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(De)construct for Circular Economy
(Des)construir para a Economia Circular

WP 2 – Regulatory framework

Activity 2.1 – Legal framework analysis

Final report

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Promotor:



Parceiros:



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1. Introduction

The main objective of the **(De)construct for Circular Economy [in Portuguese: (Des)construir para a Economia Circular]** project is to promote a regional strategy for the reuse of building products and components as well as the recycling of construction and demolition waste (CDW), thus reducing the environmental impact of the construction sector and promoting its circularity.

One of the purposes of the project is to create a common regulatory framework to the municipalities of the *Baixo Alentejo* region, within the Work Package (WP) 2, complying with the legal Portuguese regulatory approach (existing or to be implemented), but also assessing the vision of the project, and integrating the participation of other realities, namely the experience of the project partners from Norway (NO), Romania (RO) and Czech Republic (CZ). The CDW management for all the construction activity types will be considered, as well as the inclusion of a circular approach to the construction sector, considering topics related, for example, to the selective demolition processes, the reuse of construction materials or the incorporation of recycled products, as an important baseline to develop the tasks related to materials' passport (WP 3) and pre-demolition audits (WP 4). In order to accomplish that mission, WP 2 is structured in three activities, namely:

- Activity 2.1 – Legal framework analysis;
- Activity 2.2 – Common regulatory framework;
- Activity 2.3 – Dissemination and capacitation.

This report is focused on Activity 2.1 results, considering the state of the art of the regulatory framework in the municipalities of *Baixo Alentejo* region, other Portuguese municipalities, but also selected municipalities from NO, RO and CZ. In this phase, the analysis concerns a local scale, so that it can be possible to understand the constraints and how to design an effective common regional regulatory strategy (Activity 2.2). Considering the purposes described above, this report is structured in the following chapters:

- Introduction (current chapter);
- Methodological approach (chapter 2);
- Results (chapter 3);
- Conclusions (chapter 4);
- References.

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2. Methodological approach

2.1. Main considerations

Before addressing the creation of a common regulatory framework for the *Baixo Alentejo* region concerning CDW management, as well as a circular approach for the construction sector (Activity 2.2), it is necessary to perform a diagnosis of the current situation (Activity 2.1). To accomplish this, a questionnaire (Annex I) was applied to the *Baixo Alentejo* municipalities, considering a regulatory perspective to the Portuguese reality, focused on the regional/local scale responsibility, including:

- Current Portuguese existing legal framework applied to CDW management and the construction sector (in the last case only when relevant to the WP 2 objectives);
- The new Portuguese legal framework that will come into force after July 1st 2021, transposing the guidelines from the amended Waste Framework Directive (WFD) (Directive 2008/98/EC, of 19 November, amended by Directive 2018/851, of 30 May – both of the European Parliament and of the Council); and
- Information collection for other WPs of the project, namely WP 3 (materials' passport) and WP 4 (pre-demolition audits), but only in what regards legal framework issues.

To address the tasks related to Activity 2.2 (common regulatory framework), it was decided to conduct the questionnaire also in the following contexts, aiming at collecting other legal framework good examples:

- To submit the same questionnaire to other Portuguese municipalities (outside *Baixo Alentejo* region);
- To submit the questionnaire, although adapted to the specific countries' legal frameworks, in chosen municipalities from project partners from NO (ID Norway), RO (CNPCD) and CZ (ENVIROS).

2.2. Questionnaire

The analysis of the municipalities' regulatory frameworks concerning the CDW management and a circular approach to the construction sector was addressed by means of a questionnaire, presented in Annex I, having in consideration the Portuguese regulatory framework (see subchapter 2.2.1), and considering a structure to address the main topics with relevance to the project (see subchapter 2.2.2).

2.2.1. Compliance with the Portuguese regulatory framework

Bearing in mind the main objectives of WP 2, regarding the regulatory framework, Table 1 presents the core Portuguese regulatory diplomas regarding CDW management, but also includes important diplomas from the construction sector with cross references and/or topics related to the stated subject. Other Portuguese regulatory diplomas exist, with references to the subject in analysis, but they were not evaluated because they concern general or complementary issues difficult to transpose to a regional/local scale reality, and above all bearing in mind the main objective of creating and implementing a regional common legal framework.

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Table 1. Portuguese regulatory framework concerning WP 2 activities.

Main Portuguese regulatory framework			
Circular economy regulatory framework	Circular Economy National Plan	Resolution of the Council of Ministers 190-A/2017, of 11 December. (Note: construction sector is considered a strategic economic activity to comply with circular economy principles).	
Main waste regulatory framework	National waste management legal framework	Decree-Law 178/2006, of 5 September, amended and republished by Decree-Law 73/2011, of 12 July	This two Decree-laws were revoked in December 2020, but they are effective until the end of June 2021. After July 1 st , the Decree-Law 102-D/2020, of 10 December, will implement, among other amending's, the new national waste management legal framework (but this time including a specific section with the CDW management regulation).
	Specific CDW management legal framework	Decree-Law 46/2008, of 12 March	
	Legal framework about CDW containing asbestos	Ordinance 40/2014, of 17 February. (Note: legal framework for the correct removal of materials containing asbestos, and for the correct management of the corresponding CDW generated, although there are other legal diplomas concerning safety and health issues).	
Main construction sector regulatory framework	Public Procurement Code	Decree-Law 18/2008, of 29 January, amended and republished by Decree-Law 111-B/2017, of 31 August (with further amendments). (Note: cross references to the mandatory compliance with the specific CDW management legal framework, namely in respect to the obligation to present, for public construction works, and in the project phase, a CDW Prevention and Management Plan, to be evaluated and validated at the end of the intervention).	
	Legal Regime of Urbanization and Edification	Decree-Law 555/99, of 16 December (amended by several further legal diplomas). (Note: cross references to the mandatory compliance with the specific CDW management legal framework).	

The **circular economy national plan** (Resolution of the Council of Ministers 190-A/2017, of 11 December), establishes the construction sector as a strategic economic activity to be considered within the Portuguese plan for circular economy, due to the intensive use of resources, the low material productivity, as well as for the current low level of circularity, although the great potential for implementing it. In this context, this national plan establishes, for the construction sector, but with relevance to the present report (*i.e.*, a focus on a regional/local scale responsibility), the following:

- In general, the objective for rise the introduction of secondary raw materials, the decrease of CDW generation, the reduction on the demand for raw materials, among others;

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- To involve the municipalities, as well as other key-sectors (*e.g.*, construction sector companies, waste management operators, distribution companies) on the strategy;
- To involve the municipalities (or municipal associations or its representatives) in the development of local actions.

In respect to the **national waste management legal framework** (Decree-Law 178/2006, of 5 September, amended and republished by Decree-Law 73/2011, of 12 July), it establishes the following regarding CDW management (for reference, the requirement that was amended in the new national waste management legal framework – Decree-Law 102-D/2020, of 10 December –, that will come into force after July 1st 2021, is highlighted in *italic*):

- Transposes, from the WFD, the 70% target (in weight), to be accomplished in 2020, of preparing for reuse, recycling and other material recovery, including backfilling operations using waste to substitute other materials, of non-hazardous CDW, excluding naturally occurring material defined in category 17 05 04 (soils and stones without hazardous substances) of the European List of Waste (ELW)¹;
- *In order to help achieving the target above (but only in Portugal), it is mandatory, in public construction works (when technically feasible), to use at least 5% of recycled materials or materials containing recycled components, in relation to the total amount of materials used (note: this target was redefined to 10% in the new waste regulatory framework).*

In relation to the **specific CDW management legal framework** (Decree-Law 46/2008, of 12 March), but also considering the regulation about CDW containing asbestos (Ordinance 40/2014, of 17 February), it is important to highlight the next topics (again, the requirement that was amended in the new national waste management legal framework – Decree-Law 102-D/2020, of 10 December –, that will come into force after July 1st 2021, is highlighted in *italic*):

- The implementation of the waste management hierarchy in the construction sector must focus on the reuse of materials, followed by the CDW sorting at the construction sites, and a sorting obligation previous to the CDW landfill disposal;
- Obligation to comply with national standards (from the Portuguese National Laboratory of Civil Engineering; in Portuguese: *Laboratório Nacional de Engenharia Civil*) or Community standards related with the recycling processes;
- Obligation to submit (in coordination with the Portuguese Public Procurement Code), specifically in the public construction works (public contractors), a CDW Prevention and Management Plan, at the project phase, to be evaluated and validated at the end of the intervention; this Plan must include the identification of the CDW by the ELW six digits codes, expected/generated quantities, transport

¹ European List of Waste (ELW): Commission Decision 2014/955/EU, of 18 December, amending Decision 2000/532/EC on the list of waste, pursuant to Directive 2008/98/EC of the European Parliament and of the Council.

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movements, identification of the treatment operations, and the identification/validation of the final destinations, through the e-GAR (electronic waste monitoring guides) tool;

- Obligation to maintain (in coordination with the Legal Regime of Urbanization and Edification) the data records about CDW management in private construction works subjected to license or prior notification (private contractors) (*e.g.*, types of CDW by the ELW six digits codes, quantities generated, transport movements and final destinations identification/validation, through the e-GAR tool);
- *The responsibility of the entity responsible to manage municipal solid waste (in this case, a municipality or a group of municipalities) to manage also the CDW resulting from private construction works not subjected to license or prior notification; note: in general terms, the responsibility to manage the CDW is from the its producer/owner, until he delivers it to a licensed waste management operator (this requirement has some alterations on the new national waste management legal framework, the Decree-Law 102-D/2020, of 10 December; see below);*
- The responsibility of the entity responsible to manage municipal solid waste (in this case, a municipality or a group of municipalities; see footnote) to also manage the CDW containing asbestos, again only if resulting from private construction works not subjected to license or prior notification.

As explained in Table 1, a **new national waste management legal framework** will come into force in Portugal after July 1st 2021 (Decree-Law 102-D/2020, of 10 December), revoking previous diplomas, but bringing all the main compromises mentioned before to CDW, and adding new guidelines regarding this specific waste stream, according to the WFD, amended by Directive 2018/851, of 30 May (for reference, the amendments regarding the previous legal frameworks are also highlighted in *italic*):

- *The Municipal Waste Management System (in Portuguese: Sistema de Gestão de Resíduos Urbanos – SGRU)², in charge of the collection of the municipal solid waste, is also responsible for managing the CDW arising specifically from minor do-it-yourself construction and demolition activities within private households; for this purpose, municipal systems must establish the conditions for the collection, transport and/or reception of this type of CDW, as well as define the applicable tariffs;*
- Until January 1st 2025, the entity responsible for the Municipal Waste Management System provides a selective collection network for different types of waste, including for CDW resulting specifically from minor do-it-yourself construction and demolition activities within private households; this entity integrates the costs of installing and managing this network in the tariffs to be applied to citizens, to waste producers or to the system users;
- The practices to be adopted in the project phase, and in the execution of the construction works themselves, must favour the constructive methods that facilitate the selective demolition oriented to the application of the principles of prevention and reduction of the waste hierarchy, as well as the conception for the deconstruction process, allowing the reuse of construction materials and the CDW recycling;

² Municipal Waste Management System: an entity representing a group of municipalities, sharing waste management responsibilities, depending on a specific regulatory framework, as well considering the contracts established between the parties; they are also responsible for the waste treatment, because they are in charge of the waste management facilities (*i.e.*, recycling, disposal, waste to energy).

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- In order to control the practices mentioned above, the mechanisms for evaluating the end of the construction work, as well as the selective demolition plan in the construction works subject to prior control (license or prior notification), must be foreseen in the specific municipal regulations for urbanization and edification;
- *Only in Portugal, it is mandatory, in public construction works (when technically feasible), to use at least 10% of recycled materials or materials containing recycled components, in relation to the total amount of materials used;*
- *Regarding the prevention targets for CDW, it is established the following: in 2025, reduce by 5% the amount of non-urban waste per unit of gross domestic product (GDP), particularly in the civil construction and public works sector, taking from reference the values from 2018 (in 2030, the target rises to 10%, compared to the values of 2018).*

2.2.2. Main contents

Considering the objectives of the project, as well as the main considerations made in the subchapter 2.1, the questionnaire was developed with the structure (sections A to H) and contents presented in Table 2, always in a legal framework perspective.

Moreover, sections F (selective demolition), G (reuse of materials) and H (incorporation of recycled materials) have also the objective to understand, indirectly, the practices related to material's passport (WP 3) and pre-demolition audits (WP 4).

Table 2. Questionnaire structure and main contents.

Section	Description	Main contents
A	CDW management responsibility	<ul style="list-style-type: none"> - Departments/services from the municipality with specific responsibilities in the CDW management; - Municipal (or municipal system) responsibility about CDW management resulting from private construction works not subject to license or prior notice (municipal/municipal system responsibility mandatory in Portugal).
B	CDW regulation	<ul style="list-style-type: none"> - Identification of municipal regulations (or procedures if regulations do not exist) regarding CDW management.
C	Services, infrastructure, and regulations associated to CDW	<ul style="list-style-type: none"> - Evaluation of CDW collection and storage services/ infrastructures provided by the municipality (and related regulations, if existing).

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Section	Description	Main contents
D	Different types of intervention procedures	<ul style="list-style-type: none"> - Evaluation of the municipal regulations and/or procedures in relation to different types of construction works, according to the Portuguese reality: <ul style="list-style-type: none"> - Public construction works (proposed by a public entity/investor and carried out by a contracted private construction company); in this case, in Portugal it is mandatory to present, in the project phase, a CDW Prevention and Management Plan, to be validated at the end of the intervention; - Direct administration construction works (proposed and carried out by the municipality itself, through own employees and/or a municipal company); - Particular construction works (proposed by a private entity/investor and, in general, carried out by a contracted private construction company), subjected to prior notification/licensing; in this case, in Portugal it is mandatory to maintain data records about CDW management; - Particular construction works (proposed by individuals and usually carried out by themselves or by contracted small construction companies), not subject to prior notification/licensing (in general small construction works). - Evaluation of the CDW final destinations control; - Evaluation of supervision procedures to construction sites and associated penalties applied.
E	Materials passports	<ul style="list-style-type: none"> - Evaluation of the municipality experience regarding the preparation of a building's materials passport; - Evaluation of the information available in the municipality regarding this topic (<i>i.e.</i>, for different types of buildings; level of detail; documents where it is possible to obtain the necessary data).
F	Selective demolition (deconstruction)	<ul style="list-style-type: none"> - Municipal practices/procedures promoting selective demolition processes (and regulation associated, if existing); - Municipal supervision and follow-up (<i>i.e.</i>, inspections, data records regarding the reuse of materials and the CDW management); - Identification of successful selective demolition examples carried out in its area of intervention.
G	Construction sector materials reuse	<ul style="list-style-type: none"> - Municipal practices promoting the reuse of construction materials (and regulation associated, if existing); - Data records regarding the reuse of materials; - Identification of successful examples of construction materials reuse carried out in its area of intervention.
H	Use of recycled materials or materials incorporating recycled components in the construction sector	<ul style="list-style-type: none"> - Municipal practices promoting the use of recycled materials, or materials incorporating recycled components (and regulation associated, if existing); - Data records regarding the use of recycled materials (mandatory for public construction works, in Portugal); - Identification of successful examples for the use of recycled materials.

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2.3. Data collection criteria

According to the main objective of the WP 2, the data collection criteria took into account the following principles, according to the territory coverage and its specific objectives (see Table 3):

- Municipalities from the *Baixo Alentejo* region, to consider the territory covered by the project;
- Other Portuguese municipalities; to collect good examples within the Portuguese reality;
- Other municipalities from other countries (NO, RO and CZ), to collect good examples in other contexts, to be analysed and applied/adapted to the project.

Regarding the partners from NO, RO and CZ, they were asked to submit the questionnaire to two to four municipalities, known for having good procedures for CDW management and the implementation of the principles of the circular economy to the construction sector. Each partner from the mentioned countries were allowed to do the following:

- To adapt the Portuguese questionnaire to their realities (a translated version of the Portuguese questionnaire was sent to each partner, in the platform *LimeSurvey*, as well as in a *Microsoft Word* document);
- To indicate two to four municipalities to submit the questionnaire, according to the WP 2 objectives;
- To select the best way to apply the questionnaire to the chosen municipalities (*i.e.*, though an online platform, an interview or other).

Table 3. Data collection criteria summary.

Country		Data collection methodology
Portugal	Municipalities of the <i>Baixo Alentejo</i> region	Questionnaire (see Annex I), through an <i>online</i> platform (<i>LimeSurvey</i>), allowing continuous editing by different intervenient in each municipality.
	Other Portuguese municipalities	
Norway		Phone Interviews, meetings.
Romania		Phone Interviews, meetings.
Czech Republic		Structured online interview with municipality representatives, after which the questionnaire (see Annex I) was filled in by ENVIROS.

2.3.1. Baixo Alentejo region

To accomplish the objectives of Activity 2.1 (legal framework analysis), the questionnaire was submitted to the whole territory where the project in being implemented, that is the 13 municipalities from the *Baixo Alentejo* region, in Portugal, with the main criteria described in Table 4.

The questionnaire was sent to the representative of the project in each municipality of the *Baixo Alentejo* region, that has the responsibility to coordinate the data collection process in the respective institution. In

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addition, clarification sessions were held with the municipalities to present the activities from WP 2, in the context of the project, and to answer to the doubts about the questionnaire.

Table 4. Data collection criteria summary for the *Baixo Alentejo* region.

Municipalities	Questionnaire		Criteria for data collection accompany
	Submission	Deadline	
<i>Aljustrel, Almodôvar, Alvito, Barrancos, Beja, Castro Verde, Cuba, Ferreira do Alentejo, Mértola, Moura, Ourique, Serpa and Vidigueira</i>	February 1 st	February 12 th	4 sessions with the municipalities (February 3 rd and 4 th 2021), with few municipalities per session (2 to 4), to present the activities from WP 2 in the context of the project, and to clarify the doubts about the questionnaire. All the 13 municipalities participated in the sessions.

2.3.2. Other Portuguese municipalities

Aiming to develop, in the medium term, Activity 2.2 (common regulatory framework), the questionnaire was submitted to other Portuguese municipalities (outside the *Baixo Alentejo* region). Considering this approach, 38 additional Portuguese municipalities were selected (see Table 5), according to a group of criteria considering information provided by the Portuguese Environment Agency (APA; in Portuguese: *Agência Portuguesa do Ambiente*), namely the answers to a questionnaire about CDW (and CDW containing asbestos), submitted in 2008 to all of the 308 Portuguese municipalities (APA, 2018). APA received 169 answers (161 if excluded the municipalities of the *Baixo Alentejo* region that answered).

To select other Portuguese municipalities to submit the project questionnaire, six criteria (C) were used based in the information given by APA:

- C1. Municipalities with the largest amount of CDW produced in 2018, although they may have not answered to the APA questionnaire (additionally information given by APA);
- C2. Municipalities that were identified in the APA questionnaire and that somehow have regulatory mechanisms conditioning administrative acts, associated with the prior notification/licensing processes related to the CDW management in construction works; but only if, in addition, they also selected, in the same questionnaire, at least to one of the following criteria (in order to try to obtain, in reality, good examples of applied regulations and/or practices):
 - o C2.1. Municipalities consequent in their actions, regarding criteria C2, currently conditioning somehow the licensing processes (to be mandatory on the Portuguese legal framework about CDW, after July 1st 2021);
 - o C2.2. Municipalities with regulations including tariffs for provided CDW management services;
 - o C2.3. Municipalities assuming the responsibility for managing themselves the CDW containing asbestos resulting from private works without prior notification/licensing processes (mandatory in the current Portuguese regulatory framework);
- C3. Municipalities that do not answered the questionnaire submitted by APA, but that are known in Portugal for good regulations and/or practices in relation to CDW management.

