-articulated legal framework for CDW management including provisions for the sustainable management of CDW.
- Organisation of CDW Management Systems by the actors in the construction sector (obliged by legislation) for the sustainable management of CDW

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

In this section the definitions of waste used in Cyprus are presented.

2.1. Definition of waste

The Waste Framework Directive (WFD) 2008/98/EC was transposed in Cypriot legislation in the Waste Law of 2011 (N. 185(I)/2011)¹. The definition of waste used in Cyprus 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 applied definition of CDW in Cyprus includes all types of waste in Chapter 17 of the European List of Waste (2000/532/EC). This means that soils and naturally occurring materials from excavation activities are also included in calculating the generation of CDW. Specifically, the definition of CDW in Cyprus is found in the Solid and Hazardous Waste (Management of Excavation, Construction and Demolition Waste) Regulations of 2011 (P.I. 159/2011)², and is as follows:

'waste from excavation, construction and demolition means any material or object deriving from excavations, construction and demolition waste that is considered as waste and is included in category 17 of the Order of Solid and Hazardous Waste (Waste Catalogue) of 2003 (P.I. 157/2003).'

There is a distinction between waste deriving from excavation, construction and demolition activities, but no distinct definitions are provided in the relevant legislation.

Although soil and naturally occurring excavated materials during the course of construction are included in the definition of CDW, these are not considered in the definition of CDW for calculating the WFD target as presented in Commission Decision 2011/753/EU. The LoW categories excluded in the latter definition are 17 05 04 and 17 05 06.

2.3. End of Waste (EoW) status

There are no End of Waste criteria established in Cyprus, nor being developed.

2.4. Definitions of waste treatment operations

The definitions for re-use, recycling and recovery used in Cyprus are found in the Waste Law of 2011 (N. 185(I)/2011) and they are the same as those found in the WFD following the categorisation in Annex II of the WFD. Specifically, they are defined 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;*
- *'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*

¹ http://www.cylaw.org/nomoi/arith/2011_1_185.pdf

² [http://www.moi.gov.cy/moi/moi.nsf/all/49C7D97009AE4E64C2257B0500435197/\\$file/\(7\)-%CE%9A.%CE%94.%CE%A0.159-2011.pdf?openelement](http://www.moi.gov.cy/moi/moi.nsf/all/49C7D97009AE4E64C2257B0500435197/$file/(7)-%CE%9A.%CE%94.%CE%A0.159-2011.pdf?openelement)

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 Statistical Service of Cyprus (CYSTAT) follows the guidelines of Eurostat in reporting³. The Statistical Service is using a hybrid approach of surveys and estimations for producing data on CDW generation and treatment. This waste stream is not monitored satisfactorily and there is a lack of data resulting from limited response to survey questionnaires. As a result, the amounts of CDW generated and treated and the available treatment options are mostly estimated by the actors involved in the sector, coupled with statistical analysis, rather than actually measured.

However, the situation is rapidly changing as the obligation of treatment of CDW through certified systems of CDW management (single entity or cooperative systems) means that more and more CDW going through the official channels of CDW management will be documented and accurately reported. The total amount of CDW treated by the CDW management systems currently (as of May 2015) do not represent the total amount of CDW generated in Cyprus, so estimations are still necessary in order to draw comprehensive data for the situation in Cyprus.

3. Legal Framework – Waste Management Plans and Strategies

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

3.1. Legislation concerning CDW in Cyprus

The legislative framework for waste management in Cyprus is defined by the **Waste Law of 2011 (N. 185(I)/2011)**⁴, which transposes the EU Waste Framework Directive (2008/98/EC) into Cypriot law. All provisions in the WFD related to CDW are valid for Cyprus and form the legal basis for the management of CDW in the country.

The **Solid and Hazardous Waste (Management of Excavation, Construction and Demolition Waste) Regulations of 2011 (P.I. 159/2011)**⁵, stipulates measures and conditions for the efficient management of excavation, construction and demolition waste (ECDW). Here, the obligations of all actors involved in the management of CDW is presented with emphasis on increasing the re-use and recovery of CDW following the waste hierarchy.