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It was not expected that all the 38 municipalities answer to the project questionnaire, either due to time constraints or maybe because they will not feel that it is important or a priority to them in respect to the CDW management constraints in their territories. Nevertheless, previous contacts were established with the majority of these municipalities, to briefly present the project (De)construct for Circular Economy, to explain the purpose of the questionnaire and to ask for a direct contact to send it.

Table 5. Methodological approach to select other Portuguese municipalities.

Portuguese region (NUT II)	Municipalities	Selection criteria					
		C1	C2				C3
			C2.1	C2.2	C2.3	C2.4	
Alentejo	Évora	X					
	Portalegre	X					
	Campo Maior		X	X			
	Santarém		X			X	
Algarve	Portimão	X					
	Tavira	X					
	Alcoutim		X		X		
	Silves		X	X			
Área Metropolitana de Lisboa	Sintra						X
	Almada	X					
	Lisboa	X					
	Loures	X					
	Oeiras	X					
	Barreiro		X		X	X	
	Mafra		X			X	
	Moita		X			X	
	Seixal		X		X		
	Sesimbra		X		X		
Centro	Figueira da Foz		X	X		X	X
	Ílhavo		X				X
	São Pedro do Sul						X
	Aveiro	X					
	Coimbra	X	X				
	Arganil		X		X	X	
	Estarreja		X		X		
	Ferreira do Zêzere		X		X		
	Góis		X		X	X	
	Mealhada		X		X		
	Montemor-o-Velho		X		X		
	Oliveira de Frades		X			X	
	Oliveira do Bairro		X		X	X	
	Penacova		X			X	
	Peniche		X		X		
	Pombal		X	X			
Norte	Guimarães	X					
	Porto	X					
	Penafiel		X		X		

Portuguese region (NUT II)	Municipalities	Selection criteria					
		C1	C2				C3
			C2.1	C2.2	C2.3	C2.4	
	<i>São João da Madeira</i>		X		X		

Legend: C1 - municipalities with the largest amount of CDW produced in 2018; C2 – municipalities that answered to APA questionnaire and that have regulatory mechanisms conditioning administrative acts (C2.1 - municipalities consequent in their actions, regarding criteria C2; C2.2. - municipalities with regulations including tariffs for provided CDW management services; C2.3 - municipalities assuming the responsibility for managing themselves the CDW containing asbestos resulting from private works without prior notification/licensing processes); C3 - municipalities that do not answer to APA questionnaire, but that are known for good regulations and/or practices in relation to CDW management.

After the first contact and sending the questionnaire, clarification sessions were proposed to present the project and to clarify any doubts about the questionnaire. There were proposed four sessions with the municipalities, with few municipalities per session. However, only six municipalities registered for the sessions. The data collection criteria are summarized in Table 6.

Table 6. Data collection criteria summary for other Portuguese municipalities.

Municipalities	Questionnaire (dates)		Criteria for data collection accompany
	Submission	Deadline	
38 Portuguese municipalities (outside the <i>Baixo Alentejo</i> region) mentioned in Table 5	February 8 th , 2021	February 26 th , 2021	4 sessions were proposed for these 38 municipalities (February 17 th and 19 th), with few municipalities per session, to present the project and to clarify any doubts about the questionnaire. 6 municipalities registered for the sessions (<i>Alcoutim, Ferreira do Zêzere, Oliveira de Frades, Santarém, São João da Madeira and Sintra</i>), although only 2 attended (<i>Sintra and Alcoutim</i>). Regarding <i>São João da Madeira</i> , a clarification was provided by telephone regarding the questionnaire platform.

2.3.3. Norway, Romania and Czech Republic

Aiming to address the objectives of Activity 2.2 (common regulatory framework, designed for the *Baixo Alentejo* region), the questionnaire was also submitted in chosen municipalities in NO, RO and CZ, as described below for each country.

Norway

The main regulatory framework concerning CDW management and related topics relevant to WP 2 activities are identified in Table 7.

Table 7. Norwegian regulatory framework concerning WP2 activities.

Regulatory framework	Main topics
General waste framework	

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Regulatory framework		Main topics
Act on protection against pollution and on waste (Pollution Control Act)	LOV-1981-03-13-6	The Pollution Control Act stipulates a general duty to avoid pollution, and also prohibits littering. The purpose of the Pollution Control Act is to protect the external environment against pollution, reduce existing pollution and waste, and to promote good waste management. The Act shall ensure a sound environmental quality, so that pollution and waste do not lead to health damage, harm well-being or damage nature's ability to produce and self-renew.
Regulations on recycling and treatment of waste (Waste Regulations)	FOR-2004-06-01-930	The Norwegian Waste Regulations, implemented in 2004, contained chapters regarding the treatment of different waste streams and requirements for recycling, including CDW.
From waste to the resource's strategy		Ministry of the Environment Developed a waste strategy for the work in the coming years. In the strategy hosts some priority areas where we see challenges highlighted: waste prevention, better utilization of the resources in the waste through more material recycling, and environmentally sound handling. Chapter 5 relates to CDW.
Waste management plan 2020 - 2025		Ministry of the Environment Developed an action plan highlighting the priority activities to be implemented. Chapter on CDW.
Klimaplan for 2021–2030		The newly adopted document is putting forward a compelling, comprehensive plan for cutting emissions in every sector, regulation on building and construction sector are included. In the section 7 the Government has formulated aims for public buildings and property in the civilian sector. These will apply to the central government administration in its roles as developer, manager and tenant of property. The central government will seek to make full use of existing buildings, ensure re-use of buildings, re-use materials and choose environmentally friendly materials. The central government will also establish a common methodology for measuring the overall climate and environmental impact of public buildings and highlight the environmental benefits of re-using already developed areas and existing buildings, and of siting developments in line with central government planning guidelines.

Regulatory framework related to construction sector and CDW

Regulations on technical requirements for buildings (Building Technical Regulations)	FOR-2017-06-19-840	The regulation shall ensure that measures are planned, projected and carried out with regard to good visual quality, universal design and so that the measure meets technical requirements for safety, environment, health and energy. Requires a pre-demolition audit. The threshold for conducting a pre-demolition audit is as follows: i) floor area of the building is larger than 100 m ² ; ii) more than 10 t of waste is generated.
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Regulatory framework		Main topics
Act of 27 June 2008 No. 71 relating to Planning and the Processing of Building Applications (the Planning and Building Act) (the Planning part)	LOV-2008-06-27-71	<p>The regulation includes the rules on the processing of construction cases shall ensure a proper execution and control of construction work. The Act sets certain material requirements for buildings and provides authority for Building Technical Regulations which contain additional requirements.</p> <p>The law applies to all types of activities and businesses related to real estate. It applies to the whole country and to all "measures". By «measures» is meant the law «construction, demolition, alteration, including façade alterations, altered use and other measures related to buildings, structures and facilities, as well as terrain encroachment and creation and alteration of property». "Measures" also include other activities and changes in land use that will be in conflict with what has been decided on land purposes, planning regulations and consideration zone.</p> <p>The Act also contains rules on the responsibility of developers and developers, public responsibility, including liability for damages, and public authorities' control of measures and construction work. The provisions of the Act are detailed and entail extensive duties and responsibilities both for those who want to implement measures covered by the Act and for those who, on behalf of the public sector, control and supervise that laws and regulations are complied with and plans are respected.</p> <p>Chapter 28. Requirements for the building site and undeveloped area.</p>
Disposal of concrete and brick waste	Miljødirektorat	The document (factsheet) describing under which conditions the recycling of concrete is not in conflict with the pollution ban of the environment. When the conditions are fulfilled, no environmental permit is needed.
Private sector initiatives		
A guidance for assessment of the quality of concrete for recyclability and waste management	The Norwegian Forum "Forum for miljøkartlegging og -sanering"	<p>This guide deals with concrete and other heavy demolition materials. In this document it is like one simplification in many places only mentioned concrete, but when used as a collective term it is meant all heavier demolition materials of mineral origin such as:</p> <ul style="list-style-type: none"> – Concrete (cast-in-place, prefabricated, shotcrete, concrete products such as pipes, troughs, railway sleepers, slabs, retaining walls, roof tiles, etc.); – Bricks (bricks and roof tiles); – Lightweight clinker; – Aerated concrete; – Lime sandstone; – Cement-based glue and sealant.
National Action plan on construction waste NHP5	The Federation of Norwegian Construction Industries	The National Action Plan for Construction Waste 2021-2022 stipulates that responsibility of the construction industry to achieve national goals and for waste reduction, correct sorting, proper handling and material recycling of construction and demolition waste. The action plan identifies measures to achieve set goals and ambitions for the next three years. Construction waste is industrial waste from demolition, rehabilitation and new construction of buildings.

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Regulatory framework		Main topics
NS 3420-CD:2018 Norwegian standard for building, construction and installations - Part CD: Environmental decontamination, dismantling and demolishing	Standard developed by Standard Norway	The standard sets requirements for the management (documentation) of the removal of hazardous substances from buildings during dismantling and demolition has been developed. The standard also contains guidance on a selection of codes according to the European list of waste.

No adaptations were made to the Portuguese version of the questionnaire (see Annex I).

The following criteria were chosen to select the Norwegian municipality to submit the questionnaire:

- C1. Comparable size to the Portuguese municipalities interviewed;
- C2. A different view/model of CDW management;

Complementary information about the process is summarized in Table 8.

Table 8. Data collection criteria summary for Norway.

Municipality	Questionnaire (date)		Criteria for data collection accompany
	Submission	Deadline	
<i>Stjørdal</i>	February 26 th , 2021	March 5 th , 2021	e-mail/phone to agree on the meeting CATI (computer assisted telephone interview) method to be used

Romania

The main regulatory framework concerning CDW management and related topics relevant to WP 2 activities are identified in Table 9. Romania still lacks the “Law on the CDW management”, although is in the Parliament since several years waiting to be approved.

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Promotor:



Parceiros:



Table 9. Romanian regulatory framework concerning WP 2 activities.

Regulatory framework		Main topics
Main waste regulatory framework	Waste Law 211/15.11.2011 with amendments	The entities having a construction permit have the obligation to manage the construction and demolition waste, so as to reach progressively, until December 31, 2020, a level of readiness for reuse, recycling and other material recovery operations, including backfilling operations, of at least 70% from the mass of non-hazardous waste, generated from construction and disposal activities.
Specific regulatory framework (waste containing asbestos)	Decision 124 of 30 January 2003 on the prevention, reduction and control of environmental pollution with asbestos (updated, March 19 th 2007)	Operators having activities that are involving the presence of asbestos are required to take steps to ensure that: <ul style="list-style-type: none"> – Activities involving works with asbestos-containing products do not represent a significant source of environmental pollution with asbestos fibres or dust; – The demolition of buildings, structures and installations containing asbestos and the removal of asbestos or materials containing asbestos do not lead to a significant pollution of the environment with asbestos; – The transport and storage of waste containing dust and/or asbestos fibres are not accompanied by emissions of dust and/or asbestos fibres into the air nor by the spreading of liquids containing asbestos fibres; – The storage of waste containing asbestos dust and/or fibres is done with their appropriate treatment, packaging or coating, considering the local conditions, so as to prevent the pollution of the environment with asbestos.
Construction sector regulatory framework	Law 50/29.07.1991 with all its amendments regarding the authorization of the execution of the construction works (all types of construction works)	The building permit is conditioned by the existence of a waste management plan for all waste types generated during construction works, including CDW.
Sanitation regulatory framework	Law no. 101/2006 of the sanitation service with all subsequent additions,	The law includes in the activities of the sanitation service the collection and transportation of CDW generated by household renovation activities and small constructions. Thus, the population is required to hand over the CDW to the sanitation operator or bring it to collection centres. Sanitation operators collect CDW from the population and transport them to recycling / recovery facilities, to the regional landfills for non-hazardous /

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Regulatory framework		Main topics
		inert waste or provide it for filling material.
Other initiatives		
Waste Management Plan	The National Waste Management Plan from 2017 – 2020	The National Waste Management Plan from 2017 – 2020 foresees the following measures (non-applied till today) -The development and approval of the CDW management legislation (2018) -The improvement fi the CDW monitoring system (2018) -The increase of CDW recycling capacities (2019) -Elaboration of technical norms on the quality of the material resulting from CDW treatment and “end of life” waste (2019) -CDW to be banned at landfills by 2019
Guide	Guide for temporary storage of non hazardous construction and demolition waste, elaborated by the NEPA within a Phare project 2008	The guide highlights aspects such as: - planning and designing the facilities for temporary storage of non-hazardous waste from constructions and demolitions in order to operate as easily as possible; - regulation of their design and construction activity - necessary agreements and authorizations, procedures for informing the public; - the operation and management of the facility; - control of the environment risk and of the health of the employed personnel; - methods and indicators used for monitoring the environmental impact; - closure, respectively decommissioning of the facility, ways of remediation and post monitoring
Guide	Guide regarding CDW Management elaborated in 2011 within an EEA financed project by the Regional Environmental Protection Agency from Sibiu	The guide provides information on CDW management in environmentally safe conditions. The guide is intended for local public authorities, sanitation operators, economic operators that carry out construction, renovation and decommissioning activities in order to reduce at maximum the impact on the environment, generated by them.
Standard	NP055 - 1988 - Provisional framework normative regarding the partial or total demolition of the constructions	General principles and rules at demolition works
Guide	GE 022-1999 Guide to the Execution of Demolition Works.	Technical methods for demolition works

It is expected that the “Law on the CDW management” regulates the following aspects:

- The public authorities are responsible to organize, manage and coordinate the collection of waste, including CDW, resulting from construction works which do not requires a building/demolition permit;
- Introduces new requirements for the CDW management for public authorities:

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- To organize, manage and coordinate waste collection, including CDW, from abandoned construction works on their administrative territory;
- To set up CDW collection and treatment points for reuse/recycling of materials and/or backfilling of non-hazardous waste from construction activities, if within a radius of not more than 50 km there is no such center or transfer station to operate exclusively CDW.
- Requires the introduction of the CDW Management Plan for public and private companies having a building/demolition permit, as follows:
 - All construction works implying total build surface higher than 200 m²;
 - All demolition, renovation works implying CDW generation in the amount of minimum 100 m³;
 - All civil engineering projects implying CDW generation in the amount of minimum 200 m³.
- The competent authority issuing the building/demolition permit requires a financial guarantee covering the costs of CDW management activities.

No changes/adaptations were made to the Portuguese version of the questionnaire (see Annex I), because the CDW management varies between different Romanian municipalities and therefore it was considered a better option to keep the original version, so more options are available while completing the form.

The following criteria were chosen to select the Romanian municipalities to submit the adapted questionnaire:

- C1. Municipalities perceiving CDW as a major problem;
- C2. Various models of CDW management;
- C3. Municipalities assuming the responsibility for managing themselves the CDW.

Complementary information about the process is summarized in Table 10.

Table 10. Data collection criteria summary for Romania.

Municipalities	Questionnaire (dates)		Criteria for data collection accompany
	Submission	Deadline	
<i>Timisoara</i>	February 10 th , 2021	February 15 th , 2021	2 meetings with Sanitation Office (February 10 th) and Environmental Department (February 12 th) for face-to-face interviews and discussions.
<i>Bistrita Nasaud</i>	February, 17 th , 2021	February 19 th , 2021	Phone interview (February 17 th) with the Environmental Coordinator of the municipality.
<i>Baia Mare</i>	February 10 th , 2021	February 22 nd , 2021	Phone interview (February 22 nd) with the Environmental Coordinator of the municipality.

Czech Republic

The main regulatory framework concerning CDW management and related topics relevant to WP 2 activities are identified in Table 11.

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Promotor:



Parceiros:



Table 11. Czech regulatory framework concerning WP 2 activities.

Regulatory framework		Main topics
National circular economy regulatory framework	Circular Czechia 2040	<ul style="list-style-type: none"> – The main policy strategic document on circular economy – currently under development; – CDW is considered one of the five priority material flows to be addressed; – The vision is: “CDW management follows waste management hierarchy significantly contributing to increase of the overall Domestic Material Productivity and replacement of primary natural resources with high-quality secondary raw materials.”
National waste management regulations	Law 541/2020 on Waste	<ul style="list-style-type: none"> – New waste management legislation (in force since January 2021) transposing requirements of Circular Economy Package; – CDW is not considered as part of municipal waste (even if generated by citizens). Therefore, municipalities do not have an obligation to establish a system for CDW management. (however, they can if they want.); – In case of (re)constructions and demolitions, the waste hierarchy must be followed. A (re)construction/demolition shall be carried out in a way to maximize reuse and recycling of CDW (details will be set in a decree of the Ministry of Environment – under preparation.); – The Law sets a ban on landfilling of recyclable waste from 2030.
	Methodical guidelines of the Ministry of Environment for the CDW management	<ul style="list-style-type: none"> – The Guidelines provide recommended procedures for the preparation and realization of constructions in relation to waste prevention, use of CDW and their treatment.
Regulations on waste containing asbestos	Law 541/2020 on Waste	<ul style="list-style-type: none"> – When handling waste containing asbestos, it must be ensured that no asbestos fibres or asbestos dust are released into the air and that liquids containing asbestos fibres are not spilled; – Details and technical requirements are set in a decree of the Ministry of Environment – under revision.
	Methodical guidelines of the Ministry of Environment for the CDW management containing asbestos	<ul style="list-style-type: none"> – The Guidelines provide recommended procedures for the preparation and realization of constructions in relation to materials containing asbestos, and define principles for the management of asbestos-containing materials and asbestos-containing waste – with the main aim to minimize health risks.

With references to the subject in analysis, also other regulations exist – including for instance the Waste Management Plans, the regulations in the area of public health and health&safety at work (with relevance for asbestos), public procurement regulations, environmental impact assessment and building regulations, among others. Nevertheless, these regulations were not evaluated as they concern general or complementary issues difficult to be transposed to a regional/local scale reality.

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Promotor:



Parceiros:



The main adaptations made to the Portuguese version of the questionnaire are:

- The questionnaire was not distributed via an online platform nor by e-mail. Structured online interviews with municipality representatives were held, and based on their answers and discussion, the questionnaires were filled in by ENVIROS;
- No changes to the structure and text of the questionnaire were made.

The following criteria were chosen to select the Czech municipalities to submit the adapted questionnaire:

- C1. Municipalities representing different types and size: each of the three chosen municipalities represent different type of municipality: regional capital (50 thousand inhabitants), district city (23 thousand) and 'regular' municipality (10 thousand);
- C2. Municipalities with different levels of procedures for waste management: two of the municipalities are considered to have good procedures for waste management (category 'A' of LA21), while the third represents the average level.

Complementary information about the process is summarized in Table 12. The answers to the questionnaire will be analysed, and the results will be present in the context of Activity 2.2 (common regulatory framework, designed for the *Baixo Alentejo* region).

Table 12. Data collection criteria summary for Czech Republic.

Municipalities	Interview (dates)	Criteria for data collection accompany
<i>Jihlava</i>	February 16 th , 2021	Online meeting was organized 16 th February with two city representatives. In the beginning, they were introduced the project and its activities; then, a structured interview was carried out. The city expressed their interest in obtaining the results of the Legal framework analysis.
<i>Chrudim</i>	March 25 th , 2021	Phone interview was carried out 16 th March with the Head of Environmental Department. The questionnaire was then filled in by the city and provided 25 th March.
<i>Milovice</i>	February 24 th , 2021	Online meeting was organized 24 th February with a city representative. In the beginning, she was introduced the project and its activities; then, a structured interview was carried out.

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Promotor:



Parceiros:



3. Results

3.1. Baixo Alentejo results

After collecting the answers from all the 13 municipalities from the *Baixo Alentejo* region, in Portugal, it was possible to obtain part of the results that will serve as a basis for the creation of a common regulatory framework to be adopted in the region, *aiming* to achieve a more circular approach in the construction sector, including the effective CDW management. The results of the questionnaire will be presented in the current section following the described methodological approach, namely the questionnaire structure (see subchapter 2.2.2). More detailed results concerning precise practices adopted by the municipalities will be considered only during Activity 2.2.

3.1.1. CDW management responsibilities

The organic and consequent responsibilities about CDW management were asked to the 13 municipalities of *Baixo Alentejo*. The results are presented in Table 13.

Table 13. Responsibility concerning CDW management at a municipal level.

Municipality	Department	Responsibility
<i>Aljustrel</i>	Works division	Licensing (private construction works) / public construction work (contracts) / receiving requests from the CDW collection service.
	Oversight	Supervision of all construction works (with license and exempt from licensing).
	Environment	Supervision and awareness.
	Operative Services	Management of construction works by direct administration / CDW collection and transport.
<i>Almodôvar</i>	Environmental Management, Public Hygiene and Green Spaces	Construction works exempted from licensing and by direct administration.
	Works, Urban Services and Territorial Management Division	Private and public construction works.
<i>Alvito</i>	Municipal Unit for Works and Urban Services	Analysis of procedures; Issuance of Licenses and Supervision.
<i>Barrancos</i>	Works and Urban Services Unit	Issuance of Construction and Construction Supervision Licenses.
	<i>Barrancos</i> Parish Council	Transport of waste to transfer station.
<i>Beja</i>	Environment and Sustainability Division	Issuance of e-GAR (electronic waste monitoring guide); CDW collection and transport service.
	Urban Management Division	Oversight; Issuance of construction works licenses; control of CDW produced on site.
	Operational Services Division	Collection and transport service.
<i>Castro Verde</i>	Environment and Public Spaces Division	Procedural analysis, management of infrastructures (ecocenter or similar spaces) for temporary CDW storage.
	Works and Urban Management Division	Issuance of Licenses and Inspection.

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Parceiros:



Municipality	Department	Responsibility
<i>Cuba</i>	Environment, Planning and Urbanism Unit	Oversight
<i>Ferreira do Alentejo</i>	Environment	Analysis of procedures, CDW transport to final destination.
	Urban Planning and Public Works Division	Issuance of licenses and preparation of plans for the prevention and CDW management in public construction works.
	Municipal Inspection	Supervision in the entire process of private construction works.
<i>Mértola</i>	Strategic Planning and Development Service	Planning.
	Division of Urban Services and Municipal Works	Management and licenses.
	Strategic and Territorial Planning and Legal Support Division	Licenses and inspection.
	Public Works by Contract	Management and licenses.
<i>Moura</i>	Works and Urban Services Division	Municipal construction works and construction works not subject to license.
	Planning, Management, Urban Planning, Investment and Tourism Division	CDW from construction works with a license.
<i>Ourique</i>	Environment Service	Analysis of procedures.
	Licensing Service for Private Works	Issuance of licenses.
	Contracting Service	Inspection.
	Inspection and Inspection Service	Inspection.
<i>Serpa</i>	Environment and Urban Services Division	Responsibility, collection, and transport of CDW produced in private works exempted from license and not subject to prior communication, whose management is the responsibility of the Municipality.
<i>Vidigueira</i>	Environment, Works, Workshops and Equipment Subunit	Supervision of construction works, reception, deposition and packaging.

Based on the results obtained it is possible to verify that in *Baixo Alentejo* region there is a great discrepancy on which municipal service, unit or department falls the responsibility for CDW management. It can also be seen that even in the municipality itself, depending on the nature of the type of construction work, the responsibility for the management and control of the CDW generated differs, which makes the process even more heterogeneous. Complementing this analysis, Figure 1 shows how CDW management is performed at a municipal level, according to the type of construction work, in the 13 municipalities of *Baixo Alentejo* region.

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Promotor:



Parceiros:



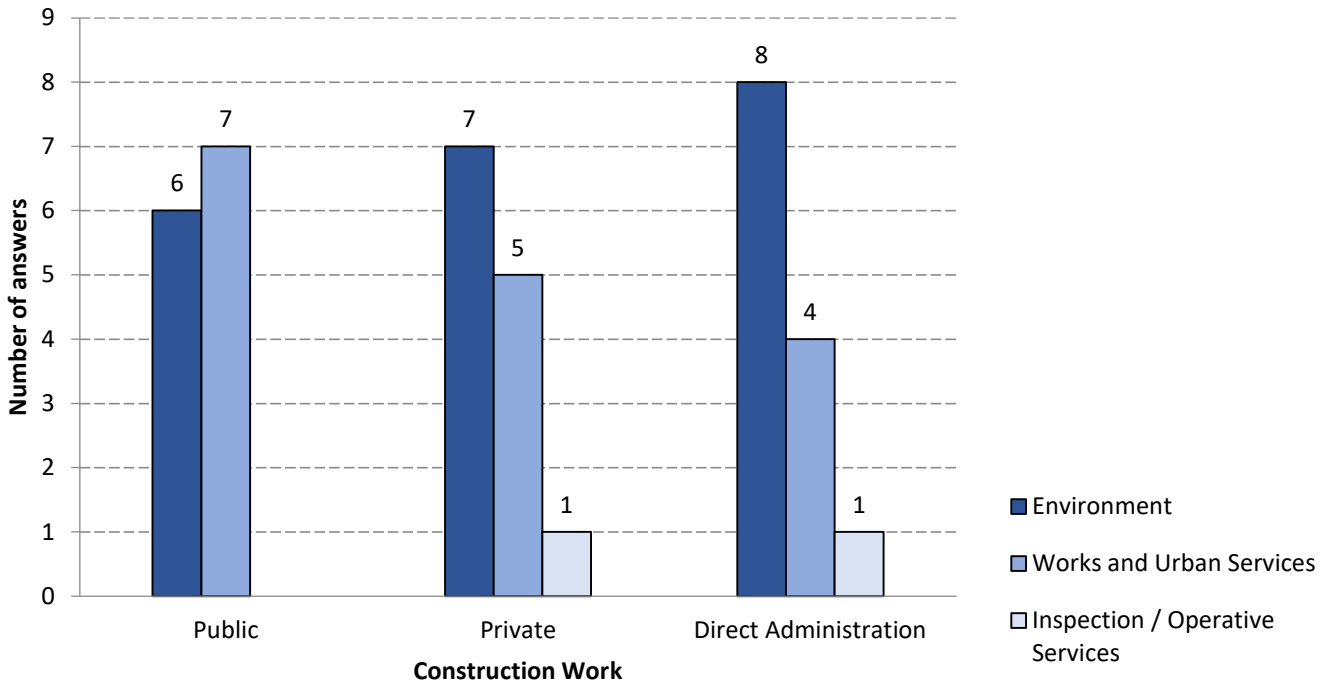


Figure 1. Service or department responsible for CDW management, in the 13 municipalities of *Baixo Alentejo*.

3.1.2. CDW regulation

To understand how the CDW management is regulated, it was questioned to each *Baixo Alentejo* municipality about the existence of specific regulations regarding CDW management. As can be seen in Figure 2, only 3 of the 13 municipalities do not have it, namely *Almodôvar*, *Alvito* and *Barrancos*.

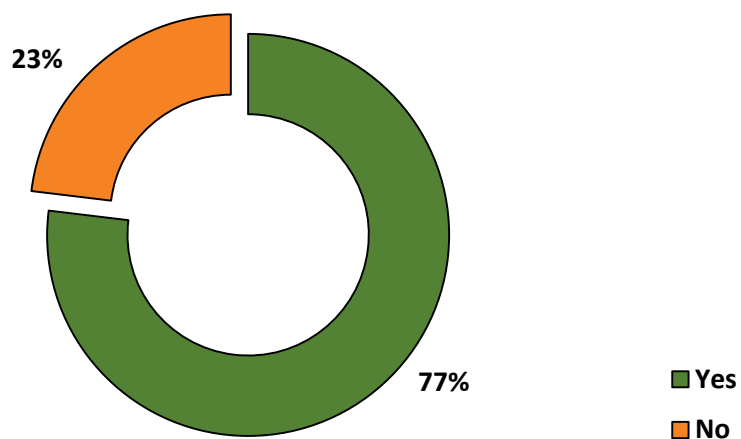


Figure 2. Municipalities with regulations concerning CDW management.

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Parceiros:



In case the regulations about CDW management exists, it is because the municipalities assume the responsibility for CDW management generated in the construction works carried out, although the procedures may not be uniform, as can be understood through the results obtained in the previous section.

Table 14 shows the entry into force of the CDW management regulations. As previously mentioned, 3 of the 13 municipalities of *Baixo Alentejo* (*Almodôvar*, *Alvito* and *Barrancos*) do not have regulations referring to CDW management, and the municipality of *Ferreira do Alentejo*, despite having a regulation, did not provide information about the implementation date. In the remaining nine municipalities, the regulations come into force between 2012 and 2019, being important to notice that three municipalities (*Beja*, *Ourique* and *Vidigueira*) have recent regulations, dated from 2019. It should also be noted that the municipality of *Mértola*, which had the oldest regulation (2001), is currently in the process of revising it.

Table 14. Entry into force date of the municipal regulations related to CDW management.

Municipality	Entry into force
<i>Aljustrel</i>	20/12/2015
<i>Almodôvar</i>	Do not have regulations
<i>Alvito</i>	Do not have regulations
<i>Barrancos</i>	Do not have regulations
<i>Beja</i>	13/08/2019
<i>Castro Verde</i>	20/02/2016
<i>Cuba</i>	28.06.2012
<i>Ferreira do Alentejo</i>	No information provided
<i>Mértola</i>	2001 (in revision)
<i>Moura</i>	11/03/2015
<i>Ourique</i>	07/06/2019
<i>Serpa</i>	19/02/2016
<i>Vidigueira</i>	01/03/2019

Based on the answers expressed in Table 14, it was important to realize which entity assumes direct responsibility for the CDW management, regarding construction works not subject to licensing or prior notification. Based on the responses obtained and represented in Figure 3, it can be seen that: most of the municipalities (77%, corresponding to 10 municipalities), assume direct responsibility for the CDW management, one municipality (*Serpa*) assigns this responsibility to the Urban Waste Management System, and two municipalities (*Mértola* e *Barrancos*) do not carry out the CDW management in the municipality and do not specify who is the responsible entity for this.

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Promotor:



Parceiros:



■ Municipality ■ Urban Waste Management System ■ Not performed in the municipality

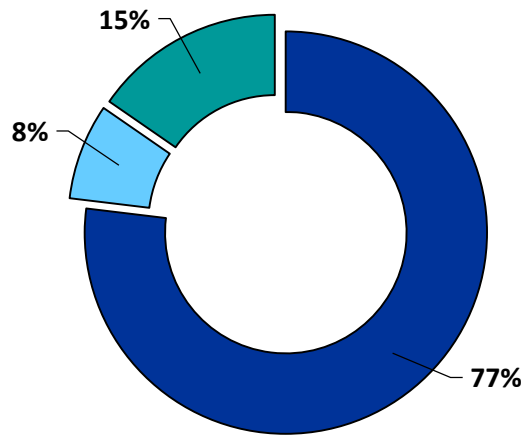


Figure 3. Responsibility of CDW management in construction works not subject to licensing or prior notification.

3.1.3. Services, infrastructure and regulations associated

As analysed before, the majority of municipalities have regulations regarding CDW management (77%, corresponding to 10 out of 13 municipalities, namely *Aljustrel, Beja, Castro Verde, Cuba, Ferreira do Alentejo, Mértola, Moura, Ourique, Serpa* and *Vidigueira*), it was important to understand whether the municipalities that provide the collection service have the necessary infrastructure to carry out CDW management. In Figure 4, it can be seen that 6 of the 13 municipalities of *Baixo Alentejo*, namely *Aljustrel, Beja, Castro Verde, Cuba, Serpa* and *Vidigueira* have infrastructures, such as an ecocenter/drop-off center or a similar space, to ensure the municipal responsibility to the effective CDW management.

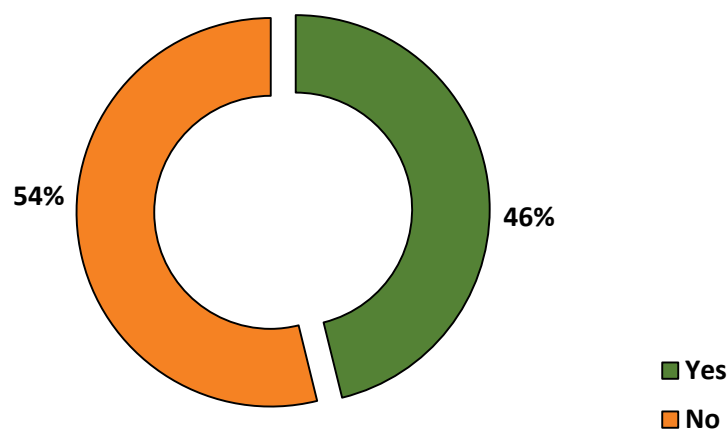


Figure 4. Municipalities with infrastructures (ecocenter or similar spaces) for CDW management.

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Promotor:



Parceiros:



It was also important to understand if, when providing infrastructures for CDW management (ecocenter/drop-off center or similar spaces), if these spaces are properly regulated. Figure 5 shows the responses to the CDW collection services, duly regulated, that were obtained. It is verified that the municipalities that provide infrastructures for CDW management have them properly regulated.

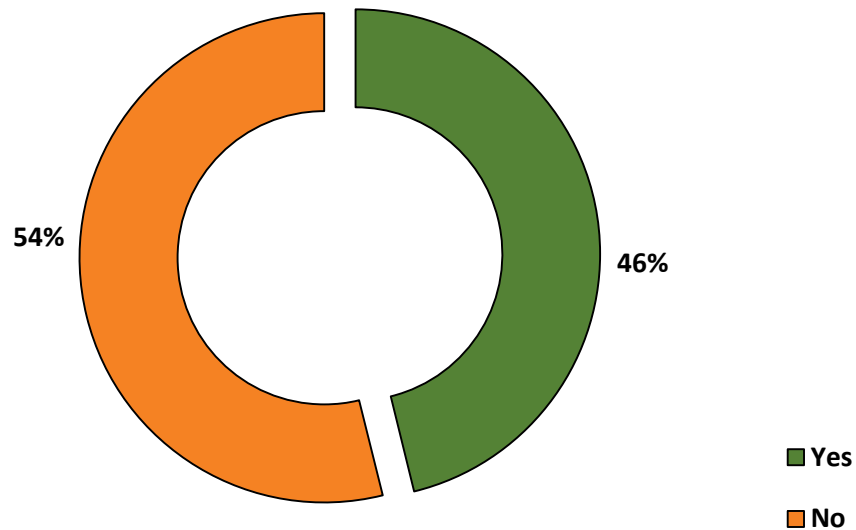


Figure 5. Municipalities that provide a duly regulated CDW collection service.

Although the percentages of municipalities that carry out the CDW collection are the same as those that have infrastructure for their management, there are some differences since *Baixo Alentejo* have municipalities that carry out this service but that do not have the necessary infrastructures for its effective management. Thus, in *Baixo Alentejo* region, only 6 of the 13 municipalities have ecocenters where citizens can deliver their CDW, namely the municipalities of *Aljustrel*, *Almodôvar*, *Castro Verde*, *Cuba*, *Serpa*, and *Vidigueira*.

Assessing if the infrastructures that municipalities have for CDW management have specific regulations, it was verified that only one of the six municipalities comply with this matter, namely *Serpa* municipality.

3.1.4. Different types of intervention procedures

Another important issue was to understand how the municipalities proceed according to the various construction works executed. Thus, a series of similar questions was carried out for the different types of construction interventions, being the main results presented in the following sections:

- Public construction works;
- Direct administration construction works (from the municipality itself);
- Private construction works subject to prior notice/license;
- Private construction works not subject to prior notice/license.

Public construction works

Based on the responses obtained, it was possible to notice that the vast majority of Baixo Alentejo municipalities adopt (general) practices and procedures related to the CDW management for this type of construction works (77%, corresponding to 10 municipalities), as can be seen in the Figure 6.

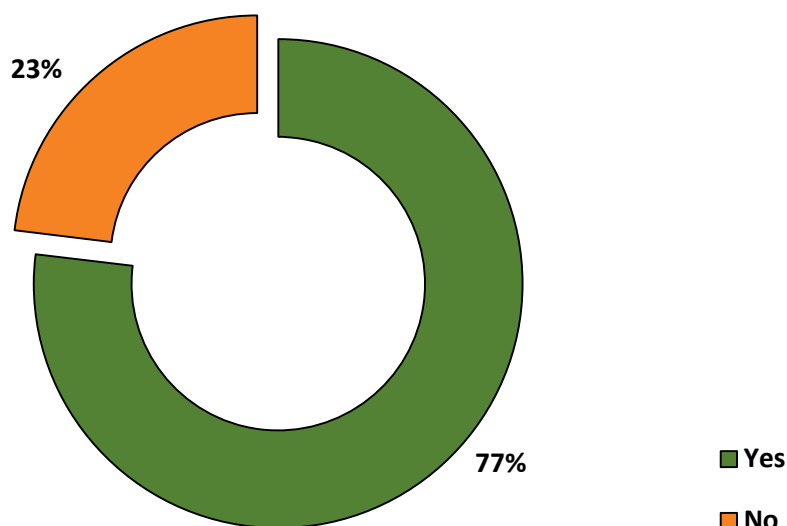


Figure 6. Municipalities with practices/procedures regarding CDW management in public construction works.

In specific, and taking into account the existing legislation, which regulates this type of construction work, it was important to understand if the municipalities control and verify what is imposed by the legislation that governs public construction works (Public Procurement Code), namely the elaboration in the project phase, implementation during the construction phase, and validation after the work in complete of a specific CDW Prevention and Management Plan.

The Figure 7 shows that although the vast majority of municipalities (77%) adopt CDW management practices/procedures in public construction works, in regard to the CDW Prevention and Management Plan, not all verify the correct fulfilment of the mentioned plan. In this case *Mértola*, *Moura* and *Ferreira do Alentejo* municipalities do not control or verify it. Moreover, *Serpa*, *Barrancos* and *Castro Verde*

municipalities do not implement practices and procedures related to the CDW management and, in consequence, they do not implement either the aforementioned Plan.