Other regulations and orders governing environmental permits, as well as urban planning regulations are also relevant to the CDW stream.

3.2. Waste management plans (WMP) and Strategies

The Waste Management Plan of Cyprus⁶ was published in 2004 and contains a dedicated chapter for the management of CDW. However, the reference period of data and information as well as the management options included in this chapter are considered outdated and do not represent the current situation in Cyprus, which is completely different. Data on CDW generation date back to the period 1995-1999.

The Waste Prevention Programme of Cyprus, pursuant to Article 29 of the WFD is currently under preparation and no specific information concerning CDW have been obtained during the course of this study.

No other strategic document concerning the management of CDW was identified.

³ <http://www.cystat.gov.cy/mof/cystat/statistics.nsf/all/D129D45DC0A925EBC2257B580031AA29?OpenDocument>

⁴ http://www.cylaw.org/nomoi/arith/2011_1_185.pdf

⁵ [http://www.moi.gov.cy/moi/moi.nsf/all/49C7D97009AE4E64C2257B0500435197/\\$file/\(7\)-%CE%9A.%CE%94.%CE%A0.159-2011.pdf?openelement](http://www.moi.gov.cy/moi/moi.nsf/all/49C7D97009AE4E64C2257B0500435197/$file/(7)-%CE%9A.%CE%94.%CE%A0.159-2011.pdf?openelement)

⁶ <http://www.moa.gov.cy/moa/environment/environment.nsf/All/7CEEC67A28F7173CC2257A8B003121EE?OpenDocument>

3.3. Legal framework for sustainable management of CDW

Description	Level of occurrence (Yes/No) Key Scope/Exemptions	Year established and policy reference	Further detail, information source, related web-site
<i>National/regional obligation for selective demolition</i>	NO		
<i>National/regional sorting obligation (on-site or in sorting facility)</i>	NO		
<i>National/regional separate collection obligation for different materials (iron and steel, plastic, glass, etc.)</i>	NO		
<i>Obligation for separate collection and management of hazardous waste from C&D operations - Please specify</i>	YES – National	2011 P.I. 159/2011	
<i>Related Green public procurement requirements</i>	NO		
<i>Obligation for participation to, or establishment of CDW management systems, by the construction/demolition project contractors (CDW producers)</i>	YES – National	2011 P.I. 159/2011	
<i>Obligation to submit detailed CDW Management Plan for the amount of CDW generated from the construction/demolition activities, by the project contractors</i>	YES – National	2011 P.I. 159/2011	
<i>Obligation of contractors to follow the principles of the waste hierarchy during the course of the construction project</i>	YES – National	2011 P.I. 159/2011	
<i>Obligation of contractors to maintain detailed register of CDW quantities generated, by waste type and its treatment options</i>	YES – National	2011 P.I. 159/2011	
<i>Obligation to increase the use of recycled materials in construction, by the project contractors, and to receive recycled materials from the official CDW management systems for use in the construction projects</i>	YES – National	2011 P.I. 159/2011	

Description	Level of occurrence (Yes/No) Key Scope/Exemptions	Year established and policy reference	Further detail, information source, related web-site
<i>Obligation of collection of CDW only by the certified systems of alternative CDW management</i>	YES – National	2011 P.I. 159/2011	
<i>Obligation for the re-use, or return back to the provider of recycled construction materials not used in the construction project</i>	YES – National	2011 P.I. 159/2011	

3.4. Targets

The only applicable target in Cyprus concerning CDW is the target of 70% recovery by 2020 of the WFD. For the calculation of the level of the WFD target, Cyprus is required to follow the Commission Decision 2011/753/EU calculation method and exclude the amounts of soils and naturally occurring materials (waste codes 17 05 04 and 17 05 06) from the calculation of the target. This will be possible in the future, due to detailed data provided by the licenced CDW management systems in Cyprus. So far, Cyprus has not reported official data on the generation and treatment of CDW pursuant to Decision 2011/753/EU.

There are no specific targets concerning the re-use, recycling or recovery of specific material waste streams that are used in construction.

In 2015, OAK CDW Management System is preparing to start its ambitious five-year campaign to reduce CDW generation by 50% per square metre by 2020⁷.