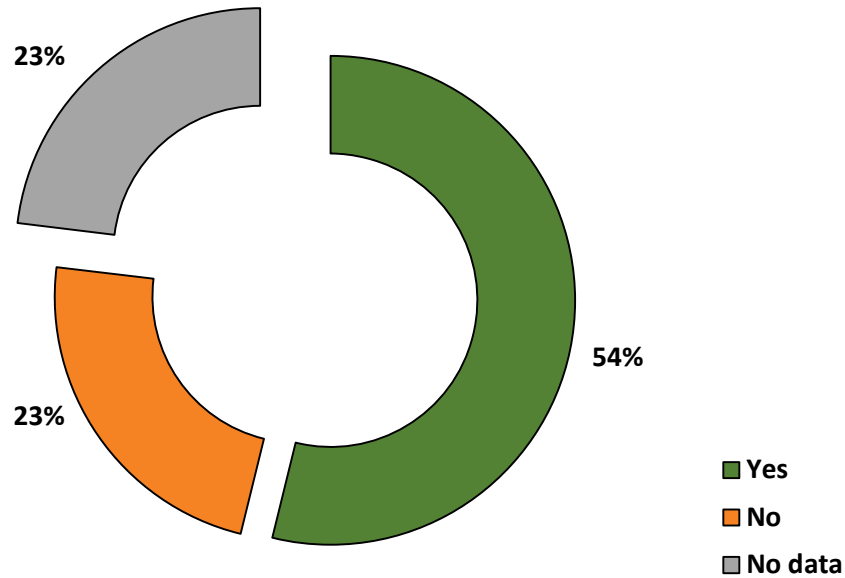


Figure 7. Municipalities verifying the CDW Prevention and Management Plan at the end of the public construction works.

Following the previous presentation, it was asked whether the municipalities verify, through e-GAR tool (electronic waste monitoring guides), the final destination of the CDW generated in these construction works. The results for this question are reflected in Figure 8. In this case, *Ferreira do Alentejo*, *Mértola*, *Moura* and *Ourique* municipalities do not verify it. As mentioned earlier, the three cases of non-application refer to the municipalities of *Serpa*, *Barrancos* and *Castro Verde*, not implementing practices and procedures related to the CDW management.

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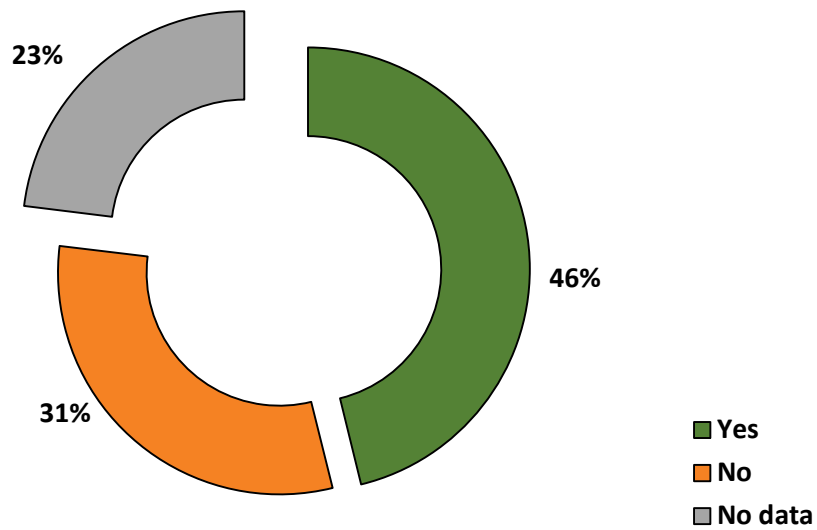


Figure 8. Municipalities verifying the final destination of CDW generated through e-GAR tool.

In short, only Serpa, Barrancos and Castro Verde assume that they do not comply, as for example regarding the verification of the CDW Prevention and Management Plan at the end of the construction work, to attest if it is compliant with the Portuguese Public Procurement Code, as well as the verification of the correct CDW transport to licensed waste management operators through e-GAR (electronic waste monitoring guides) tool validation.

Direct administration construction works

In direct administration construction works (works executed by the municipality), where CDW management responsibility is from the municipality itself, the responses obtained about the adoption of practices/procedures regarding this waste stream management are presented in Figure 9. Although the majority of municipalities recognise that they implement practices related to CDW management, 31% (four municipalities) do not adopt it: *Aljustrel, Castro Verde, Ferreira do Alentejo and Moura*.

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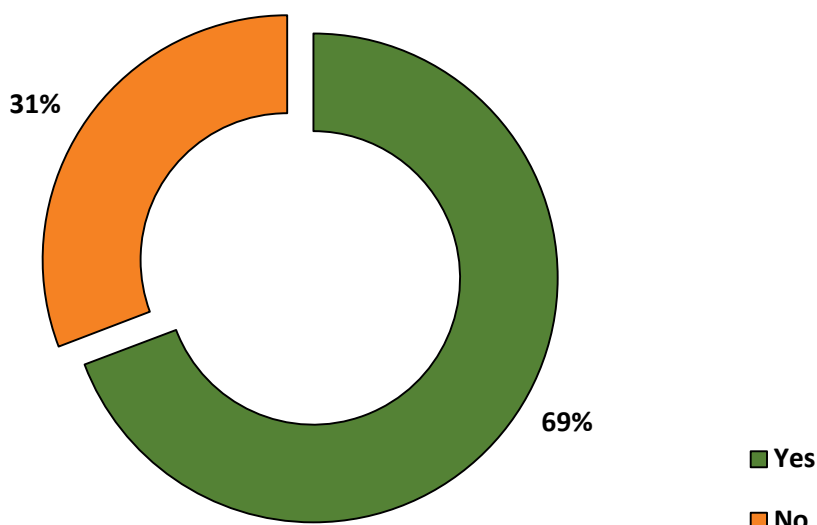


Figure 9. Municipalities with CDW management practices/procedures in direct administration construction work.

As these interventions are public construction works (because the municipality is the owner), it was intended to understand the extent to which municipalities adopt the CDW Prevention and Management Plan as a procedure to ensure the effective CDW management generated. The results are shown in Figure 10.

Only 4 of the 13 municipalities adopt procedures regarding that Plan, namely *Barrancos, Cuba, Serpa* and *Vidigueira*, namely: through the presentation of the CDW Prevention and Management Plan and its verification at the end of the construction work; through the verification of the CDW transport to licensed waste management operators through e-GAR tool (electronic waste monitoring guides) validation; and through the inspection team appointed to monitor the construction works. It is also worthy to mention that 38% of the municipalities did not register any data regarding this aspect, denoting lack of knowledge in this matter, or lack of procedures/practices implementation.

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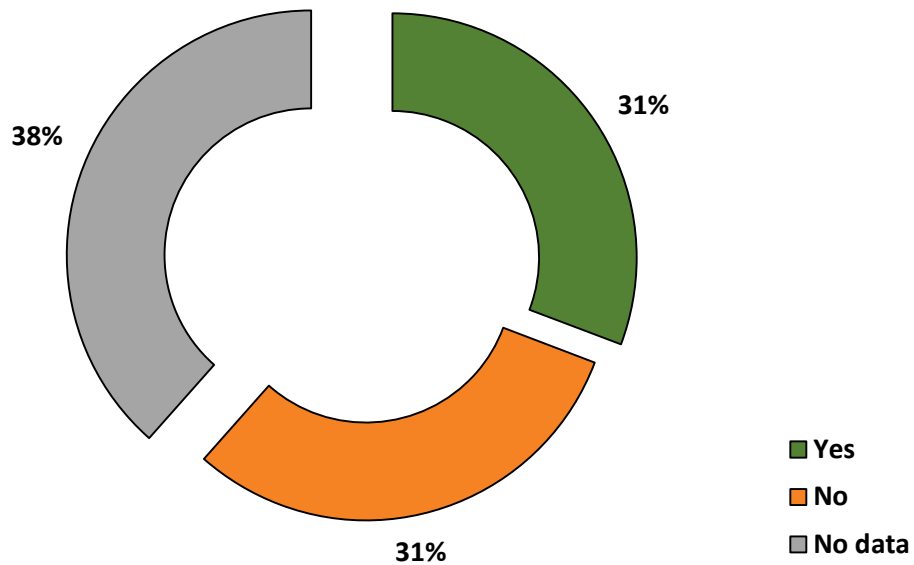


Figure 10. Municipalities adopting procedures regarding the CDW Prevention and Management Plan in direct administration construction work.

It is important to realize how many municipalities verify the CDW Prevention and Management Plan at the end of the construction phase, as a way of conditioning, in case of non-compliance, the administrative acts provided for in the Public Procurement Code. The results are presented in Figure 11. It appears that the municipalities are not so strict in the control of CDW management. It is even verified that only the municipality of *Vidigueira* adopts the legal mechanisms imposed by the Public Procurement Code, as far as CDW management is concerned, namely the implementation and verification/validation of the CDW Prevention and Management Plan.

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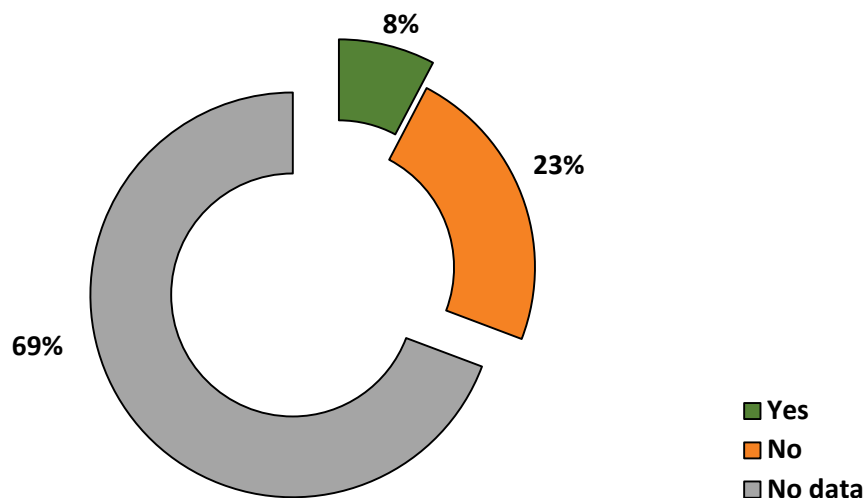


Figure 11. Municipalities verifying the CDW Prevention and Management Plan in order to condition the administrative act.

Nevertheless, five municipalities still verify the final destination of the CDW generated by consulting the e-GAR tool created in the course of direct administration construction works, namely the municipalities of *Almodôvar, Alvito, Beja, Cuba* and *Vidigueira* (Figure 12).

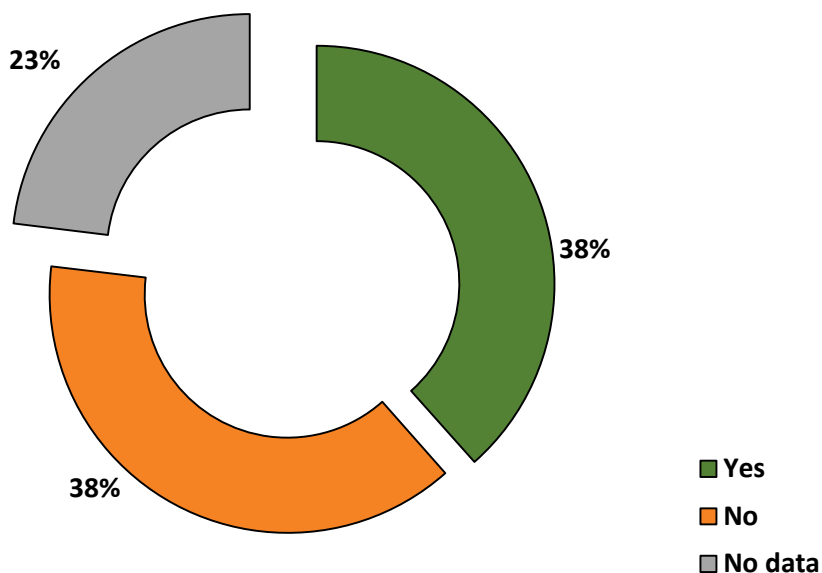


Figure 12. Municipalities verifying the final destination of CDW through e-GAR tool.

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It was also important to understand the extent to which municipalities are sensitive to issues related to the CDW management, whether or not they adopt improvement procedures in the entire management process control. In Figure 13 it can be seen that in this case only two of the 13 municipalities of *Baixo Alentejo*, namely *Almodôvar* and *Barrancos*, apply procedures promoting the effective CDW management at a local scale, namely through the acquisition of containers with greater capacity (8 m³), in the case of *Almodôvar*, and through the reuse of materials in other construction works, as is the case of *Barrancos*.

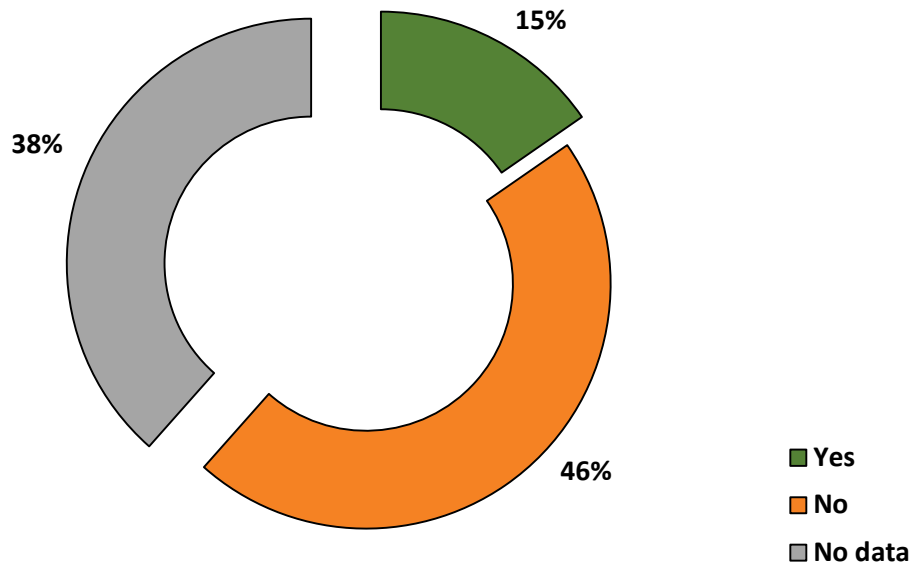


Figure 13. Municipalities applying procedures to improve CDW management.

Private construction works subject to prior notice/license

In this type of construction works, the municipalities have responsibility about the validation of the administrative procedures and practices (when the inspection/supervision actions occur) regarding CDW management, since a licensing process is necessary. In this context, Figure 14 shows that only two *Baixo Alentejo* municipalities (*Castro Verde* and *Ferreira do Alentejo*) do not adopt practices or procedures related to CDW management in private construction work subject to prior notice/license.

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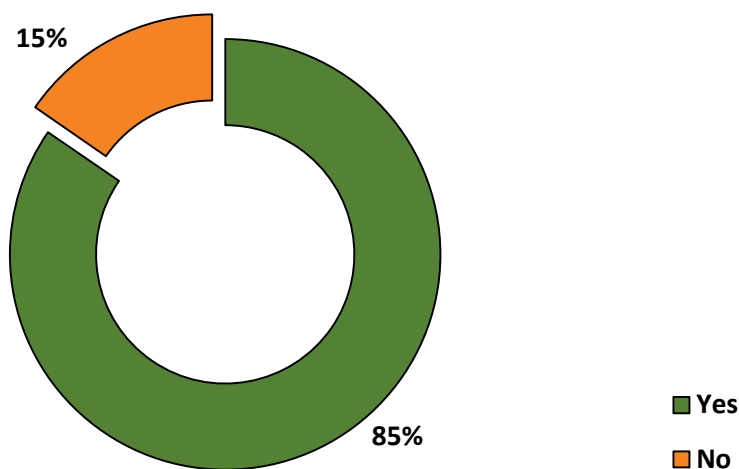


Figure 14. Municipalities adopting practices/procedures related to the CDW management in private construction works subject to prior notice/license.

However, despite great part of the municipalities adopts practices/procedures related to the CDW management in this type of construction works, only five of them assume that they control the final destination of the CDW generated, namely: *Almodôvar, Alvito, Beja, Moura and Vidigueira* (Figure 15).

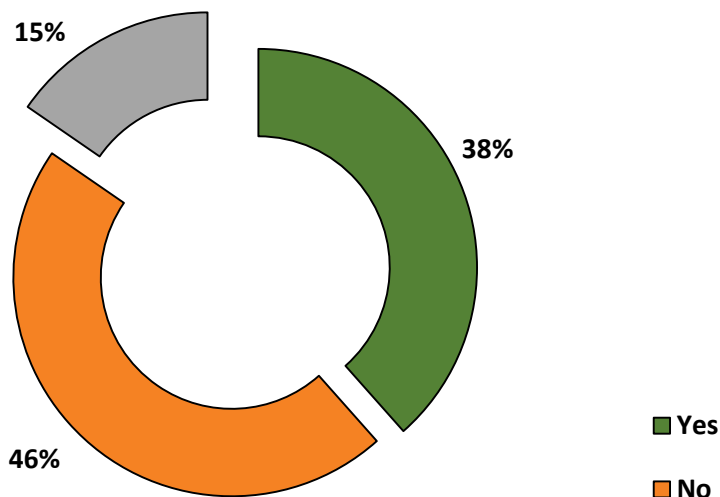


Figure 15. Municipalities verifying the final destination of the CDW generated in private construction works subject to prior notice/license.

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Private construction works not subject to prior notice/license

In private construction works not subject to prior communication/licensing, CDW management control is much more difficult to implement and to verify. However, the majority of *Baixo Alentejo* municipalities assume to adopt practices/procedures, as can be seen in Figure 16 (62%, corresponding to eight municipalities). The main practices/procedures that municipalities adopt are related to the CDW collection service, upon request by those responsible for the construction work, and preliminary storage and CDW transport to a licensed operator. For instance, a municipality (*Serpa*) provides big-bags for the containerization of the CDW generated. Moreover, *Aljustrel* and *Almodôvar* collect the CDW generated by this type of construction works and deposit it in 8 m³ containers, transporting them after to licensed waste management operators. In turn, the municipality of *Cuba* provided a specific controlled space for depositing of this kind of the CDW generated.

Five municipalities, namely *Alvito*, *Barrancos*, *Mértola*, *Moura* and *Ourique* do not adopt practices or procedures related to the CDW management in this type of construction works.

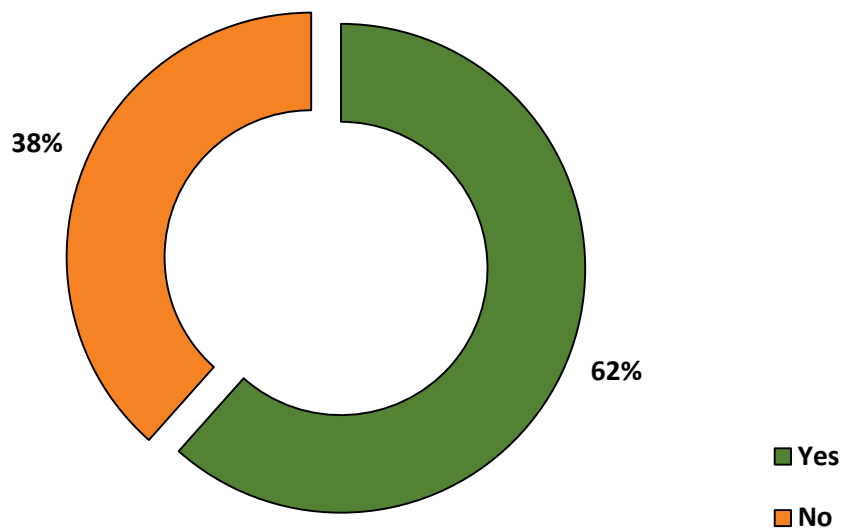


Figure 16. Municipalities adopting practices/procedures of CDW management in in private construction works not subject to prior notice/license.

Despite the fact that the municipalities assume to adopt practices/procedures regarding CDW management in this type of construction works, Figure 17 shows that only one of the 13 municipalities of *Baixo Alentejo*, namely *Ferreira do Alentejo*, has procedures that allow CDW transport to licensed final destinations, by those who produce them.

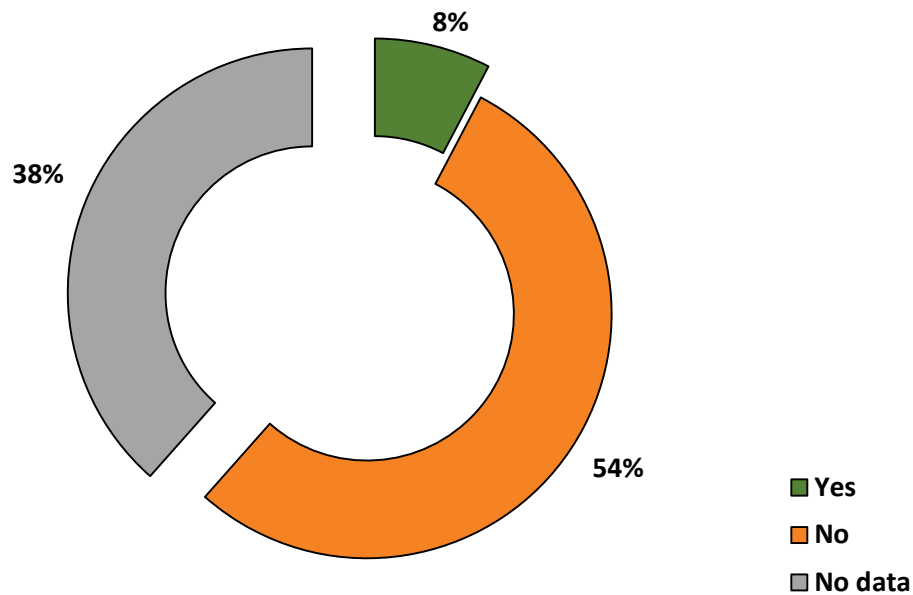


Figure 17. Municipalities adopting procedures for CDW transport to licensed final destinations.

3.1.5. Materials passports

A material passport is a digital report containing information relevant for reuse and recycling that is entered into a database and can be extracted from that database for use by different professionals, such as designers, planners and urban and environmental managers, construction companies, waste management operators and others.

In this regard, no municipality reported having experience developing a building material’s passport. However, three municipalities, namely *Aljustrel*, *Moura* and *Vidigueira*, indicate that they have data about the materials used (e.g. concrete), construction products (e.g. cladding), and systems (e.g. façade) composing the buildings.

This information is available at the level of public buildings and, in the case of the municipality of *Moura*, is available for all types of buildings. In these cases, the information is made available at documents levels that are part of the contracting process (i.e., technical specifications, quantities maps, and energy certificates).

3.1.6. Selective demolition (deconstruction)

The concept of selective demolition (also known as deconstruction) is relevant for the implementation of the principles of circular economy in the construction sector, being defined as the systemic dismantling of a building, which involves the sequencing of demolition activities, to minimize CDW hazardousness, and maximize the recovery of materials and components for reuse, or waste for recycling.

Only the municipality of *Aljustrel* applies the concept of selective demolition/deconstruction in its area of intervention, namely in the actions and procedures that it performs or over which it has responsibility, but

does not have this practices/procedures regulated. These good practices are developed through specifications where they already have some guidelines in this direction (including the removal of certain materials likely to be used later (e.g., doors removal, paving removal, tiles, stone benches, toilets), recovery of materials at work.

It is important to note that *Aljustrel* municipality does not adopt procedures or record data regarding CDW generated in this type of works and also cannot indicate examples of successful selective demolition/deconstruction carried out in its area of intervention, nor adopts procedures for monitoring this type of interventions, or to validate their implementation.

3.1.7. Use of recycled materials in the construction sector

There are no municipalities in *Baixo Alentejo* region regulating in specific the adoption of practices promoting the reuse of construction materials. However, some municipalities identified that they collect construction materials to be reused. In these cases, and within the scope of municipal works (by contract or direct administration), whenever some materials are used, they are sent to the municipal controlled spaces for subsequent reuse. Moreover, municipalities do not register data about the construction materials stored by the municipality itself for reuse in other interventions. Figure 18 indicates the percentage of municipalities in *Baixo Alentejo* that currently recovering construction materials and reusing them in future works (62%, corresponding to eight municipalities).

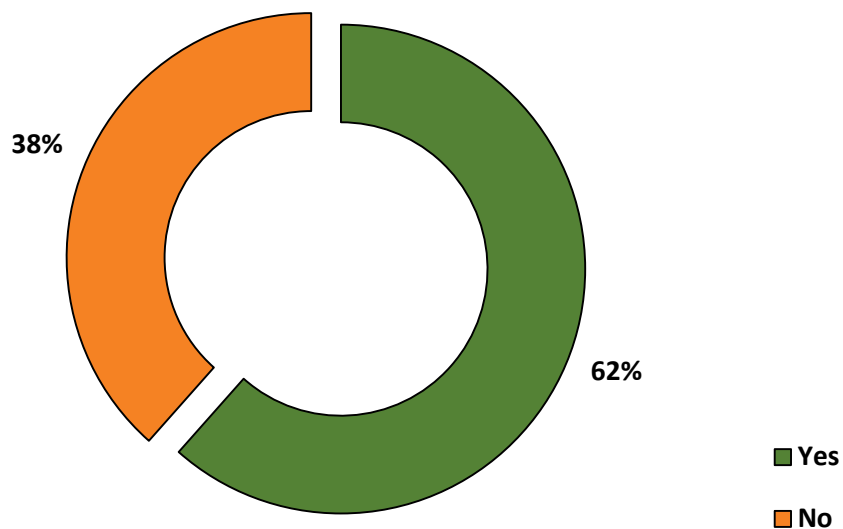


Figure 18. Municipalities promoting the use of recycled materials in the construction sector.

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Although 8 of the 13 municipalities recover construction materials for reuse, only the municipality of *Beja* is aware of successful initiatives in its territory that promote the reuse of construction materials, particularly with regard to the reuse of these materials in the execution of the wall of a campsite, in the construction of sidewalks in some streets and in the reuse of pavers in the placement of new semi-underground containers "moloks". In these cases, whenever possible, the concept of circular economy is applied and the municipalities tries to reuse the materials coming from the direct administration works, in other construction works.

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3.2. Other Portuguese municipalities results

Regarding other Portuguese municipalities, 12 entities contributed with their answers to the questionnaire. These answers will also constitute the basis for the development and achievement of the objective of the project (De)construct about the creation of a common regulatory framework to be adopted in the region of *Baixo Alentejo* regarding CDW management and circular economy principles application at the construction sector.

However, it will be necessary to understand, through a comparative analysis between these municipalities and the municipalities of *Baixo Alentejo* region (e.g., area of the territory, population density, among other aspects), to be carried out at the beginning of Activity A2.2, if the results obtained may to be compared in some way or whether, in fact, in what extend they are referring to different realities.

As in the previous subchapter, referring to *Baixo Alentejo* municipalities, these results of the questionnaire will be presented in the current section following the described methodological approach, namely the questionnaire structure (see subchapter 2.2.2). More detailed results concerning precise practices adopted by the municipalities will be considered only during Activity 2.2.

3.2.1. CDW management responsibilities

In what regards the organic that each municipality has regarding CDW management responsibilities and based on the various responses, it was possible to complete Table 15.

Table 15. Responsibility in the CDW management (other Portuguese municipalities).

Municipalities	Department	Responsibility
Figueira da Foz	Environment Division	CDW's from construction works not subject to licensing and production of less than 1.100l, CDW's arising in public spaces and Construction works by direct administration.
	Urbanism Division	Analysis of urban licensing procedures, inspection and issuing of licences.
Oeiras	Urban Management Division	Licensing and supervision.
	Municipal Waste Management Division	Procedures and collection.
Aveiro	Urban Management Division	Licences issuing.
	Municipal Police	Inspection.
	Environment, Energy and Works Division	Preparation, monitoring and validation of CDW Prevention and Management Plan in municipal works. Support to Municipal Police supervision. CDW management from the works executed by direct administration of CM Aveiro.
	Urban Services and Equipment Management Division	CDW management produced in construction sites by direct administration of CM Aveiro. Collection of CDW abandoned on public roads.

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Municipalities	Department	Responsibility
<i>Mafra</i>	Department of Urbanism, Municipal Works and Environment	Analysis of procedures, issuing licences, supervision, waste management.
<i>Santarém</i>	Department of Land Management and Planning	Works requiring permits and municipal works, supervision of the CDW management plan.
	Environment and Sustainability Division	Analysis of procedures, collection and forwarding of abandoned CDW.
<i>Estarreja</i>	Environment and Sustainability Division	CDW management arising from works of minor importance.
<i>S. João da Madeira</i>	Environment and Sustainability Division	CDW management, issuing CDW deposition authorisation forms and forwarding to a licensed final destination.
	Private Construction Division	Issue of licences, analysis of procedures.
	Municipal Works Division	Analysis of procedures, supervision.
<i>Alcoutim</i>	Division of works, planning and urban management, equipment, environment and urban services	Licensing and supervision.
<i>Tavira</i>	Projects, Energy and Municipal Works Division	For the procedure of formation of public works contracts, the Division of Projects, Energy and Municipal Works prepares/prepares the Specifications, under the terms of article 43 of the Public Contracts Code, which includes the preparation of the CDW Prevention and Management Plan, prepared under the terms of Decree-Law 46/2008 of 12 March. The contractor is responsible for executing the PPMCDW (prepared by the municipality), ensuring among other things The promotion of the reuse of materials and the incorporation of recycled CDW at the work site; The existence at the work site of a suitable packaging system that allows the selective CDW management; The maintenance at the work site of CDW for the minimum possible time; Their transport in accordance with the legislation in force and that the recipient is duly authorised to receive them. With the conclusion of the works, the CDW Prevention and Management Plan is duly filled in/updated, namely the classification and quantification of the waste, identification of the producer/holder and respective management operator, among others. A copy of the Waste Monitoring Guide is also handed in. For works where the quantities of CDW are small, the contractor makes a declaration that the CDW will remain at the construction site/warehouse, and will be subsequently forwarded when the quantities (resulting from other works) justify it.
<i>Ferreira do Zêzere</i>	Mayor's Office	Responsible.
	City Councillor	Responsible.

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Municipalities	Department	Responsibility
	Division of Urbanism, Municipal Works and Environment	Coordination.
	Urban Management Division	Technical work.
Porto	Porto Ambiente (Porto Municipal Environment Company)	Responsible for urban waste management and cleaning of public spaces in the municipality of Porto, including CDW.
	Domus Social (Porto Municipal Housing and Maintenance Company)	Contractor of services with CDW production - responsible for incorporating CDW management concerns and specifications in the contracted services specifications. Entity with a preponderant role in the opportunity to introduce criteria in the specifications and licensing of works and awareness-raising in the scope of CDW management.
	GO Porto (Porto Municipal Company for Management and Works)	Contractor of services with CDW production - responsible for incorporating CDW management concerns and specifications in the contracted services specifications. Entity with a preponderant role in the opportunity to introduce criteria in the specifications and licensing of works and awareness-raising in the scope of CDW management.
	Urban Planning Department	Department between various organic units with a preponderant role in the opportunity to introduce criteria in the specifications and licensing of works and awareness-raising in the scope of CDW management.
	Municipal Public Space Department	Department between various organic units with a preponderant role in the opportunity to introduce criteria in the specifications and licensing of works and awareness-raising in the scope of CDW management.
	Civil Protection Department	Department between various organic units with a preponderant role in the opportunity to introduce criteria in the specifications and licensing of works and awareness-raising in the scope of CDW management.
Sintra	Environment, Projects and Supervision Department	Responsible for most public works contracts (buildings, roads, parks, rehabilitation of public spaces). All construction processes include CDW and the compliance is verified during the supervision of the works.
	Municipal Buildings Management Department	Responsible for the maintenance and conservation of buildings housing municipal services, as well as all school, market and social housing buildings, under contract or through direct administration and CDW are included in the contract works and the compliance is verified during the supervision of the works. In direct labour works, direct control of CDW management operations is carried out (production, disposal, ...).

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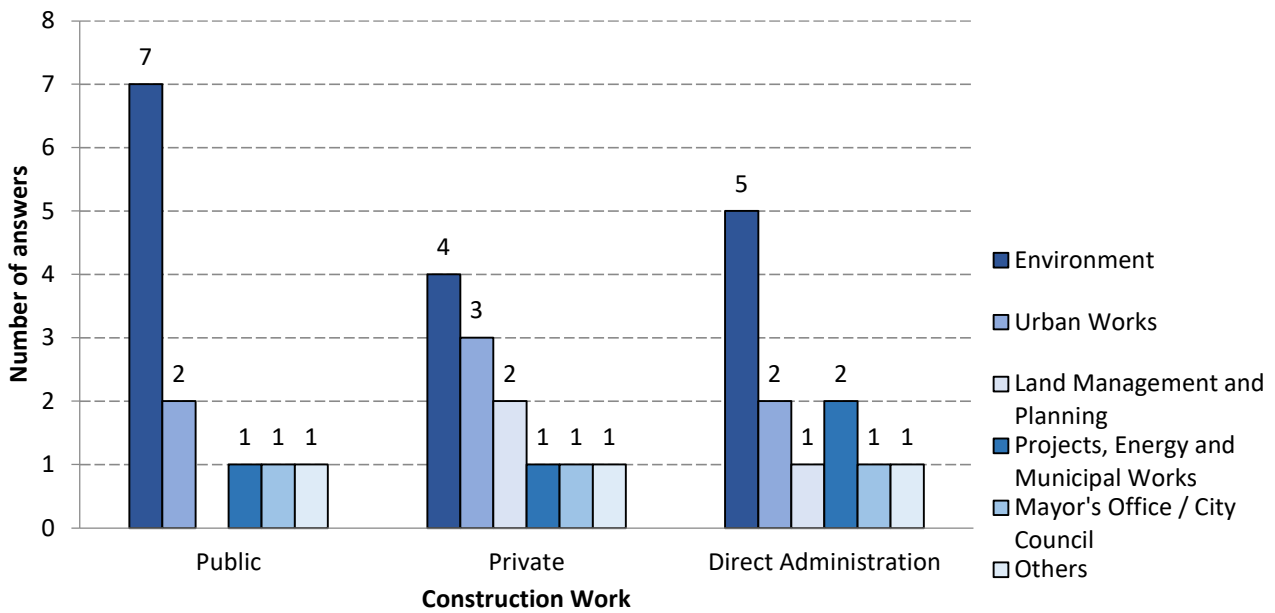


Figure 19. Service or department responsible for CDW management (other Portuguese municipalities).

3.2.2. CDW regulation

It is important to understand whether municipalities have specific regulations regarding CDW management or not. Thus, it was possible to verify that only 2 of the 12 municipalities answering the questionnaire, namely *Santarém* and *Tavira*, do not have it, as can be seen in Figure 20. If the municipalities have regulations, it is because they assume the municipal responsibility for the management of the CDW generated, in the various types of construction works carried out in their area of influence.

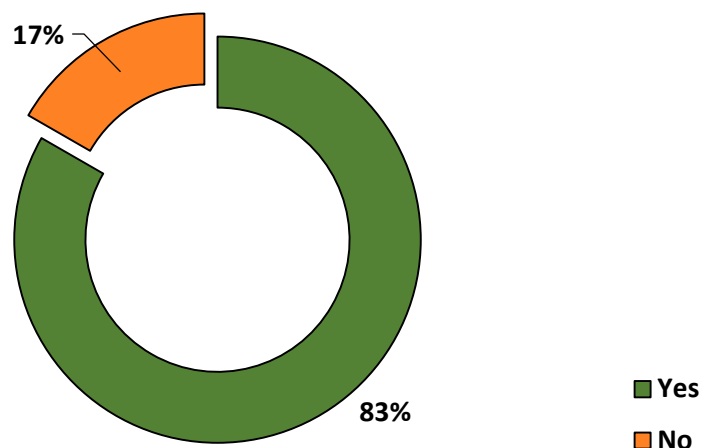


Figure 20. Municipalities with regulations concerning CDW management (other Portuguese municipalities).

Table 16 shows the implementations date of the regulations, considering that there is a specific section or article about CDW management criteria. As previously mentioned, 2 of the 12 municipalities (*Santarém* and *Tavira*) do not have regulations for the CDW management. In the remaining 10 municipalities, the regulations came into force between 2014 and 2020, and only one municipality (*Sintra*) have its regulation dated from 2020. It should also be noted that *Estarreja* and *Mafra* municipalities, which have the oldest regulation (1992 and 1999, respectively), are currently in the process of revising it, as it is also the case of *Sintra* municipality, although in this case having a more recent regulation.

Table 16. Entry into force date of the municipal regulations related to CDW management (other Portuguese municipalities).

Municipalities	Entry into force
<i>Alcoutim</i>	22.10.2014
<i>Aveiro</i>	08.11.2014
<i>Estarreja</i>	1992 a)
<i>Ferreira do Zêzere</i>	11.08.20214
<i>Figueira da Foz</i>	22.02.2016 ³ 27.12.2001 ⁴ a)
<i>Mafra</i>	08.08.1999 a) 03.04.2019
<i>Oeiras</i>	30.07.2017 a)
<i>Porto</i>	06.02.2019
<i>Santarém</i>	don't have regulations
<i>S. João da Madeira</i>	10.2.2009
<i>Sintra</i>	01.02.2015 ⁵ a) 11.02.2017 ⁶ a) 28.02.2020 ⁷
<i>Tavira</i>	don't have regulations

a) *In revision*

Based on the answers expressed in Table 16, it was important to realize which entity assumes direct responsibility for the municipal CDW management, regarding construction works not subject to licensing or prior notification (as established by the current legislation into force). Based on the responses obtained (Figure 21), it can be seen that: most of the municipalities (67%, corresponding to eight municipalities), assume direct responsibility for CDW management; two municipalities assigns this responsibility to the

³ 2.ª Amendment to the Urban Planning Regulation

⁴ Regulation of Health, Hygiene, Cleaning and Collection of Solid Waste in the Municipal Area

⁵ Regulation of the Public Service for the Collection and Transport of Urban Waste in the Municipality of Sintra

⁶ Sintra Urbanization and Building Regulations

⁷ Regulation of Works in the Underground of the Municipal Public Domain

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Urban Waste Management System; and also two municipalities do not carry out CDW management resulting from this type of construction works.