There is no specific mention of backfilling practices in Cyprus. However, the large amounts of recovery reported by the CDW management system OAK⁷ consist mainly of re-use of soils and backfilling in large scale technical projects (e.g. sewage system).

Pursuant to the current legislation, all generated CDW should be diverted to certified CDW management systems and the amounts of CDW used for backfilling will be appropriately reported.

4. Non legislative instruments

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

Description	Level of occurrence (Yes/No) Key Scope/Exemptions	Year established and policy reference	Further detail, information source, related web-site
<i>Sustainability standards that cover CDW (e.g. BREEAM)</i>	NO		
<i>Extended producer responsibility scheme</i>	NO		

⁷ OAK (Cyprus Recycling Organisation), Annual Report 2014

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	NO					
Standards for recycled CDW	YES – Not mandatory, but required in order for CDW to be marketed	2003	National	Harmonisation with Construction Products Regulation (EU) No. 305/2011	n.a.	These standards refer to products and not waste. BUT in order for CDW to return to the market, need to fulfil these standards
Selective demolition/ plan for large demolition sites/demolition standard	NO					<i>Are these obligations enforced in practice?</i>
Guarantee for the fulfilment of CDW management obligations by the project contractor	YES	2011	National	Required by the Building and urban planning authorities in order to make sure that the management of CDW will comply with existing legislation	n.a.	Ministry of Interior

There is very limited use of other non-legislative instruments in Cyprus to address the issue of resource efficient use of CDW.

There is also a lack of information concerning the management of hazardous waste from construction and demolition activities. Project contractors are obliged by legislation to remove separately the hazardous materials of CDW and to deliver them to licenced entities for the transportation and treatment of hazardous waste, according to the Solid and Hazardous Waste Management Law (N. 215(1)/2002)⁸.

The fact that no data on hazardous CDW are reported at all in Cyprus raises concern about the management practices of this type of waste. Further investigation would be required in order to track and account any type of hazardous waste that derives from construction and demolition activities in Cyprus.

⁸ <http://www.moa.gov.cy/moa/environment/environment.nsf/All/CCC7AAFE676A6D36C22578D30039DA65?OpenDocument>

5. CDW management performance – CDW data

Data on the generation and treatment of CDW in Cyprus are collected by the Statistical Service of Cyprus (CYSTAT) through surveys and complemented with estimations in order to fill data gaps and/or low quality data. The last survey period for waste data gathering was in 2011, collecting data for 2010 reference period.

Data for 2012 appear in the Eurostat database and constitute a product of statistical estimation by Eurostat, rather than actual data reported by CYSTAT.

So far, data collected by CYSTAT was based on surveys and estimations. However, a large amount of CDW was not recorded since it slipped through official treatment options and was not managed properly. As a result, the reported amounts of CDW generated and treated might not reflect the real situation in Cyprus.

Since the establishment of the first CDW management systems in 2014, it is expected that the quality of reported data will improve significantly in the following years. So far, there are five licenced CDW management systems active in Cyprus. Three of them are 'single entity' systems, which means that are established by a single contractor/producer of CDW. The other two are collective CDW management systems, where many contractors participate. The first CDW management system licenced in 2014 has 121 members, representing around 7% of contractors in Cyprus. However, in 2014 managed nearly half of all the CDW generated in Cyprus.

Data reported by the Statistical Service of Cyprus follow the Waste Statistics Regulation (2150/2002/EC). The focus of CDW statistics is on the construction sector (code F in NACE Rev.2). It is not possible to distinguish between wastes coming from construction, demolition or renovation activities.

The only official source of CDW data, which maintains a consistent time series, is the Statistical Service of Cyprus (CYSTAT). CYSTAT is reporting to Eurostat and therefore the data in Eurostat database are the same (pursuant to Waste Statistics Regulation 2150/2002/EC) as the data found in CYSTAT's database, although the latter is not updated. Last data available on CYSTAT database is for 2010.

5.1. CDW generation data

Data on CDW generation are presented in Table 1, excluding soils and naturally occurring materials. Data on CDW generation in the official statistics exist only for even years.