■ Municipality ■ Urban Waste Management System ■ Not performed in the municipality

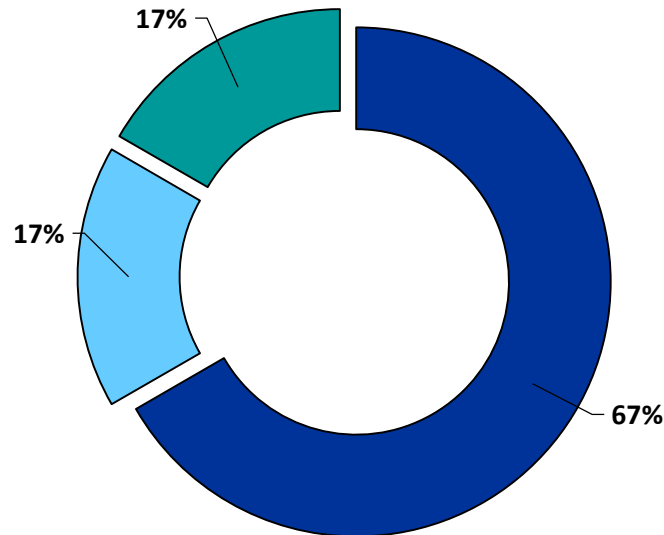


Figure 21. Responsibility of CDW management in construction works not subject to licensing or prior notification (other Portuguese municipalities).

3.2.3. Services, infrastructure and regulations associated

Since the vast majority of municipalities assume to have regulations regarding CDW management (67%, corresponding to 8 of the 12 municipalities respondents: *Alcoutim, Aveiro, Estarreja; Ferreira do Zêzere; Figueira da Foz; Mafra; Oeiras; Porto; Santarém; S. João da Madeira; Sintra and Tavira*), it was important to understand whether the municipalities that provide the collection service have the necessary infrastructures. In Figure 22, it can be seen the municipalities that have infrastructures, such as ecocenters/drop-off centers or similar controlled spaces.

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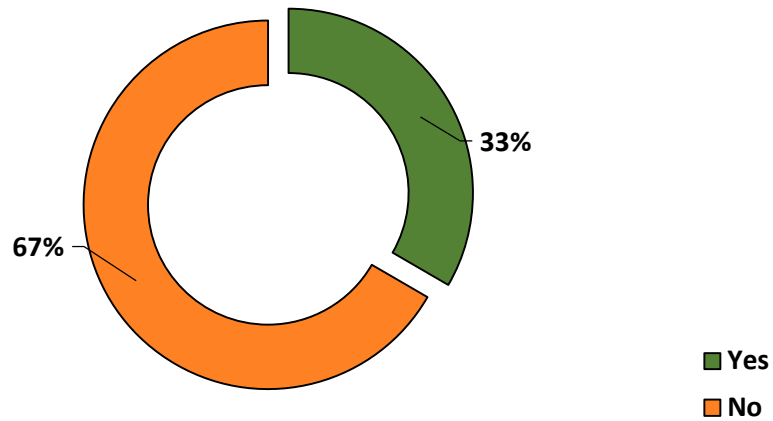


Figure 22. Municipalities with infrastructures (ecocenters or similar spaces) for CDW management (other Portuguese municipalities).

It was also important to understand if, when providing infrastructures for CDW management (ecocenter/drop-off center or similar space), if these spaces are properly regulated. Figure 23 shows the responses to the CDW collection services, duly regulated, that were obtained. Most municipalities perform on-site collection of CDW, with only the municipalities of Aveiro, Santarém and S. João da Madeira not providing this service. The municipalities of Oeiras, Estarreja, Alcoutim, Ferreira do Zêzere, Porto and Sintra have this service regulated.

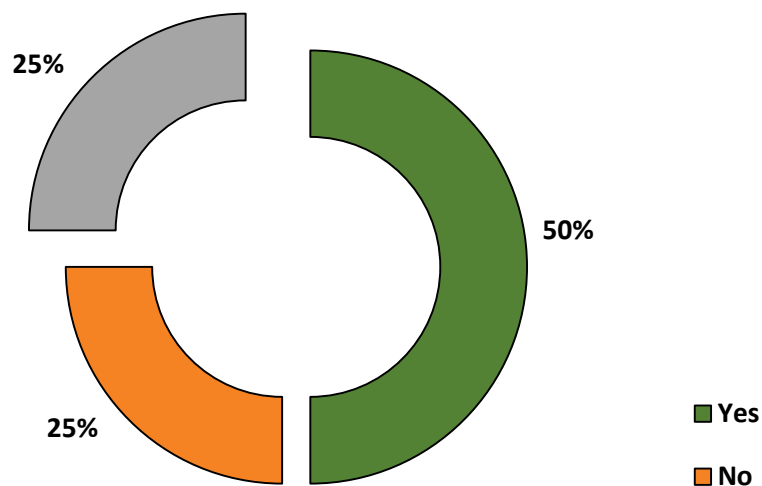


Figure 23. Municipalities that provide a duly regulated CDW collection service (other Portuguese municipalities).

Considering the sample of 12 municipalities that answered the questionnaire, only 4 of them have ecocenters where citizens can deliver their CDW, namely *Figueira da Foz*, *Mafra*, *S. João da Madeira* and *Porto*.

When it comes to realizing whether the infrastructures that municipalities have for the CDW management have specific regulations, it was verified that all municipalities have specific regulations for that spaces.

3.2.4. Different types of intervention procedures

Another important issue is to understand how the municipalities proceed about CDW management in the various construction works executed or that are overseen. Thus, a series of similar questions were carried out about the practices/criteria adopted, considering:

- Public construction works;
- Direct administration construction works of the municipality;
- Private construction works subject to prior notice/license;
- Private construction works not subject to prior notice/license.

Public construction works

Trough the answers obtained, it was possible to notice that the 12 municipalities adopt practices and procedures related to CDW management for this type of construction works. Considering the existing legislation, which regulates this type of construction work, it was important to understand if the municipalities control and verify what is imposed by the Portuguese Public Procurement Code, namely the elaboration in the project phase, implementation during the construction phase, and validation after the work in complete of a specific CDW Prevention and Management Plan. Once again it was confirmed that all of the 12 municipalities adopt CDW management practices/procedures in public construction works, in regard to the mentioned Plan, and they verify at the end the correct fulfilment of the criteria established by the Portuguese Public Contracts Code.

Furthermore it was asked whether the municipalities check, through e-GAR tool (electronic waste monitoring guides), the final destination of all the CDW generated in this construction works. The results are reflected in Figure 24, that in this case indicate that only four of the municipalities (*Mafra*, *Estarreja*, *S. João da Madeira* and *Tavira*) do not verify the final destination of CDW trough the e-GAR tool.

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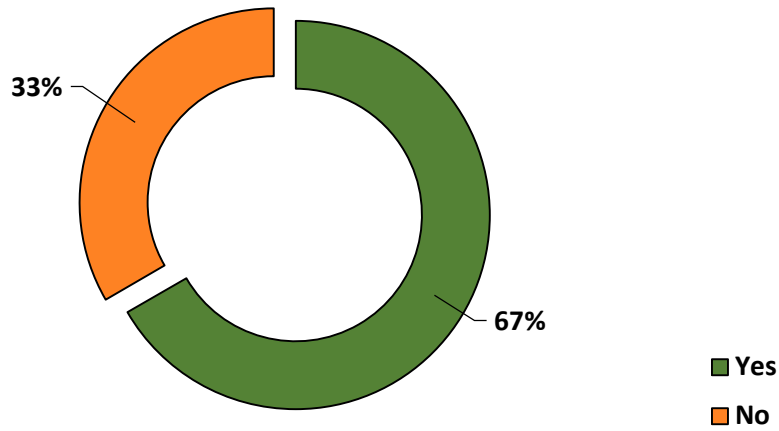


Figure 24. Municipalities that verifies the final destination of CDW trough e-GAR tool (other Portuguese municipalities).

Direct administration construction works

In construction works executed by the municipality, the results obtained through the questionnaire referring to the adoption of practices/procedures regarding CDW management are presented in the Figure 25. As can be seen, the mainstream of municipalities identify that they implement practices related to CDW management in this type of construction work, although 3 of the 12 municipalities do not adopt it (*i.e.*, *Alcoutim, S. João da Madeira and Tavira*).

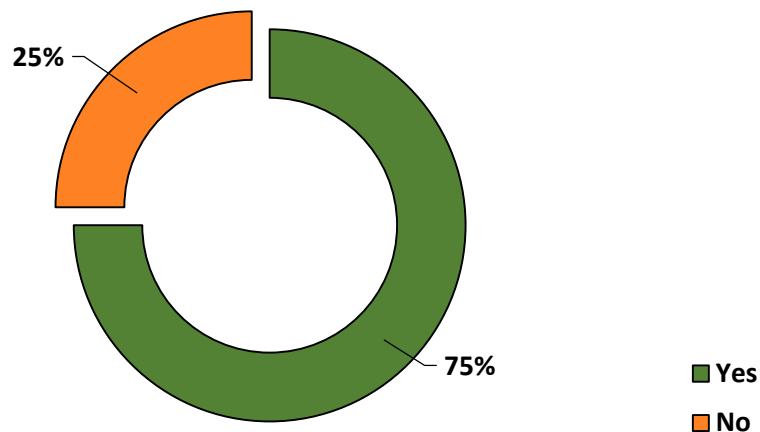


Figure 25. Municipalities with CDW management practices/procedures in direct administration construction work (other Portuguese municipalities).

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Since this type of construction work is considered to be public construction works, since the municipality is the owner, it was necessary to know to what extent the municipalities adopt procedures similar to those verified in public construction works, that is, if they adopt the CDW Prevention and Management Plan. The results obtained are shown in Figure 26 in Figure 26.

The results show that 2 of the 12 municipalities adopt procedures regarding the CDW Prevention and Management Plan, namely *Estarreja* and *Porto*. The procedure in question is based on the presentation of the CDW Prevention and Management Plan and its verification/validation at the end of the construction work, it is also verified if the CDW are delivered to licensed waste management operators (through e-GAR tool), and through the inspection team appointed to monitor the construction work. It is important to mention that 25% of the sample did not record any data related to this issue, leading to the belief that there is a lack of knowledge about the subject, or a lack of implemented procedures/practices.

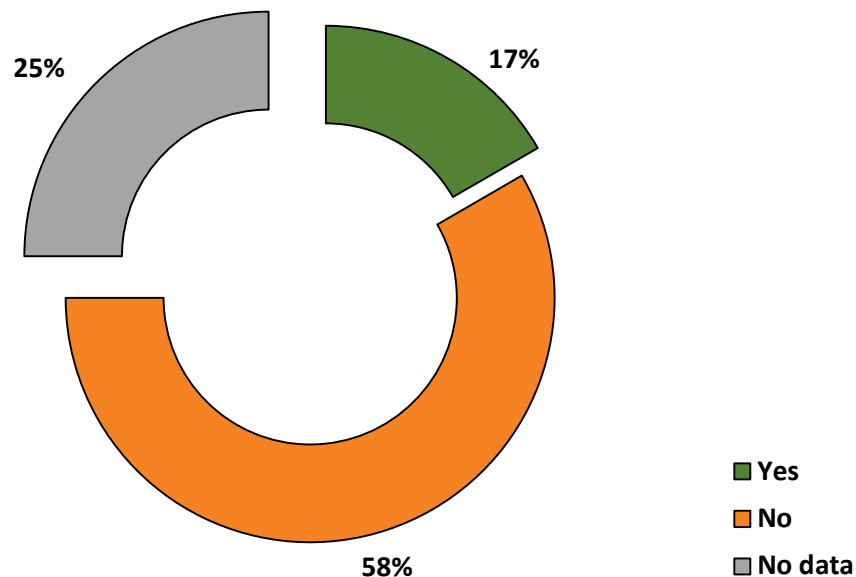


Figure 26. Municipalities adopting procedures regarding the CDW Prevention and Management Plan in direct administration construction work (other Portuguese municipalities).

Based on national legislation, namely the Public Procurement Code, it is necessary to understand if the municipalities verify the CDW Prevention and Management Plan at the end of the works as a way of conditioning administrative acts, in case of non-compliance. The answers obtained are reflected in Figure 27, showing that municipalities are not so strict in controlling the management of CDW in direct administration works, when compared to public works. Two of the municipalities, namely *Estarreja* and *Porto*, adopt the legal mechanisms imposed by the Public Procurement Code.

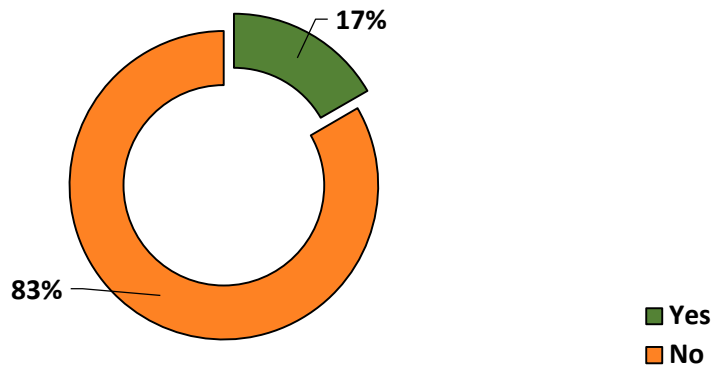


Figure 27. Municipalities verifying the CDW Prevention and Management Plan in order to condition the administrative act (other Portuguese municipalities).

Regardless the fact that the vast majority of municipalities does not use the CDW Prevention and Management Plan to condition and guarantee the effective CDW management, it was found that four municipalities still verify the final destination of the CDW generated taking into account the e-GAR tool, namely the municipalities of *Figueira da Foz*, *Aveiro*, *Ferreira do Zêzere*, *Sintra* and *Porto*, as can be seen in Figure 28.

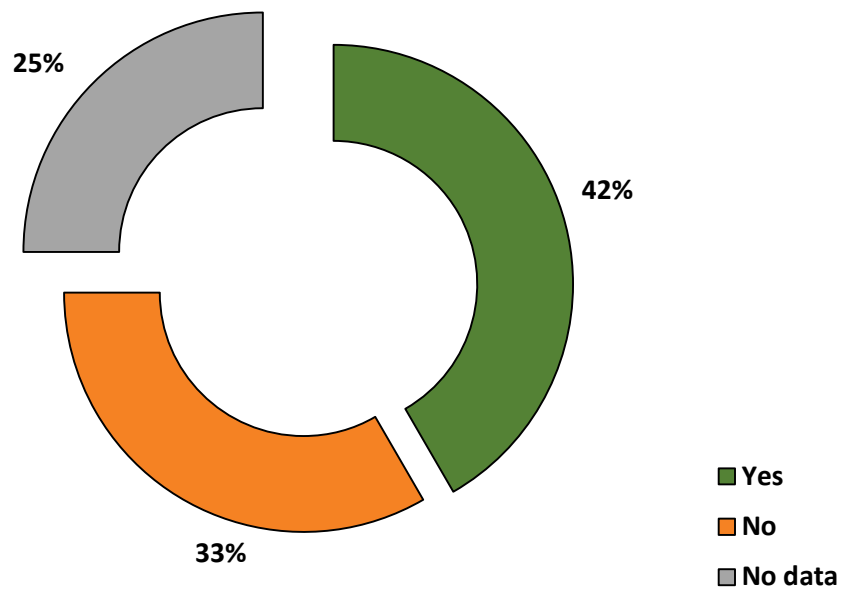


Figure 28. Municipalities verifying the final destination of CDW through e-GAR tool (other Portuguese municipalities).

Figure 29 shows that three municipalities, namely *Aveiro*, *Santarém* and *Sintra*, apply improvement procedures regarding CDW management. The municipality of *Aveiro* guarantees this control through the elaboration of an internal inspection manual to check, more quickly and efficiently, in the construction work about how the CDW sorting, collection and transport is being carried out. In *Santarém*, the municipality collects the CDW generated and stores it at municipal controlled spaces for later transporting it to licensed waste management operators. However, the municipality promotes awareness-raising actions with those responsible for construction works, as well as monitoring and verifying the delivery of the CDW to a licensed operator. The municipality of *Sintra* is improving procedures in order to guarantee the minimization of CDW generation, selective deposition and reuse of materials, in addition to other actions that guarantee the correct and effective management of CDW and construction materials.

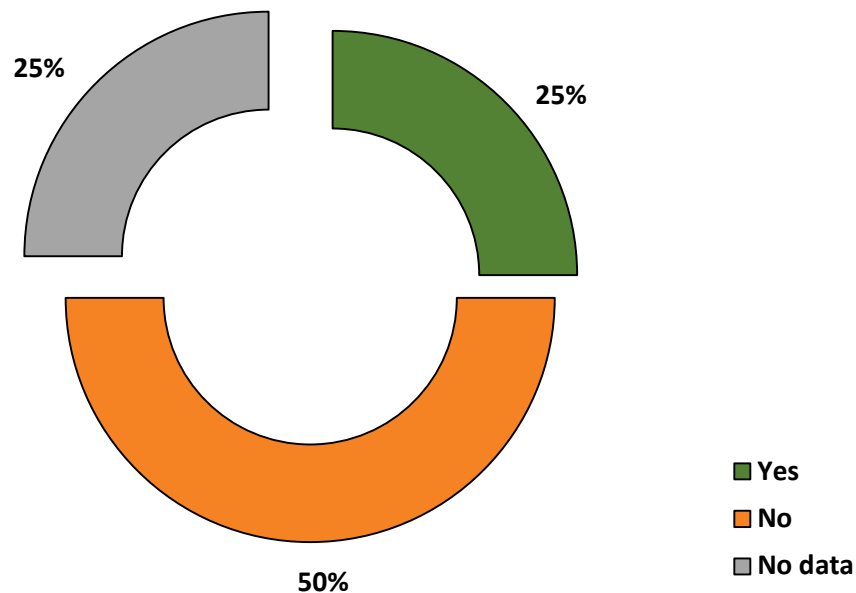


Figure 29. Municipalities applying procedures to improve CDW management (other Portuguese municipalities).

Private construction works subject to prior notice/license

In this type of construction works, the municipalities answering the questionnaire assumed that they use control practices/procedures for CDW management, since they have to control the licensing administrative process. In this context, the municipality is left with information about CDW generation and treatment. Figure 30 shows that only two municipalities (*Aveiro* and *Tavira*) do not adopt practices or procedures related to CDW management in private construction work subject to prior notice/license.

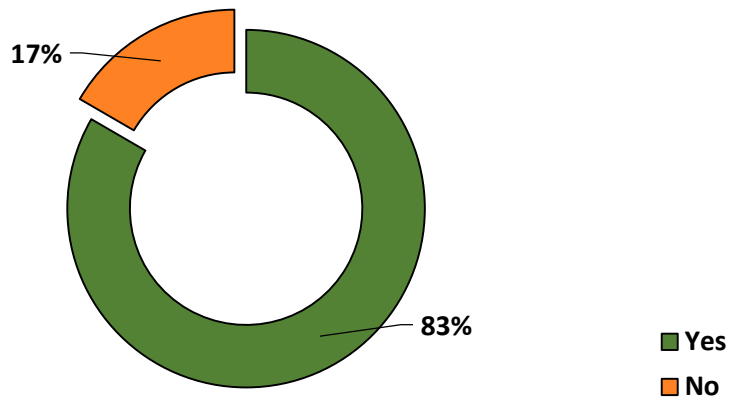


Figure 30. Municipalities that adopt practices/procedures related to the CDW management in private construction works subject to prior notice/license (other Portuguese municipalities).

In Figure 31 it can be seen that only five of the municipalities, namely *Figueira da Foz*, *Ferreira do Zêzere*, *Oeiras*, *S. João da Madeira* and *Sintra*, assume that they control the final destinations of the CDW generated in this type of construction works, despite the great part of the municipalities claim to adopt practices/procedures related to the CDW management.

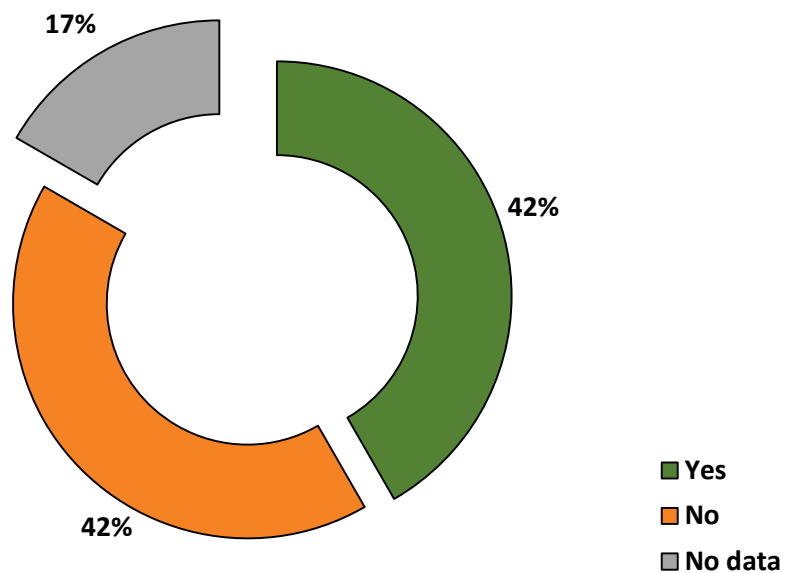


Figure 31. Municipalities verifying the final destination of the CDW generated in in private construction works subject to prior notice/license (other Portuguese municipalities).

Private construction works not subject to prior notice/license

In this type of construction works it is more difficult for the municipalities to control CDW management. But, the vast majority of the municipalities questioned assume to adopt practices/procedures related to the CDW management in private construction works not subject to prior notice/license, as can be seen in Figure 32 (67%, corresponding to eight municipalities). The main practices/procedures adopted are the free of charge collection service (although previously scheduled) onsite, in big bags up to 1 100 l, as well as free delivery, in the same quantities, to municipal services (municipal controlled spaces) for preliminary storage. There is also the possibility to put a metallic container next to the construction work (which must have a license to occupy the public road), as well as the supervision of the surrounding area in order to verify that there are no abandoned CDW resulting from a specific work.

Only the municipality of *Alcoutim, Aveiro, Santarém* and *Sintra* do not adopt practices/procedures related to the CDW management in this type of construction work.

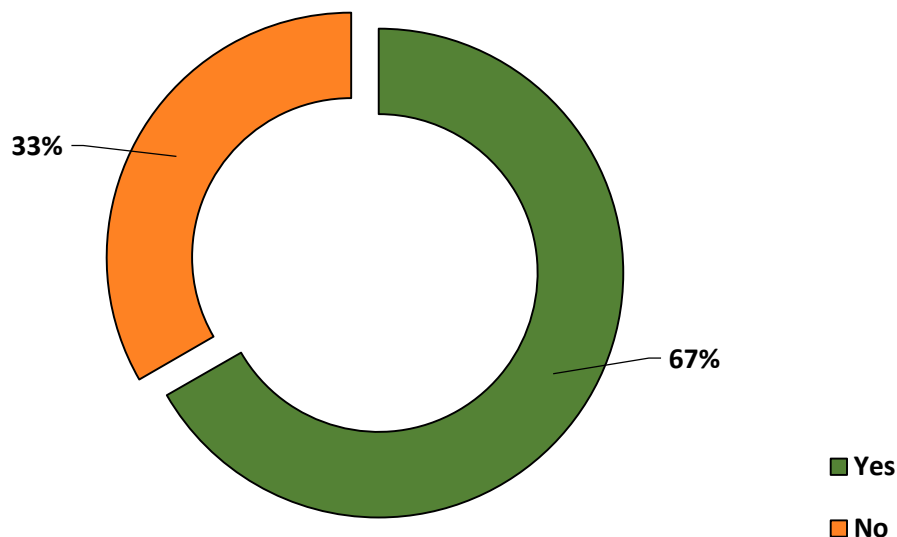


Figure 32. Municipalities adopting practices/procedures of CDW management in private construction works not subject to prior notice/license (other Portuguese municipalities).

Once again, despite the fact that the municipalities assume to adopt practices/procedures regarding the CDW management in this type of construction work, Figure 33 shows that five of them (*Ferreira do Zêzere, Figueira da Foz, Oeiras, S. João da Madeira* and *Tavira*) reports having procedures that allow controlling the CDW transport, with municipal own equipment, to the final licensed destinations.

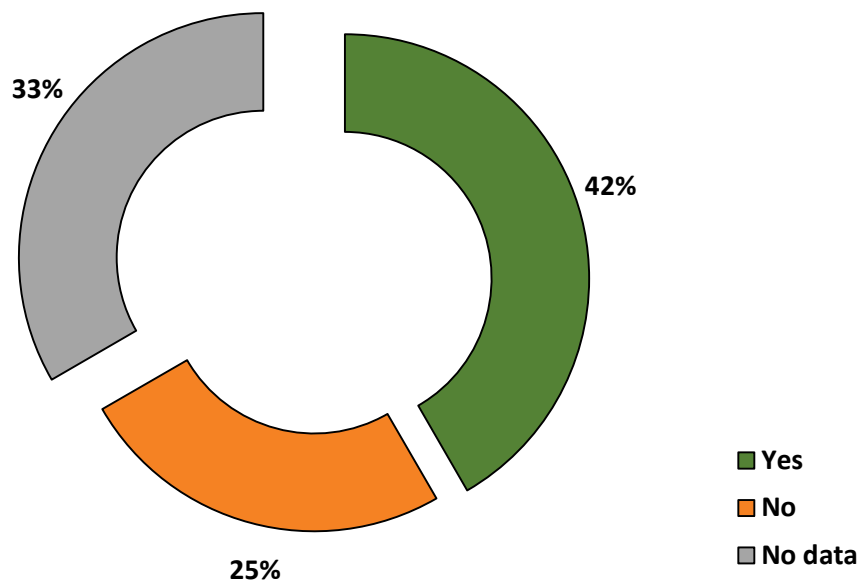


Figure 33. Municipalities adopting procedures for CDW transport to licensed final destinations (other Portuguese municipalities).

3.2.5. Materials passports

A material passport is a digital report containing information relevant for reuse and recycling that is entered into a database and can be extracted from that database for use by different professionals, such as designers, planners and urban and environmental managers, construction companies, waste management operators and others.

From the sample of 12 municipalities, no one has experience with the elaboration of a materials passport for buildings. However, three municipalities, namely, *Aveiro*, *Figueira da Foz* and *Sintra*, indicate that they have data on the materials (e.g. concrete), construction products (e.g. cladding), systems (e.g. in *Aveiro* case, this information is available for all types of municipal buildings that have recently undergone construction or refurbishment works, and in *Figueira da Foz* case, it is available for buildings or other buildings, and it is mentioned that there is a spreadsheet used by the services for production estimates according to the type of intervention and the data provided, on the materials to be used, in the design phase and reflected in the quantity maps.

3.2.6. Selective demolition (deconstruction)

The municipalities of *Mafra*, *Santarém* and *Sintra* apply the concept of selective demolition/deconstruction in its area of intervention, particularly in the actions/procedures that they perform or for which they have responsibility, but do not regulate the adoption of practices/procedures that promote selective demolition. However, they indicate that they adopt practices/procedures promoting selective demolition and that these

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good practices are developed through technical details and according to the different waste categories expressed in the European waste list.

Nevertheless, the municipality of *Mafra* does not adopt procedures or record data regarding the control of CDW generated in this type of construction works and cannot indicate examples of successful for selective demolition/deconstruction processes carried out in its area of intervention, nor adopts procedures for monitoring this type of interventions.

3.2.7. Use of recycled materials in the construction sector

Only one of the 12 municipalities answering the questionnaire, namely *Ferreira do Zêzere*, has regulated the adoption of practices that promote the reuse of building materials. However, some municipalities identified that they recover building materials to be reused. Figure 34 indicates which municipalities are currently recovering construction materials and reusing them in future works, namely *Estarreja*, *Figueira da Foz*, *Mafra* and *Santarém*.

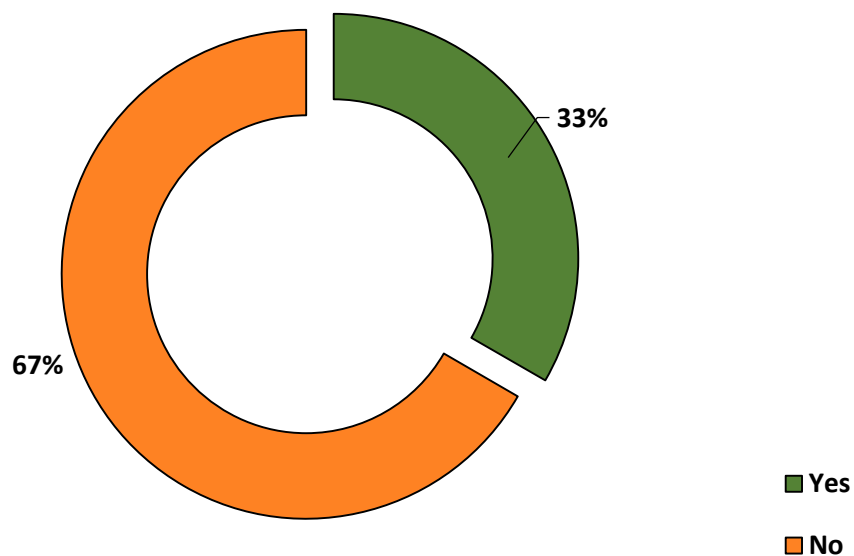


Figure 34. Municipalities promote the use of this type of materials in the construction sector (other Portuguese municipalities).

The municipalities of *S. João da Madeira*, *Porto* and *Sintra* have a dataset register of building materials stored by the municipality itself for reuse in other interventions. On the other hand, municipalities of *Alcoutim*, *Aveiro*, *Ferreira do Zêzere*, *Figueira da Foz*, *Mafra*, *Santarém*, *S. João da Madeira* and *Porto* are aware of successful initiatives, in their territory promoting the reuse of construction materials, namely regarding the reuse of these materials as backfilling material.

3.3. Norway, Romania and Czech Republic Results

Regarding Norway, Romania and Czech Republic municipalities it was collected answers from seven municipalities, and these answers will also contribute for the conclusions that will serve as a basis for the development and achievement of the main objective of the project.

3.3.1. CDW management responsibilities

Regarding the organic structure that each of the municipalities, of the foreign partners, has in their organization, it was possible to fill in Table 17, which indicates who is responsible for the CDW management generated in the different types of construction works.

Table 17. Responsibility in the CDW management.

Country	City	Department	Responsibility
Czech Republic	Chrudim	Environmental Department	Overall management of municipal waste including preparation of relevant municipal decree. The Department provides a standpoint (covering also waste issues) to the Building Authority in the building permitting process.
		Dpt. of Investment	Responsible for constructions works in the city and supervision of contracted construction companies – incl. the waste issue.
	Jihlava	Dpt. of the City Development	CDW management which is generated from construction works promoted by the city.
		Property Department	CDW management which is generated from facility management of city buildings. Cleaning of illegal dumpsites.
		Environmental Department	The Department is in charge of the overall management of municipal waste (ELW code 20), which however does not include CDW (ELW code 17). Supervision of CDW management of companies.
	Milovic	Investment and Development Department	CDW management which is generated from construction works promoted by the city.
		Property Department (includes environmental issues)	Overall management of municipal waste and CDW. Supervision of CDW management of companies.
Norway	Stjørdal Commune	Inter communal company responsible for waste management	Organization and running drop of recycling centres for municipal waste or providing waste pick-up services.
		Technical Department at Stjørdal Kommune	Accepting waste management and remediation plans for the construction/demolition works, supervising its realisation, issuing a completion certificate.
Romania	Baia Mare	Public Utilities Department	Abandoned CDW is collected by the Drusal Sanitation Operator, based on contractual terms enclosed with the

Country	City	Department	Responsibility
			municipality.
		Sanitation department	Citizens can submit CDW for free in 25 containers located on the territory of the municipality.
		Baia Mare Waste Intercommunity Development Association	It is only responsible for CDW that is found among the household waste.
	Bistrita	City Hall Environment Manager	For monitoring CDW data and the degree of CDW recovery.
		City Hall sanitation office	For informing the operator about illegal CDW dumping.
		Intercommunity Development Association (ADI)	The responsibility for waste management, including CDW was delegated to the Intercommunity Development Association for Integrated Municipal Waste Management, through the sanitation company.
	Timisoara	Environmental Department / Sanitation Office Timisoara City Hall	Responsibility for CDW is shared between two departments: the Environmental Department, which is responsible for authorized construction works, and the Sanitation Bureau, which is responsible for illegally dumped CDW.

According to the results obtained in the table presented, it was possible to verify that in the municipalities selected for this study, the vast majority attributes the responsibility for CDW management at the Environmental Department. However, it appears that in some municipalities, namely *Bistrita* and *Baia Mare (Romanian) and Stjørdal (Norway)*, this issue is delegated to intercommunity development associations and inter communal company, respectively.

1.1.1. CDW regulation

Following the results presented above, there is a need to understand whether municipalities have specific regulations regarding CDW management or not. Thus, it was possible to verify that four of the seven municipalities have, in their organization, specific regulations for the CDW management.

Table 18. Entry into force date of regulations related to CDW management

Country	City/Municipalities	Regulation	Entry into force
Czech Republic	Chrudim	Municipal ordinance/decreed no. 5/2020 on municipal waste and CDW management	01.01.2021
	Jihlava	don't have regulations	don't have regulations
	Milovice	Municipal ordinance/decreed no. 1/2015 on municipal waste and CDW management	01.05.2015
Norway	Stjørdal Commune	don't have regulations	don't have regulations

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Romania	Baia Mare	HCL 112/2016	2016
	Bistrita	don't have regulations	don't have regulations
	Timisoara	HCL 159/2016	2016
		HCL 157/2012	2012
		HCL 189/2020	2020
		HCL 405/2019	2019

Based on the answers obtained, it was noticed that the municipalities do not have uniform procedures with regard to CDW management, which may be due to the different realities of each country.

3.3.2. Services, infrastructure and regulations associated

It is important to understand if, when providing infrastructures (ecocenters or similar spaces) where it is possible to manage the CDW (packaging, sorting, ...), they are properly regulated.

Table 19. Services, infrastructure and regulations associated to CDW

Country	City/Municipalities	Does the municipality provide services for the CDW collection in its area of intervention?
Czech Republic	Chrudim	Yes
	Jihlava	No
	Milovice	Yes
Norway	Stjørdal Commune	Yes
Romania	Baia Mare	Yes
	Bistrita	Yes
	Timisoara	Yes

In *Stjørdal Commune* case, the services for the CDW collection is regulated but only for household construction waste, municipality is responsible (and subcontracted that task to *Inhered Renovasjon*) to operate a recycling centre. Industrial construction waste is managed by private recycling companies.

In *Czech Republic* municipalities the services are regulated in two municipalities, namely *Chrudim* and *Milovice*, in this cases CDW can be disposed in the municipality drop-off centre. Therefore, the municipalities have the necessary infrastructure to carry out the management of the collected CDW. In one specific case (*Chrudim*) the spaces present characteristics that allow separation by type of CDW and a limit to the amount of CDW to be received of 100 kg/year for each citizen.

In Romania the services are regulated in the three municipalities. In *Baia Mare* and according to the sanitation regulations of the city, the CDW collection is done in standardized containers, being forbidden the abandonment in the public space. The containers are taken over by the sanitation operator who is responsible for their transport and storage. The regulation stipulates that the storage of this waste must be done in authorized landfills. It is not clear where these wastes are stored and how they are treated further considering that for years there were no authorized landfills in this county.

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In *Bistrita*, the inhabitants have the possibility to bring CDW to the collection center by their own means, free of charge, up to a limit of 200 kg of waste/year. If there are additional quantities, they can be sent to license waste operators, but this service is paid according to prices set by the operator itself.

In *Timisoara* and according to the approval regulation HCL 189 / 04.06.2020 all construction sites owners are required to have a contract with the waste/sanitation company for CDW storage and collection.

3.3.3. Different types of intervention procedures

Another important issue was to understand how the municipalities proceed according to the construction works. Thus, a series of similar questions was carried out for the different types of works developed, considering the following types of construction works:

- Public construction works;
- Direct administration construction works of the Municipality;
- Private construction works subject to prior notice/license;
- Private construction works not subject to prior notice/license.

The results obtained for each type of construction work are presented below.

Public construction works

Based on the responses obtained, it was possible to notice that the municipalities of *Milovice (CZ)*, *Baia Mare (RO)* and *Bistrita (RO)* don't adopt practices and procedures related to the CDW management for this type of construction work.

Is important to notice that in *Czech Republic*, there is not an obligation to develop a CDW Prevention and Management Plan. However, the conditions regarding CDW management can be part of a building permit and are included into the contract with a construction company. In case of all public construction works, there must be set the expected amount of waste and the ways how it will be treated. The municipality checks during the works how these conditions are being fulfilled.

How the conditions have been fulfilled is finally checked at the end of the construction works – *i.e.* at the final inspection/approval. The municipality checks not only whether the construction company handed over the waste to the licenced waste operator, but also what were the real final destination and the way of treatment of CDW.

In *Norway* case usually the municipality adopt practices/procedures concerning CDW management, but this is not connected with the Public works, but the limits imposed on the amount of waste and remediation plans. These are part of the tender documentation and falls into the obligation of the contractor.

In *Timisoara (RO)* the CDW prevention plan has a standard content, which includes the requirement to complete the quantities and types estimated to be generated during the works.

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Direct administration construction works

In what regards direct administration construction works, and in case of *Czech Republic*, the municipalities don't adopt practices/procedures regarding the CDW management for this type of works.

In *Norway* case that is ensured by the existence of a CDW Prevention and Management Plan, in the implementation project phase.

In what regards *Romania*, only *Timisoara* adopts practices/procedures regarding the CDW management for this type of works. This is ensuring thought the regulations mentioned before.

Private construction works subject to prior notice/license

In this type of construction work, *Norway* and *Czech Republic* assume that they have practices/procedures for the CDW management, since for them to be carried out it is necessary to resort to the municipal services to apply for licensing and to have building permits, so the municipalities have information on the potential focus CDW generator. It's required that this information is included in the 'project documentation' of the construction and at the end of the works, the fulfilment of the project documentation is checked. The municipality checks whether the waste was handed over to authorized company, but the final destination is not checked.

In the case of *Timisoara (RO)*, it adopts practices/procedures regarding the CDW management for this type of works and verification is carried out when illegal dumpsites are identified.

Private construction works not subject to prior notice/license

In private construction works not subject to prior communication/licensing, the task of the municipalities, to control the CDW management, is more difficult. However, the municipality of *Jihlava (CZ)* mentioned that adopts practices/procedures regarding the CDW management for this type of works and verification is carried out when illegal dumpsites are identified.

Also, the municipality of *Stjørdal Commune (NW)* case it is mentioned that they adopt practices/procedures regarding the CDW management for this type of works.

3.3.4. Materials passports

A material passport is a digital report containing information relevant for reuse and recycling that is entered into a database and can be extracted from that database for use by different professionals, such as designers, planners and urban and environmental managers, construction companies, waste management operators and others. In this regard no municipality has experience with the elaboration of a materials passport for buildings and no data on the materials are available.