Table 1: CDW generation in Cyprus⁹

CDW generation (tonnes)	2010	2012
Total	166 549	142 249
Non-hazardous	155 139	142 249
Hazardous	11 410	0

However, the CDW stream in Cyprus is considered to include soils and the total quantities of CDW generated (incl. soils) is taken into account by the CDW management system organisations.

Due to economic constraints and the slowing down of construction activities in Cyprus, the generation of CDW is decreasing drastically over the last years¹⁰.

5.2. CDW treatment data

The latest available data on CDW treatment presented in Table 2 refer to the year 2012. Since CDW treatment data was not produced by the Statistical Service of Cyprus (CYSTAT) for 2012, Eurostat data is used to present the treatment situation in Cyprus. Data on CDW treatment in the official statistics exist only for even years.

⁹ Eurostat Waste database: Generation of waste (env_wasgen)

¹⁰ Annual Report 2014, OAK (Cyprus Recycling Organisation)

Table 2: CDW treatment in 2012¹¹

CDW treatment (tonnes)	Landfill/Disposal (D1-D7, D12)	Energy recovery (R1)	Backfilling	Recovery other than energy recovery - Except backfilling
Total	54 801	0	21 291	62 129
Non-hazardous	54 801	0	21 291	62 129
Hazardous	0	0	0	0

Comparing Table 2 to Table 1, the quantity of CDW reported under the different treatment options in total is lower than the quantity of CDW generated. There is a certain amount of CDW missing, which means that the remaining CDW was not treated or the final treatment destination was unknown. However, the missing amount could also be attributed to misreporting.

The first CDW management system organisation (OAK) obtained its licence on 14 February 2014. It has just over a year in operation and recently submitted its annual activity report to the responsible authorities concerning CDW (Ministry of Interior). Three more CDW management systems (single entity organisations established by a single construction contractor) have been licenced in 2014 for treating individually waste produced by their own operation. Finally, in 11 March 2015 another collective CDW management system was licenced¹², which will contribute to the effort of collecting and treating CDW from construction/demolition operations across Cyprus.

With more CDW management systems starting their operations, comprehensive data on the recovery of CDW are going to be reported systematically in the following years. CDW management systems are obliged to yearly reporting of the CDW treated amounts and to keep full traceability of CDW within their operations. The CDW management systems are obliged to maintain detailed data on the receiving quantities of CDW including the source of the waste, distinguishing between new construction, renovation and demolition.

The first results from the only CDW management system (OAK) active since early in 2014, show an encouraging development in the management and recovery of CDW in Cyprus. OAK managed 48.7% of the total generated CDW estimated for 2014 in Cyprus. Out of this amount, OAK managed to recover 92%, which corresponds to around 44.8% of the total amount of estimated CDW in 2014¹³.

However, that main waste fraction recovered was soils and naturally occurring materials (waste codes 17 05 04, 17 05 06), which is excluded from the calculation of the WFD target. This means, that although the CDW management systems in Cyprus recover a great amount of CDW (incl. soils), the performance of the country according to the WFD remains low. Subtracting the quantities of soils recovered (by analysing the detailed data found in the Annual Report of OAK¹³), the recovery rate for Cyprus, following the calculation method of Commission Decision 2011/753/EU, is only 14%.

5.3. CDW exports/imports data

There is no data available concerning the exports and imports of CDW.

5.4. CDW treatment facilities data

There are two licenced treatment facilities of CDW in Cyprus and an additional one which is temporarily out of order, since basic infrastructure is missing for the proper access and use of the site. The latter will resume operation when all appropriate works are finalised, however there is no certain timeline at the moment as to when the facility can be operational. The CDW treatment facilities are situated in locations of old quarries and both include designated areas of inert CDW landfills. The licences obtain by these facilities allow for the following treatment operations: D1, D15, R4, R5, R13 (according to classification in Annexes I and II of the WFD)¹². The CDW treatment facilities receive CDW from the affiliated CDW management systems for

¹¹ Eurostat Waste database: Treatment of waste (env_wastrt)

¹² <http://www.moi.gov.cy/moi/moi.nsf/All/B411343FC5FC5B36C2257AA2002D1C48>

¹³ OAK (Cyprus Recycling Organisation), Annual Report 2014

recovery, while the quantities that cannot be recovered are landfilled at the same location, avoiding additional transport. There are also two other separate locations designated in Cyprus for inert landfills¹⁴. One in Paphos and one in Limassol.

There is no data about the capacity of the treatment facilities nor about the landfill sites for inert waste. However, the two facilities are not serving satisfactorily the network of CDW producers, since many areas are not covered locally and therefore need to transport the generated CDW over long distances with higher costs. As a result, it is often observed that CDW never reach the treatment facilities and are dumped somewhere close to the construction site instead. More CDW treatment facilities are required in Cyprus for improving the recovery performance and resource efficient management of CDW on the island.

5.5. Future projections of CDW generation and treatment

There are no official future projections of CDW generation and treatment in Cyprus. However, CDW is closely linked to construction activities and the CDW Management Systems use the indices of construction (maintained by CYSTAT) to produce estimations of expected CDW generation in order to plan their activities for the future.

5.6. Methodology for CDW statistics

The methodology used by CYSTAT for gathering data on CDW follows Eurostat guidelines as explained in the manual on waste statistics. No changes in methodology have been made since the previously reported data to Eurostat for 2010.

6. C&D waste management in practice

In this section the CDW management “on ground” in Cyprus is presented. Specific CDW initiatives, voluntary agreements and any other management practices if available currently in Cyprus.

6.1. CDW management initiatives

There haven't been any specific initiatives in Cyprus, outside the regulatory obligations, to address the issue of CDW management and the efficient use of this waste stream. Currently, efforts are being made by the certified CDW management systems to increase awareness among the local and regional administrative authorities as well as the construction sector, and to stress the importance of the resource efficient use of CDW - not as waste but as a valuable resource - under economic, social and environmental perspectives.

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 Cyprus. Since no interesting initiatives were identified in the case of Cyprus, section 6.2 contains no information of interest to the study.

6.3. Waste legislation enforcement

For monitoring and enforcement of the waste legislation in Cyprus, the Ministry of Environment maintains a special unit of Environmental Inspectors with the mission of conducting inspections and determine whether compliance with the environmental terms in projects and activities of public, semi-public and private sectors

¹⁴ <http://www.etek.org.cy/uploads/fck/Theopemptou%20%CE%91%CE%95%CE%9A%CE%9A.pdf>

across the country is respected¹⁵. Measures to ensure compliance with existing waste legislation include administrative sanctions as well as financial measures (fines).

However, it is uncertain if the staffing in the unit of Environmental Inspectors is sufficient for the effective control of environmental violations in Cyprus.

Cyprus is lagging behind, compared to other MS, concerning waste management in general¹⁶. As a result, the management of all waste streams and the CDW stream in particular is not in line with the waste hierarchy, set out in the WFD (2008/98/EC), as most of the generated waste is landfilled or even worse disposed uncontrollably in the environment. Any recovery or recycling operations have only recently started taking place through the establishment and operation of the CDW Management Systems required by legislation and monitored by the Ministry of Interior of Cyprus.

In 2012, the European Commission decided to refer Cyprus to the European Court of Justice (IP/12/655)¹⁷ for non-compliance with the Landfill Directive (1999/31/EC). Several landfills had been identified to be operating in violation of the directive. Other than that, Cyprus has no other infringements procedures or court cases concerning the WFD and Landfill directive.

The practice of illegal dumping of CDW is still used extensively today although it is reduced since the CDW Management Systems began their operations. There is no data available on the quantities of illegally disposed CDW and it is very difficult to estimate approximately such quantities, as the illegal dumping might take place in the most unexpected places that are difficult to identify and control (e.g. mountainsides, water courses, etc.).

6.4. Drivers / barriers to increase CDW recycling

Factor / characteristic / element in CDW recycling chain	Drivers	Barriers
Legislative Framework	<ul style="list-style-type: none"> Existence of a specific legal framework for the management of CDW since 2011 Transposition of the target defined in the WFD for recovery of CDW (article 11) 	<ul style="list-style-type: none"> Lack of implementation of existing legal framework. Deficiencies in public administration Non-proliferation of legislation and the necessary administrative actions in the construction processes
Inspection procedures and CDW legislation enforcement		<ul style="list-style-type: none"> Human resources allocated to waste law enforcement deemed not sufficient No or little corrective action is taken in identified cases of non-compliance with legislation. Sanctions are rarely applied.
Treatment facilities territorial network	<ul style="list-style-type: none"> Legislation obliges the development of adequate CDW managements systems and a network of treatment facilities that can manage the total amount of CDW produced in Cyprus. 	<ul style="list-style-type: none"> Delay in the application of the legislation concerning the establishment of CDW management systems. Currently not sufficient treatment capacity. 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.

¹⁵ http://www.moa.gov.cy/moa/environment/environment.nsf/de09_gr/de09_gr?OpenDocument

¹⁶ http://ec.europa.eu/environment/waste/studies/pdf/Screening_report.pdf

¹⁷ http://europa.eu/rapid/press-release_IP-12-655_en.htm?locale=en

Key stakeholders involvement	<ul style="list-style-type: none"> • Existence of several CDW management systems • The responsibility for CDW management is well defined in the legal framework for the different actors involved. 	<ul style="list-style-type: none"> • Significant lack of know-how in the organisation and implementation of CDW management activities by the relevant key stakeholders. • General mentality of the 'traditional' stakeholders involved in construction activities (contractors, operators, etc.) which consider CDW as not a waste stream that needs to be dealt with since it is mostly inert material and therefore not dangerous for the general public. • Construction sector try to avoid the costs of CDW management. • Distortion in CDW management systems operations where the owner of the system is also the CDW producer. Lack of transparency in the data of CDW generated and treated. • Lack of coordination and synergies between stakeholders • Lack of pro-active initiatives of stakeholders
Data reporting	<ul style="list-style-type: none"> • The obligation of the officially licenced CDW management systems to report data regarding CDW management (both the receiving quantities and the treated quantities, indicating the final destination of CDW, R-D codes) • Estimation of the type and amount of CDW generated and the expected treatment option as prerequisite for the permitting of a construction project 	<ul style="list-style-type: none"> • Data reporting obligation by the CDW management systems refer only to treated quantities. Some CDW fraction might remain unreported. • Estimation quantities of CDW generated missing accuracy and in the case of re-using of CDW within the same construction project, no reporting on this waste is expected.
Market conditions		<ul style="list-style-type: none"> • Due to slowdown of the construction sector, less CDW become available for recovery and recycling, putting strain to the operations of CDW management systems and reducing the volume of their product. • 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 • Final recycled product is not redirected to markets – currently very low demand. • Valuable materials from construction sites (e.g. metals) are systematically stolen and are lost to the proper channels of CDW management, missing an important source of revenue for their operations
Construction works contracts	<ul style="list-style-type: none"> • Obligation prior to construction permitting for setting up a Waste Management Plan concerning the construction project, by the contractor. 	<ul style="list-style-type: none"> • Sustainable CDW management provisions consistently missing from the Tendering procedures of public works
Recycling process		<ul style="list-style-type: none"> • No standards for recycled CDW available. • No technical specifications for selective demolition. • Inexistence of an effective policy for the use of recycled materials. • No EoW criteria for inert CDW; • Unfavourable economic situation of the country, with significant slowdown in the construction sector for the last years, resulting to low quantities of materials for recycling • Lack of promotion for the CDW market.

7. CDW sector characterisation

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

7.1. Sector characteristics

The management of CDW in Cyprus involves a wide range of actors from the public and private spheres. The Ministry of Interior is responsible for monitoring all activities concerning CDW stream. Pursuant to the Solid and Hazardous Waste (Management of Excavation, Construction and Demolition Waste) Regulations of 2011 (P.I. 159/2011), the actors involved in the development of construction projects, i.e. contractors, are obliged to establish Systems (organisations) for the sustainable management of CDW produced by their operations. The CDW Management Systems are non-for-profit private entities owned by one or more contractors. The Systems are responsible for organising and supervising the operations of CDW management (collection, transport, recovery) conducted by public or private legal bodies on behalf of the System and for informing the public administration and CDW holders about their obligations according to the regulations.

The roles of all actors involved in CDW management are well articulated in national legislation. However, it is common that other actors might operate ad-hoc or by-passing the legislation, especially concerning the collection and disposal of CDW in unauthorised dumping sites after removing valuable recycled materials (e.g. metals, plastics). These operations are not in line with legislation and should be limited by the competent authorities.

The structure of actors and their responsibilities within the system of CDW management is theoretically sufficient to divert significant quantities of CDW from landfills to recovery. There are currently (as of May 2015) two licenced CDW treatment facilities and 409 licenced entities for the collection and transport of CDW¹⁸.

There is no data on the currently installed treatment capacity for CDW but it is considered certain that further expansion in treatment facilities all over Cyprus is required in order to manage the generated CDW. There is no specific data on the prospective employment and economic potential of new CDW treatment facilities.

7.2. Exports / imports of CDW

No data on imports or exports of CDW to or from Cyprus have been identified and the trade of CDW is considered unlikely. The volume of this waste stream makes long distance transportation quite costly, so if there is no certain economic driver in the export or import of this type of waste, it is unlikely to happen.

7.3. CDW as landfill cover

There is widespread use of CDW as landfill cover¹⁹, however there is no concrete information available about how extensive this operation has been over the years and no data or estimations about the quantities used for the cover of landfills.

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.

The recycling of CDW is perceived as a cost to pay. However, OAK (the first CDW Management System in operation) postponed the management fee for the treatment of CDW per tonne generated (to be paid by

¹⁸

[http://www.etek.org.cy/uploads/fck/%CE%9C%CE%91%CE%A1%CE%99%CE%9F%CE%A3%20%CE%91%CE%9B%CE%95%CE%9E%CE%91%CE%9D%CE%94%CE%A1%CE%9F%CE%A5%20TEPAK%20\(%CE%91EKK\).pdf](http://www.etek.org.cy/uploads/fck/%CE%9C%CE%91%CE%A1%CE%99%CE%9F%CE%A3%20%CE%91%CE%9B%CE%95%CE%9E%CE%91%CE%9D%CE%94%CE%A1%CE%9F%CE%A5%20TEPAK%20(%CE%91EKK).pdf)

¹⁹ <http://www.etek.org.cy/uploads/fck/Theopemptou%20%CE%91%CE%95%CE%9A%CE%9A.pdf>

CDW producers) for its first year of operation in order to decrease the economic pressure in an already suffering construction sector in Cyprus, which have declined by 19% the last 5 years²⁰.

Although it is considered uneconomical at the moment to recycle CDW in Cyprus, especially due to lack of other financial incentives supporting recycling and punishing landfilling and dumping, 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. Cyprus 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.

The landfilling capacity in Cyprus is becoming gradually saturated and serious problems with waste management are expect in the future, unless new landfills or treatment facilities are developed shortly. Therefore, CDW treatment facilities have a crucial role to play in diverting this voluminous waste stream away from landfills and leave enough space for the rest waste that still goes to landfills. However, special attention need to be taken as to the proper management of CDW in respect of the regulations and not return again to practices of illegal dumping.

7.5. Recycled materials from CDW

Currently, there is no market for recycled CDW in Cyprus. No financial incentives enable the creation of such a market since the prices or raw materials for construction are still cheaper and easier to access than recycled material arising from the treatment of CDW.

No standards for recycled materials from CDW have been developed in Cyprus. OAK is trying to engage several actors, including academic institutions, for developing such standards²⁰ in order to increase the quality and added value of recycled materials and improve their competitiveness against natural materials

There are no End of Waste criteria for aggregates established in Cyprus, nor being developed.

7.6. Construction sector make up

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

Table 3: Construction sector make up in Cyprus²¹

Sector	Production value (million EUR)	Number of enterprises	Number of persons employed
Construction of buildings	1 157.6	1 689	10 396
Specialised construction activities (incl. demolition)	578.1	4 364	11 477
Other civil engineering (e.g. roads, etc.)	620.7	171	6 702
Construction sector TOTAL	2 356.4	6 224	28 575

The construction activity has been declining rapidly in Cyprus over the last five years due the current economic recession observed in Cyprus (since 2009). In Figure 1, the construction production index of Cyprus is presented.

²⁰ OAK (Cyprus Recycling Organisation), Annual Report 2014

²¹ Eurostat, Annual detailed enterprise statistics for construction (NACE Rev. 2, F) (sbs_na_con_r2)

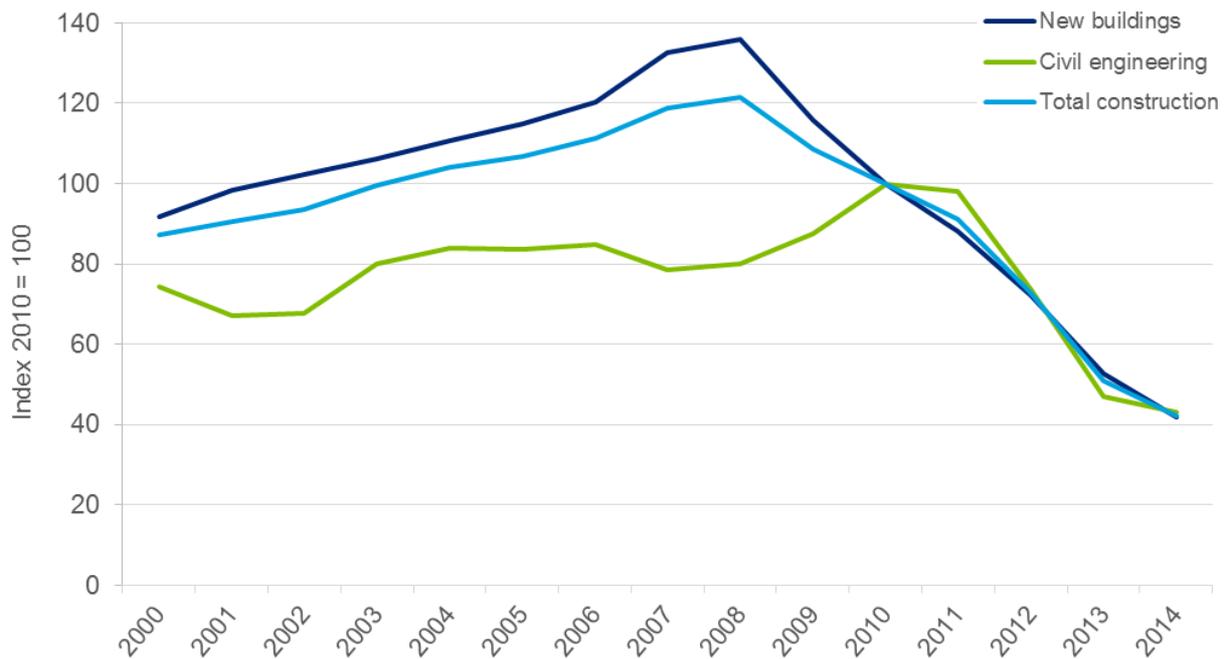


Figure 1: Construction production Index²²

The construction activity has declined approximately 80% during the period 2008-2014. This is a significant reduction in construction activity which affects directly the generation of CDW. Low quantities of CDW are expected to arise in the future if the construction sector follows the existing trend.

There is no indication of recovery of the construction sector in the near future, due to the persistence of economic recession, low demand in new housing and the availability of adequate new housing that stands empty.

²² CYSTAT: Construction production Index (last updated 08/04/2015)
http://www.mof.gov.cy/mof/cystat/statistics.nsf/industry_construction_62main_gr/industry_construction_62main_gr?OpenForm&sub=2&sel=1

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Other consulted stakeholders

The following stakeholders have been contacted but did not participate:

- Constantinos Kotziapashies, Ministry of Interior, e-mail: ckotziapashies@moi.gov.cy
- Kyriaki Antoniou, Federation of Associations of Building Contractors of Cyprus, e-mail: kyriaki@oseok.org.cy

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