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3.3.5. Selective demolition (deconstruction)

The municipality of *Stjørdal Commune (NW)* apply the concept of selective demolition (deconstruction) in its area of intervention, particularly it is covered by the waste and remediation plan which propose possible recycling and reusing options. For products which are to be reused in the further construction there're limits set by (regarding the chemical composition and area of use).

3.3.6. Use of recycled materials in the construction sector

In what regards the reuse of construction materials *Jihlava (CZ)* recovers building materials to be reused in case of public construction works and there must be set the expected amount of waste and the ways how it will be treated.

Stjørdal Commune (NW) also promotes the use of this type of materials in the construction sector and this is partially covered by the waste and remediation plan which propose possible recycling and reusing options. For products which are to be reused in the further construction there're limits set by (regarding the chemical composition and area of use).

In *Romania*, the municipalities refer that have adoption of practices that promote the use of this type of construction materials regulated.

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4. Conclusions

This report presents the state of the art of the regulatory framework about CDW management and related topics in the municipalities of *Baixo Alentejo* region, other Portuguese municipalities, and selected municipalities from Norway (NO), Romania (RO) and Czech Republic (CZ) (Activity 2.1), as a basis to design an effective common regional regulatory strategy (Activity 2.2, planned to be developed during November and December 2021). The analysis presented below will be focused on the main results obtained from three groups mentioned and considering the core structure of the questionnaire submitted to municipalities.

In respect to the results obtained to the 13 ***Baixo Alentejo* municipalities**, the following conclusions are relevant:

- The majority (10 out of 13 municipalities) have specific regulations to CDW management, that can be categorized generally as recent regulations, after 2008, when came into force in Portugal a specific regulation to CDW management (Decree-Law 46/2008, 12 of March);
- In Portugal, there is a specific municipal responsibility regarding CDW management resulting from construction works not subject to prior notification/licensing process; in this case, 10 municipalities answered they directly assume, in general, the municipal responsibility for this part of CDW generated in their areas of intervention;
- Almost half of the municipalities provide municipal controlled spaces for CDW preliminary storage and a duly regulated CDW collection service, although the municipalities are not the same in the two cases;
- In Portugal, different construction work types have differences in the way CDW management criteria are verified; for instance, in public construction works (including direct administration construction works, with the responsibility of the municipality itself), a CDW Prevention and management Plan has to be implemented and verified/validated at the end of the construction phase, while at private construction works at least the final destinations for CDW must be monitored and also validated; nevertheless, the perception is that in most municipalities there is not a proper follow-up of these processes and are in need of a more consistent and consequent approach to comply with the established legal obligations;
- Regarding materials passports, selective demolition (deconstruction) and the use of recycled materials, in general the inquired municipalities do not apply these practices/procedures, but some of them have scarce (and not normalized) information that can be consulted.

In respect to the **other 12 Portuguese municipalities that answered the questionnaire**, the reality is similar to what was described for the 13 *Baixo Alentejo* municipalities. However, these specific comments will be analysed after with more detail, specifically during Activity 2.2 development:

- Although most municipalities assume the management of CDW, only half of them provide infrastructure such as ecocentres/collection posts or similar controlled spaces to deposit CDW after collection. However, only a small number of municipalities provide infrastructure duly regulated where anyone can leave their CDW;

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- As stated before, different types of construction work have differences in CDW management criteria. In the case of public works (including works of direct administration, which are the responsibility of the municipality itself), the legal assumptions in force are applied, namely the Public Procurement Code, which imposes the implementation, verification and validation at the end of the construction work of the CDW Prevention and management plan. Meanwhile, in private construction works, as the municipalities issue construction permits, at least the final destination of the generated CDW should be verified and validated. However, the perception is that, although almost all municipalities assume to adopt practices/procedures related to the CDW management, only a small number guarantee to verify the final destination of the CDW, thus guaranteeing to obey with the established legal obligations;
- As regards materials passports, a small number of municipalities indicate that they have data on the materials, construction products and systems. About selective demolition (deconstruction) and the use of recycled materials, in general the municipalities promote practices/procedures for selective demolition supported by technical details and according to the different waste categories expressed in the European waste list. Regarding the use of recycled materials some municipalities identified that they recover building materials to be reused, even some of them have knowledge of successful examples in the reuse of some construction materials as backfilling material.

Municipalities from the project partners from Norway, Romania and Czech Republic were invited to collaborate, submitting the questionnaire to selected entities. The main results obtained, relevant to the core of the (De)construct project, are the following:

- In some municipalities of *Romanian and Norway* the responsibility for CDW management is delegated to intercommunity development associations and inter communal company, respectively;
- In the municipality of Norway, they regulate the management of CDW, only for household construction waste, being the municipality responsible for operating a recycling center. All the industrial construction waste is managed by private recycling companies. In *Czech Republic* municipalities the CDW management is guaranteed through a municipality drop-off centre duly regulated, but in one specific case the drop-off center present characteristics that allow separation by type of CDW and imposes a limit on the amount of CDW to be deposited, per year, for each citizen. In *Romania* each municipality has its own rules, while one provides standardized containers that are collected by the sanitation operator who is responsible for their transport and storage, another one provides a collection center where citizens can deposit a certain amount of CDW, per year, the excess will be sent to a private licenced operator, with an associated cost. Lastly, there is a municipality that, in accordance with its regulations, requires construction sites owners to have a contract with a private licenced operator who is responsible for the storage and collection of CDW;
- In the vast majority of municipalities in the three countries, taking into account the different types of construction work, it is clear that they all adopt very strict practices/procedures for the management of CDW, and at the end of the work this issue is verified and validated. In the case of private works, when applying for licensing, information is requested, to be included in the project documentation, and at the end it is verified whether the CDW has been delivered to a licensed operator;

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- With regard to the materials passport, none of the municipalities, in the three countries, has institutionalized this procedure, nor do they have any data on the materials used. About selective demolition, only the municipality of Norway applies the concept, through the waste and remediation plan which proposes possible recycling and reusing options. As for the use of recycled materials, only some municipalities report practices/procedures regarding their use: in the *Czech Republic* the recovery of materials is guaranteed, through the estimate made, before the start of work, of the quantities and methods of recovery of the materials, to be reused in public works; in *Norway*, this issue is guaranteed by the waste and remediation plan which proposes possible recycling and reusing options, imposing limits, as for the chemical composition it concerns, of the materials to be reused; in *Romania* there are specific regulations for the type of materials to be reused.

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Promotor:



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References

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ANNEX I – QUESTIONNAIRE (PORTUGAL)

Operador do Programa:



Promotor:



Parceiros:



(De)construct for Circular Economy

WP 2 – Regulatory framework

Activity 2.1 – Legal framework analysis

Survey to municipalities regarding legal framework

This Survey is part of the (De)construct for Circular Economy project, led by the Intermunicipal Community of Baixo Alentejo (CIMBAL), and financed by the multiannual financial mechanism known as EEA Grants. The project aims to promote a regional strategy for the reuse of products and building components, as well as the recycling of construction and demolition waste (CDW), promoting the reduction of environmental impacts and circularity in this sector of economic activity.

Among the activities to be developed, it is intended to create a common legal framework, so that, in a first stage, it is important to collect information that will allow to establish the reference situation. The European partners (ID Norway - Norway, CNPCD - Romania, and Enviros - Czech Republic) will also contribute to this activity, with the relevant experiences of the respective countries.

In this context, the collaboration of municipalities is requested at this stage in the completion of this questionnaire, which is sent to the designated interlocutor to accompany the project. The interlocutor mentioned should collect the answers in his municipality in the way he finds most convenient.

The answers must be sent, without exception, until February 12th 2021. A meeting will be held during the data collection period to clarify any doubts.

The data collected will be used within the project to try to find solutions that will enhance circularity in the construction sector, at regional and local level, guaranteeing the confidentiality of the information collected beyond this context.

For any questions, please contact Ana Catarina Lopes, at the following e-mail address: ana.lopes@cimbal.org.pt.

Thank you for your cooperation.

CIMBAL - Intermunicipal Community of Baixo Alentejo
February 2021

Operador do Programa:



Promotor:



Parceiros:





Economy project.

1. Construction and demolition waste (CDW) management responsibility

Please indicate in the table below who, in the municipality, is responsible for managing the construction and demolition waste (CDW).

Department	Specific responsibilities in CDW management (e.g. analysis of procedures, permits, monitoring, others)

2. For works not subject to licence or prior notice, who is the responsible for the management of the CDW in the municipality?

2.1. Don't know

2.2. The management of this type of CDW is not carried out in the municipality

2.3. The municipality

Briefly describe how the management of the CDW is carried out.

2.4. The Municipal Waste Management System with intervention in the respective area of intervention.

Briefly describe the contractual responsibilities

2.5. Other

Briefly describe how the CDW management is carried out.

A. CDW regulation

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3. Does the municipality have any regulations regarding CDW management (e.g. management responsibilities, services provided, procedures, supervision, drop-off centre (ecocenter), administrative, penalties)?

3.1. No.

In this case, please select how the municipality monitors the practices/procedures in regard to CDW management:

3.1.1. No control is carried out

3.1.2. Controls, from the general waste management specific regulation.

Describe briefly in what context.

3.1.3. Controls, from the specific CDW management regulation.

Describe briefly in what context.

3.2. Yes.

In this case, please record the requested information in the table below and send a specific description of the regulations to the email indicated on the first page

Regulation	Start Date	End Data	Under review? (if yes, when is expected to enter into force?)	CDW Application scope (e.g. public works; private works, with or without licence; direct administration works; other aspects).

B. Services, infrastructure and regulations associated to CDW

4. Does the municipality provide services for the CDW collection in its area of intervention?

4.1. No

4.2. Yes.

In this case, is the service regulated?

4.2.1. No

4.2.2. Yes.

Please describe briefly.

5. Does the municipality have infrastructures (Drop-off centre/ecocenter or similar spaces) where it is possible to manage CDWs (e.g. conditioning, selection/ sorting)?

5.1. No

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5.2. Yes.

In this case, these spaces are subject to some specific regulation?

5.2.1. No

5.2.2. Yes

In this case, please send us a specific description of the regulations, including associated fee criteria information to the email indicated on the first page.

In addition, please answer the following questions:

5.2.1.1. Do these spaces have characteristics that allow separation by type of CDW (e.g. mixtures of inert CDW, mixtures of CDW, wood, plaster-based materials)?

5.2.2.1.1. No

5.2.2.1.2. Yes

Please describe briefly.

5.2.2.2. Is there some limit imposition to the amount of CDW to be received?

5.2.3.1.1. No

5.2.3.1.2. Yes

Please indicate the limit.

5.2.3.2. Do these spaces make it possible to store building materials containing hazardous substances, such as asbestos?

5.2.4.1.1. No

5.2.4.1.2. Yes

Please describe briefly.

C. Different types of intervention procedures

6. Regarding **public construction works**, the municipality adopts practices/procedures concerning CDW management?

6.1. No

6.2. Yes

In this case, please select:

6.2.1. The municipality adopts procedures regarding the CDW Prevention and Management Plan (CDW – PMP).

6.2.1.1. No

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6.2.1.2. Yes

In this case, please select:

6.2.1.2.1. Requests CDW - PMP, in the implementation project phase, for evaluation and validation by the municipality.

Briefly describe the procedure.

6.2.1.2.2. Checks the CDW - PMP, at the end of the work, to attest its compliance and, if necessary, to condition the administrative acts associated with the reception of the work, under the Public Procurement Regulation.

Briefly describe the procedure.

6.2.2. It's common practice for the municipality to check the final destinations of CDWs in this type of work, for example by checking electronic waste tracking guides.

Briefly describe the procedure.

6.2.2. It's common practice for the municipality to supervise public works, and in what regards CDW, with its own resources (human resources).

Briefly describe the procedure.

6.2.3. The municipality has imposed penalties when it verified a failure to comply, in what regards CDW.

Briefly describe the procedure

7. In what regards **direct administration construction works**, the municipality adopts practices/procedures regarding the CDW management for this type of works.

7.1. No

7.2. Yes

In this case, please select:

7.2.1. The municipality adopts procedures regarding the CDW Prevention and Management Plan (CDW – PMP).

7.2.1.1. No

7.2.1.2. Yes

In this case, please select:

7.2.1.2.1. Ensures the existence of the CDW - PMP, in the implementation project phase.

Briefly describe the procedure

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7.2.1.2.2. Checks the CDW - PMP, at the end of the work, to attest its compliance and, if necessary, to condition the administrative acts associated with the reception of the work, under the Public Procurement Regulation

Briefly describe the procedure.

7.2.2. The municipality adopts procedures for the monitoring record of CDWs production in this type of work.

Briefly describe the procedure.

7.2.3. It's common practice for the municipality to check the final destinations of CDWs in this type of work, for example by checking waste electronic records guides).

Briefly describe the procedure.

7.2.4. It's common practice for the municipality to supervise public works, in what regards CDW, with its own resources (human resources).

Briefly describe the procedure.

7.2.5. The municipality has imposed penalties when it verified a failure to comply, in what regards CDW.

Briefly describe the procedure.

8. In what regards **particular construction works** subject to prior notification/licensing, the municipality adopts practices/procedures regarding the CDWs management for this type of works?

8.1. No

8.2. Yes

In this case, please select the applicable options:

8.2.1. It's common practice to request, before the start of the work in the construction phase (construction licence application phase) the CDWs production forecast as well as their final licensed destination.

In this case, briefly describe the procedure.

8.2.2. It's common practice to monitor, during works execution, the registration regarding the production and disposal of CDW to the final licensed destination.

In this case, briefly describe the procedure.

8.2.3. It's common practice to check the final destinations of CDWs in this type of work, for example by checking waste electronic records guides.

In this case, briefly describe the procedure.

- 8.2.4. It's common practice to check, at the end of the work (licence use phase), the records on the production of CDWs and their final destinations, aiming to validate the fulfilment of the plan and the execution of the procedures in relation to the legal requirements

In this case, briefly describe the procedure.

- 8.2.5. It's common practice for the municipality to supervise public works, and in what regards CDW, with its own resources (human resources).

In this case, briefly describe the procedure.

- 8.2.6. The municipality has imposed penalties when it verified a failure to comply, in what regards CDW.

In this case, briefly describe the procedure.

9. In what regards private works not subject to prior notification/licensing, does the municipality adopt practices/procedures regarding the management of CDWs for this type of works?

9.1. No.

9.2. Yes.

In this case, please select the applicable options:

- 9.2.1. The municipality adopts control procedures regarding the produced CDW disposable, in this type of works, to drop-off centres/ecocenters or others similar places.

Briefly describe the procedure.

- 9.2.2. The municipality adopts control procedures regarding the produced CDWs disposable in this type of works and to other final licensed destinations

Briefly describe the procedure.

- 9.2.3. It's common practice for the municipality to supervise public works, and in what regards CDW, with its own resources (human resources).

Briefly describe the procedure.

- 9.2.4. The municipality has imposed penalties when it verified a failure to comply, in what regards CDW.

Briefly describe the procedure.

D. Materials passports

- 10. A material passport is a digital report containing relevant information to the reuse and recycling that enters in a database and can be extracted from that database by different professionals, such as**

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designers, planners and urban planners and environmental managers, construction companies, waste management operators, among others. In this regard, please select the applicable options to the municipality:

10.1. The municipality presents some experience in the preparation of a building's materials passport?

10.1.1. No.

10.1.2. Yes.

Briefly describe your experience.

10.2. For a material passport it is required specific data regarding the buildings such as materials (e.g. concrete), construction products (e.g. cladding), systems (e.g. façade). Is these data available in the municipality?

10.2.1. No.

10.2.2. Yes.

Describe for which types of buildings this information is available (e.g. type of building, nature)

Please describe the level of detail in terms of technical characteristics of the materials, products and systems.

Please describe in which documents this information can be found (e.g. specifications, quantity maps, energy certificates, others).

E. Selective demolition (deconstruct)

The concept of selective demolition (also known as deconstruction) assumes a significant relevance for the implementation of circular economy principles in the construction sector, being defined as the systemic dismantling of a building, which implies the sequencing of demolition activities, to maximize the materials and components for reuse, or to recycle the resulting CDW.

Regarding this issue, describe whether the municipality applies the concept of selective demolition/deconstruction in its area of intervention, namely in the actions and procedures it carries out or for which it is responsible?

11.1. No.

11.2. Yes.

In this case, please select the applicable options:

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11.2.1. The adoption of practices/procedures that promote selective demolition is regulated by the municipality.

Send a specific description of the regulation to the email indicated on the first page.

11.2.2. The municipality adopts practices/procedures that promote the selective demolition.

Briefly describe the practices/procedures.

11.2.3. The municipality adopts produced CDW control procedures in this type of works.

Briefly describe the procedure.

11.2.4. The municipality can identify successful selective demolition/deconstruction examples carried out in its area of intervention?

Please briefly describe these successful examples.

11.2.5. The municipality adopts supervision procedures for this type of intervention, in order to validate its implementation under the foreseen/agreed terms.

Briefly describe the procedure.

11.2.6. The municipality records CDW produced data in this type of intervention.

Briefly describe the procedure.

11.2.7. The municipality registers or controls the data regarding the construction materials recovered in this type of interventions.

Briefly describe the procedure.

F. Construction sector materials reuse

11. In what regards to the reuse of construction materials, please select the options that apply in relation to the actions and procedures carried out by the municipality or which are its responsibility:

12.1. The municipality has the practices adoption that promotes the reuse of construction materials regulated.

Send a specific description of the regulation to the email indicated on the first page

12.2. The municipality recovers building materials to be reused.

Briefly describe the procedure.

12.3. The municipality has a data registration regarding construction materials, stored by the municipality, for the reuse in other interventions.

Briefly describe the procedure.

12.4. The municipality can identify successful initiatives in its territory that promote the reuse of construction materials.

Please briefly describe these successful examples

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G. Use of recycled materials or materials incorporating recycled components in the construction sector

11. In what regards the use of recycled materials or materials incorporating recycled components, please selected the applicable options regarding the actions and procedures carried out by the municipality or that are your responsibility:

12.1. The municipality has the practices adoption that promotes the use of this type of construction materials regulated.

Send a specific description of the regulation to the email indicated on the first page

12.2. The municipality promotes the use of this type of materials in the construction sector.

Briefly describe the procedure.

12.3. The municipality has a data registration regarding the use of this type of materials, by the municipality, and regarding the construction sector.

Briefly describe the procedure.

12.4. The municipality can identify successful initiatives in its territory that promote the use of this type of materials in the construction materials

Briefly describe the procedure.

H. Other questions

Please use this space to record other information you consider relevant about CDW management in the municipality, in relation to the subjects of the questionnaire listed below, as well as other topics you consider relevant.

<input type="checkbox"/> A. CDWs management responsibility
<input type="checkbox"/> B. CDW Regulation
<input type="checkbox"/> C. Services, infrastructure and regulations associated to CDW
<input type="checkbox"/> D. Different types of intervention procedures
<input type="checkbox"/> E. Materials passports
<input type="checkbox"/> F. Selective demolition (deconstruct)
<input type="checkbox"/> G. Construction sector materials reuse
<input type="checkbox"/> H. Use of recycled materials or materials incorporating recycled components in the construction sector
<input type="checkbox"/> Other questions

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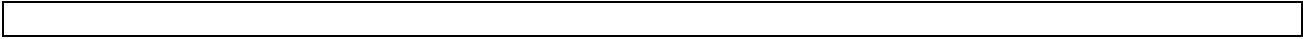


Promotor:



Parceiros:





Thank you for your cooperation.

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Promotor:



Parceiros:

