

Iceland  
Liechtenstein  
Norway grants

**C+D**

## 5/SGS #2 - C+D

Close the loop by Disclosing the benefits of buildings' deconstruction and materials re-use

September 2020 – November 2022

**CERIS** : Civil Engineering Research  
and Innovation for  
Sustainability

**TÉCNICO LISBOA** | **DECIVIL**  
DEPARTAMENTO DE ENGENHARIA  
CIVIL, ARQUITECTURA E GEORRECURSOS

**NORSUS**  
Norwegian Institute for  
Sustainability Research

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Seminar " Improve data for module C and D", NHO, Oslo, 27 October 2022

## Consortium



- The C+D project is promoted by the “Civil Engineering Research and Innovation for Sustainability” - CERIS research centre from Instituto Superior Técnico of Universidade de Lisboa, in Portugal,



- And has the “Norwegian Institute for Sustainability Research” – NOR SUS, from Norway, as a partner.



## Background



The construction sector:

- makes an intensive use of primary resources;
- has a low level of circularity;
- has a great circularity potential.



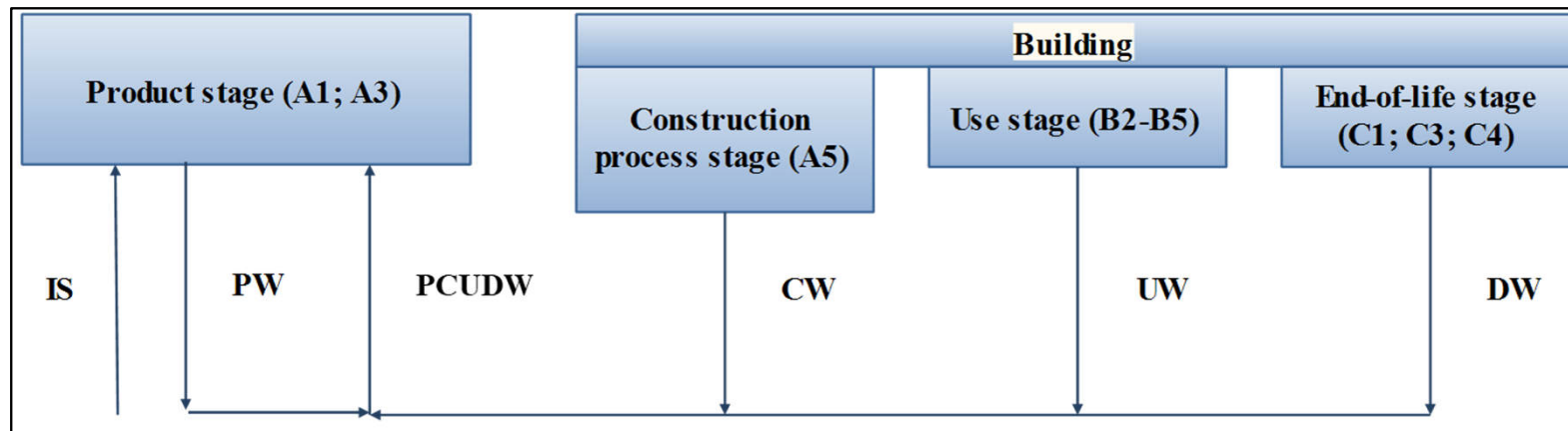
Traditional demolition is still the most common practice in Portugal.

However, selective demolition maximizes the re-use, or at least the recycling, of demolition waste.



## Main aim

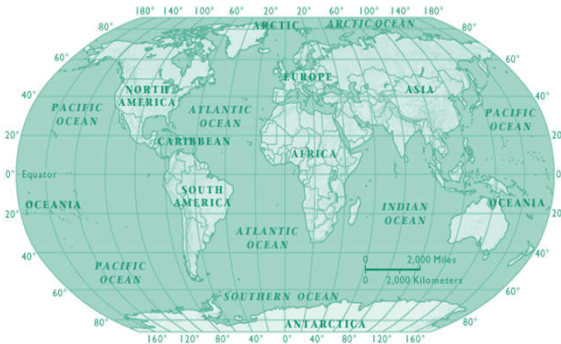
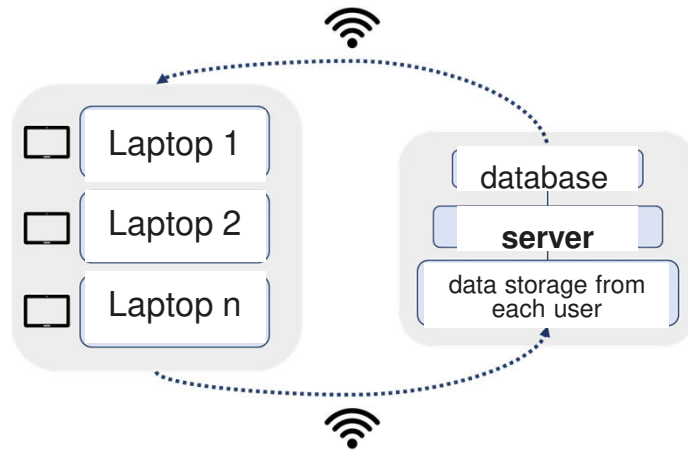
Develop the web-based **C+D platform** for calculating the **economic and environmental benefits** associated with the process of **deconstruction of buildings** and of **re-use of Construction and Demolition Waste (CDW, or C+D waste)**.



Waste flows from the production of construction materials (including industrial symbiosis), and from the construction, use, and demolition of buildings



## Specific objectives



- Develop the C+D platform, which will be comprehensive, upgradeable and innovative, and that will include a circularity indicator;
- Make this platform available to the public in Portugal, Norway and other countries, in Portuguese and in English, along with a handbook in the same languages.



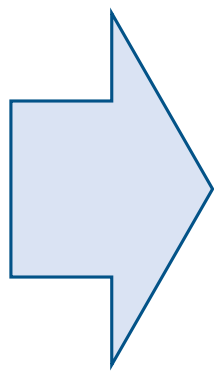
## Activities

1. Development of databases of environmental and economic impacts
2. Collection of national and international data
3. Development of an indicator of the environmental and economic advantages of circularity
4. Development of the C+D platform
5. Development of the C+D handbook
6. Communication and dissemination of the results



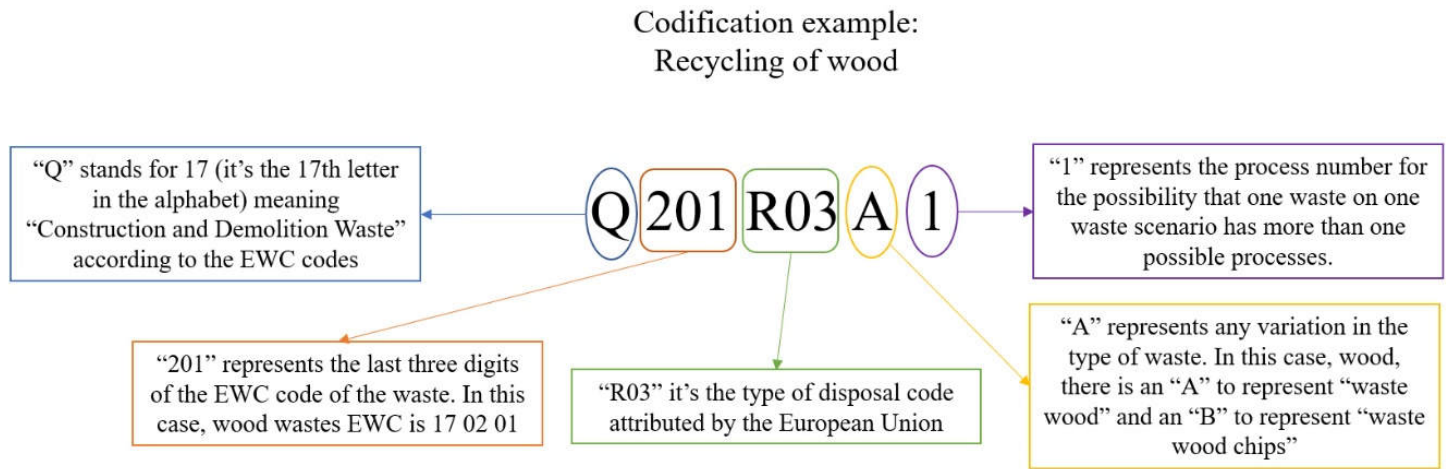
## Activities

1. Development of databases of environmental and economic impacts
2. Collection of national and international data



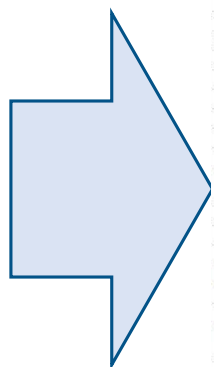
## Results

Antunes, A.; Martins, R.; Silvestre, J.D.; do Carmo, R.; Costa, H.; Júlio, E.; Pedroso, P. (2021) **Environmental Impacts and Benefits of the End-of-Life of Building Materials: Database to Support Decision Making and Contribute to Circularity.** *Sustainability*, 13, 12659. <https://doi.org/10.3390/su132212659>



## Activities

1. Development of databases of environmental and economic impacts
2. Collection of national and international data

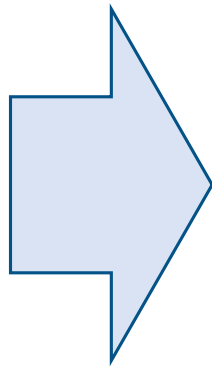


## Results

Description	EWC	Costs		Sorting Plant	Collection for Final Disposal	In Situ Reuse	Engineered landfill	Incineration on land	Use as fuel	Organic subc. recycling/ reclaim	Metal recycling/ reclaim	Inorganic subc. recycling/ reclaim
		Demolition	Transport									
<b>CONSTRUCTION AND DEMOLITION WASTES</b>												
<b>Concrete, Bricks, Tiles and Ceramics</b>												
Concrete	17 01 01	X	-	X	Q101E01A1	Q101E02A1						Q101R05A1
Bricks	17 01 02	X	-	-	Q102E01A1	Q102E02A1						Q102R05A1
Tiles and Ceramics	17 01 03	X	-	-								
Mixture of, or separate fractions of concrete, bricks, tiles and ceramics containing hazardous substances	17 01 06	X	-	-								
Mixture of concrete, bricks, tiles and ceramics other than 17 01 06	17 01 07	X	-	-								
<b>Wood, Glass and Plastic</b>												
Wood	17 02 01	X	X	X			Q201D05A1	Q201D10A1	Q201R01A1	Q201R03A1		
Glass	17 02 02	X	-	X	Q202E01A1	Q202E02A1						
Plastic	17 02 03	X	-	X			Q205D05A1	Q203D10A1				Q203R05A1
Glass, Plastic and Wood containing or contaminated with hazardous substances	17 02 04	X	X	X								
<b>Metals</b>												
Copper, Bronze, Brass	17 04 01	X	-	X			Q401D05A1					
Aluminium	17 04 02	X	-	X			Q402D05A1					
Lead	17 04 03	X	-	-								
Zinc	17 04 04	X	-	-								
Iron and Steel	17 04 05	X	-	X	Q405E01C1	Q405E02C1	Q405D05B1	Q405D10B1			Q405R04C1	
Tin	17 04 06	X	-	-								
Mixed metals	17 04 07	X	-	X			Q407D05A1	Q407D10A1				
Metal waste contaminated with hazardous substances	17 04 09	X	-	X								
Cables containing oil, coal tar and other hazardous substances	17 04 10	X	-	-								
Cables other than those mentioned in 17 04 10	17 04 11	X	-	-								
<b>Insulation materials and Asbestos-containing construction materials</b>												
Insulation materials containing asbestos	17 06 01	X	-	-								
Other insulation materials consisting of or containing hazardous substances	17 06 03	X	X	X								
Insulation materials other than those mentioned in 17 06 01 and 17 06 03	17 06 04	X	X	X	Q604E01A1	Q604E02A1	Q604D05A1	Q604D10B1				Q604R05A1
Construction materials containing asbestos	17 06 05	X	-	-								
<b>Gypsum-based construction material</b>												
Gypsum-based construction materials contaminated with hazardous substances	17 08 01	X	X	X								
Gypsum-based construction materials other than those mentioned in 17 08 01	17 08 02	X	X	X	Q802E01B1	Q802E02B1	Q802D05A1					Q802R05B1
<b>Other construction and demolition wastes</b>												
Construction and demolition wastes containing mercury	17 09 01	X	-	-								
Construction and demolition wastes containing PCB	17 09 02	X	-	-								
Other construction and demolition wastes containing hazardous substances	17 09 03	X	-	-								
Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	17 09 04	X	-	-			Q904D05A1					
<b>MUNICIPAL WASTE</b>												
<b>Separately collected fractions</b>												
Paper and cardboard	20 01 01	X	-	X	T101E01A1	T101E02B1	T101D05C1	T101D10C1		T101R03B1		
Other municipal wastes	20 03											
Mixed municipal waste	20 03 01	X	X	X			T301D05A1					

## Activities

### 3. Development of an indicator of the environmental and economic advantages of circularity



## Results

GOMES, R.; BASTOS, D.; SILVESTRE, J. D. **Development of an indicator of the environmental advantages of circularity of construction materials.** *Sustainability*. Submitted for publication January 2022

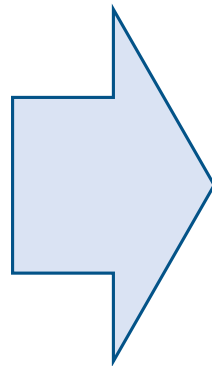
- quantify the environmental impact of the circularity potential of building materials
- considers the production (A1-A3) and end-of-life (C and D) phases of the material, and can be applied to different end-of-life scenarios
- it is divided in 3 parts, each one associated to a different stage of the material life cycle (production; service life; end of life)
- the results of each part of the expression vary between 0 and 1, and are then summed and divided by 3
- results in a value between 0 and 1, where higher values indicate greater circularity of the material

$$MECI = \frac{3 - \left( \frac{GWP_{A1-A3}}{GWP_{0\%RC}} \right) - \left( \frac{GWP_{C+D} + GWP_{A1-A3}}{GWP_{worst\ disposal} + GWP_{A1-A3}} \right) - \left( \frac{LC_{build} - LC_{material}}{LC_{build}} \right)}{3} \text{ per kg of material}$$



## Activities

4. Development of the C+D platform
5. Development of the C+D handbook

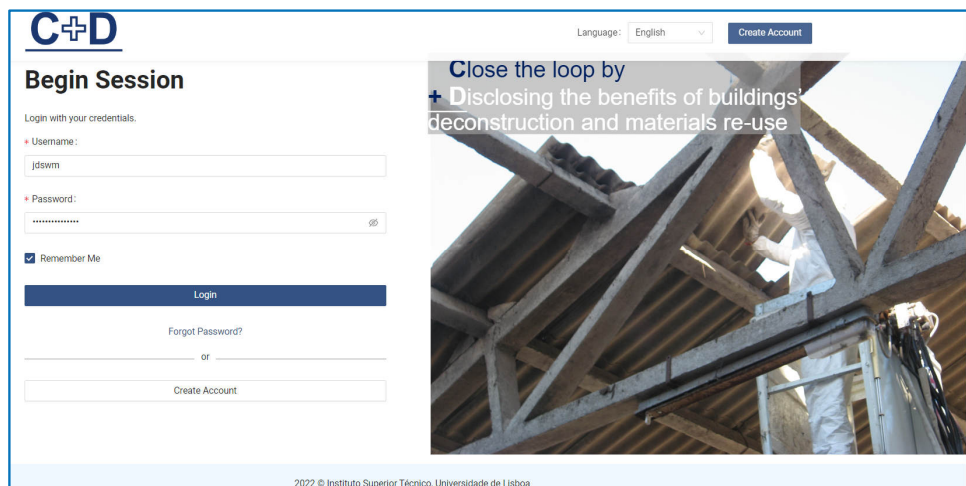


## Results: C+D Platform for calculating the economic and environmental benefits and impacts of CDW management

Antunes, A.; Martins, R.; Silvestre, J.D.; do Carmo, R.; Costa, H.; Júlio, E.; Pedroso, P. (2021) **Environmental Impacts and Benefits of the End-of-Life of Building Materials: Database to Support Decision Making and Contribute to Circularity.** *Sustainability*, 13, 12659. <https://doi.org/10.3390/su132212659>



### C+D Platform for calculating the economic and environmental benefits and impacts of CDW management



ANTUNES, A.; MARTINS, R.; SILVESTRE, J. D.; CARMO, R. do; COSTA, H.; JÚLIO, E.; PEDROSO, P. (2021). Environmental impacts and benefits of the end-of-life of building materials: database to support decision making and contribute to circularity. Sustainability. 13, 12659, DOI: 10.3390/su132212659.3

Inputs			Outputs	
A	B	B1	E	
		Location (B1.1)		CDW description (E1)
		Demolition/Desconstruction(B1.2)		Possible destinations (E2)
		Type of CDW (B1.3)		
Quantity (B1.4)				
Generator (B)	Edit (B2)	B2	Environmental Impact (E3) (GWP e ADP (f.f.))	
Consumer (C)		Demolition work reference (B2.1)	Demolition (E3.1)	
Operator (D)		Demolition/Desconstruction (B2.2)	Transport (E3.2)	
		Type of CDW (B2.3)	Processing (E3.3)	
		Quantity (B2.4)	Impact avoided (F3.4)	
			Total (E3.5)	

Figure 5. Online platform preview for the CDW generator profile.

Inputs			Outputs	
A	C	C1	F	
		Location (C1.1)		CDW description (F1)
		Type of CDW (C1.2)		Location of CDW (F2)
Quantity (C1.3)		Quantity of CDW (F3)		
Generator (B)	Edit (C2)	C2	Company information (F4)	
Consumer (C)		Demolition work reference (C2.1)	Environmental Impact (F5) (GWP e ADP (f.f.))	
Operator (D)		Type of CDW (C2.2)	Processing (F5.1)	
		Quantity (C2.3)	Transport (F5.2)	
			Total (F5.3)	

Figure 6. Online platform preview for the CDW consumer profile.

## C+D Platform for calculating the economic and environmental benefits and impacts of CDW management

- **User registration** (subject to validation):
  - Profile 1: buyer or seller of CDW
  - Profile 2: producer or purchaser of CDW

\* Email:  
Enter your email

\* Postal-Code and Address:  
\_\_\_\_\_-\_\_\_\_

\* Profile:  
Select the profile

Waste Management  
Designer, Contractor or Building owner

\* Password:  
.....

\* Confirm password:  
Confirm your password

Create Account




## C+D Platform for calculating the economic and environmental benefits and impacts of CDW management

### - Profile 1 (Waste management operator- WMO):

- CDW seller
- CDW buyer/services provider

The screenshot shows the C+D platform interface. On the left, a navigation menu is visible with the following items: Marketplace, Construction Work (highlighted with a blue box), and Service. On the right, the 'Construction' section is active, featuring a 'Create' button and a table with two columns: 'Name' and 'Address'. The table contains two entries: 'Central 1' with address 'Avenida Rovisco Pais 1' and 'Central 2' with address 'Rua Fausto Guedes Teixeira 27'.

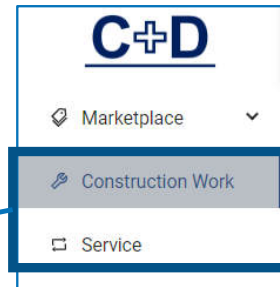
Waste to Produce		Waste to Consume		
Waste to Produce	Amount	Measurement Unit	Photo	Actions
Concrete	35	ton - Tons		<a href="#">Check Marketplace</a> <a href="#">Edit</a> <a href="#">Delete</a>



### C+D Platform for calculating the economic and environmental benefits and impacts of CDW management

- Profile 1 (WMO):

- CDW seller



Check Marketplace

**Details**  
Distance: 100  
Estimated Date: 2022-09-29

**Waste**  
Waste Type: Concrete  
Amount: 35 ton - Tons

**Prices**

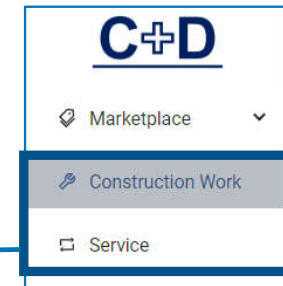
	Client	Code	Service Type	Waste Type	Distance (Km)	Environmental Impacts	Total Price (€)
+	LucianaTest	Q101R05A1	Inorganic subs. recycling/ reclaim	Concrete	16.59	2	272933.16
+	ARIEL TESTE	Q101E01A1	Sorting Plant	Concrete	16.20	2	35071.46



### C+D Platform for calculating the economic and environmental benefits and impacts of CDW management

#### - Profile 1 (WMO):

#### - CDW buyer/services provider



The navigation menu for the C+D platform is shown. It includes the C+D logo at the top, followed by a 'Marketplace' dropdown menu. Below this, there are three main categories: 'Marketplace', 'Construction Work', and 'Service'. The 'Construction Work' category is highlighted with a blue box, and a blue arrow points from this box to the 'CDW buyer/services provider' text.

Code	Waste Type	Service Type	Price (€)	Measurement Unit	Actions
D05	Iron and Steel	Specially engineered landfill	20	ton - Tons	<a href="#">Check Marketplace</a> <a href="#">Edit</a> <a href="#">Delete</a>
D05	Concrete	Specially engineered landfill	100	ton - Tons	<a href="#">Check Marketplace</a> <a href="#">Edit</a> <a href="#">Delete</a>
R04	Iron and Steel	Metal recycling/reclaim	0	ton - Tons	<a href="#">Check Marketplace</a> <a href="#">Edit</a> <a href="#">Delete</a>



## C+D Platform for calculating the economic and environmental benefits and impacts of CDW management

- Profile 1 (WMO):

**Check Marketplace**

---

**Details**

Distance:

Estimated Date:

**Waste**

Waste Type: **Concrete**

Amount: **ton - Tons**

---

**Prices**

Construction	Waste Type	Amount	Measurement Unit	Distance (Km)	Environmental Impacts	Total Price (€)
+ hjkhj	Concrete	223	ton	154.71	1	4346.93
+ Site1	Concrete	150	ton	153.36	1	2898.59
- Obra Coimbra	Concrete	1	ton	33.24	1	4.19

---

Shipping Price (€)	GWP Transport	NRE Transport	Client's Mail
4.19	6.65	123.00	..... <input type="button" value="See Email"/>

**C+D**

Marketplace ▾

Construction Work

Service

- CDW buyer/services provider



## C+D Platform for calculating the economic and environmental benefits and impacts of CDW management

### - Profile 2 (Designer, Contractor or Owner):

- CDW buyer
- CDW producer

The screenshot shows the C+D platform interface. On the left is a navigation menu with the following items: 'Marketplace', 'Waste', 'Services', and 'Construction Work'. The 'Waste' and 'Construction Work' items are highlighted with blue boxes. Two blue arrows point from these boxes to the text 'CDW buyer' and 'CDW producer' respectively. The main content area is titled 'Construction' and features a 'Create' button. Below this is a table with two columns: 'Name' and 'Address'. The table contains two rows of data:

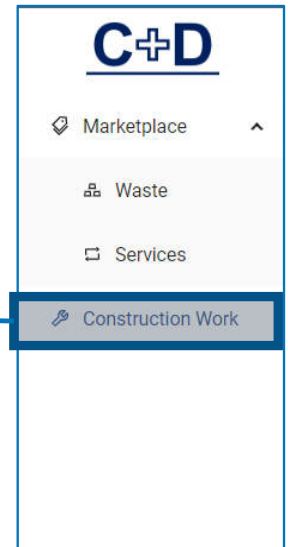
Name	Address
Site1	Avenida Rovisco Pais
Obra Coimbra	Avenida Dias da Silva



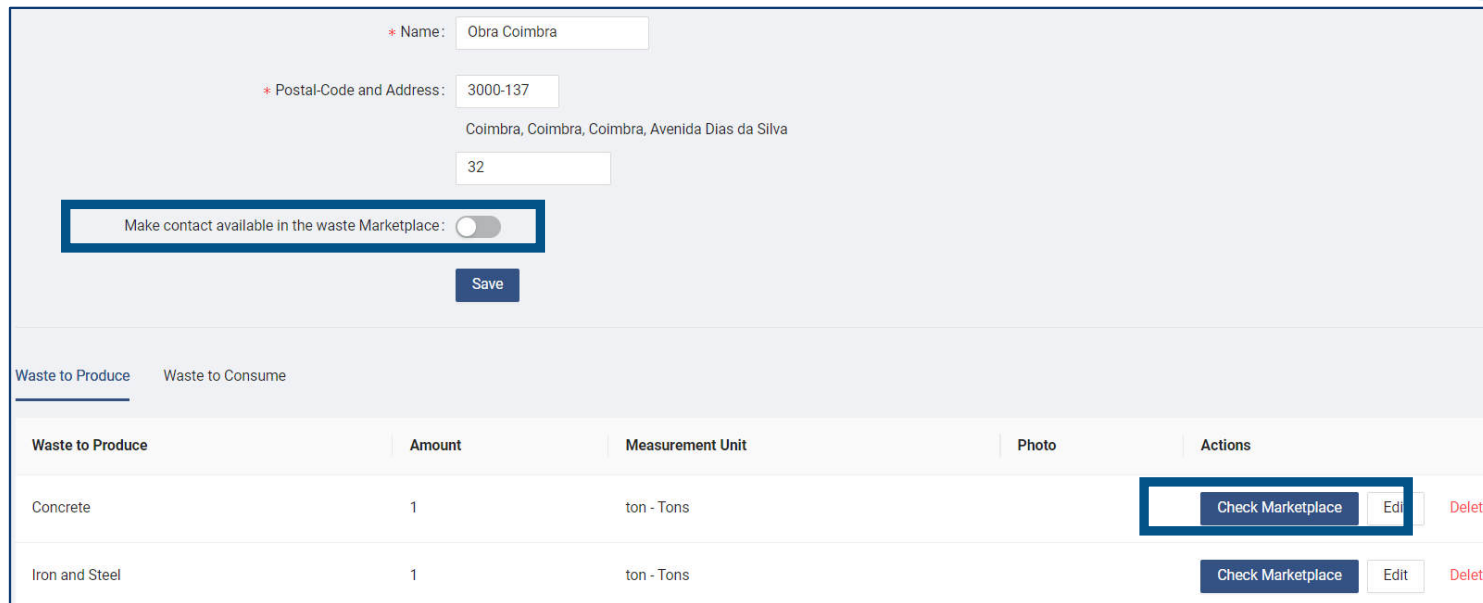
### C+D Platform for calculating the economic and environmental benefits and impacts of CDW management

#### - Profile 2 (Designer, Contractor or Owner):

#### - CDW producer



The navigation menu on the right side of the page includes the C+D logo at the top. Below it are four menu items: 'Marketplace' with a location pin icon and an upward arrow, 'Waste' with a trash can icon, 'Services' with a document icon, and 'Construction Work' with a wrench icon. The 'Construction Work' item is highlighted with a blue background.



The form displays the profile details for 'Obra Coimbra'. It includes fields for Name, Postal-Code and Address, and a toggle switch for 'Make contact available in the waste Marketplace:'. Below the form is a table with two tabs: 'Waste to Produce' and 'Waste to Consume'. The 'Waste to Produce' tab is active, showing a table with columns for Waste to Produce, Amount, Measurement Unit, Photo, and Actions. The table contains two rows: 'Concrete' and 'Iron and Steel', both with an amount of 1 and measurement unit of 'ton - Tons'. Each row has a 'Check Marketplace' button, an 'Edit' button, and a 'Delete' button.

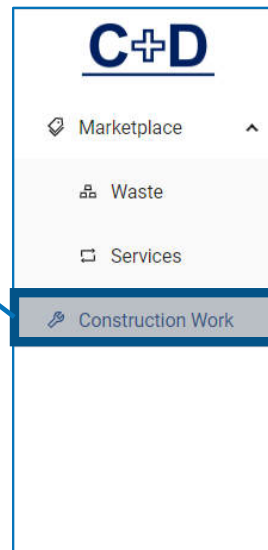
Waste to Produce	Amount	Measurement Unit	Photo	Actions
Concrete	1	ton - Tons		Check Marketplace Edit Delete
Iron and Steel	1	ton - Tons		Check Marketplace Edit Delete



## C+D Platform for calculating the economic and environmental benefits and impacts of CDW management

### - Profile 2 (Designer, Contractor or Owner):

- CDW producer



The image shows a form titled 'Waste to Produce'. It contains the following fields and elements:

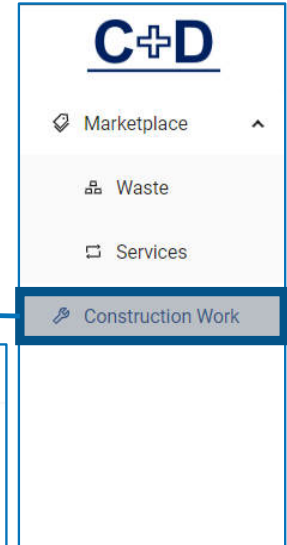
- '\* Waste Type:': A dropdown menu with '17 01 01 - Concrete' selected.
- 'Amount:': A text input with '35' and a dropdown menu with 'ton - Tons' selected.
- '\* Estimated Date:': A date picker showing '2022-09-29'.
- 'Photo:': A section containing an 'Upload Photo' button and a photo of concrete blocks.
- 'Own Transport:': A toggle switch that is currently turned off.
- At the bottom right, there are 'Cancel' and 'Save' buttons.



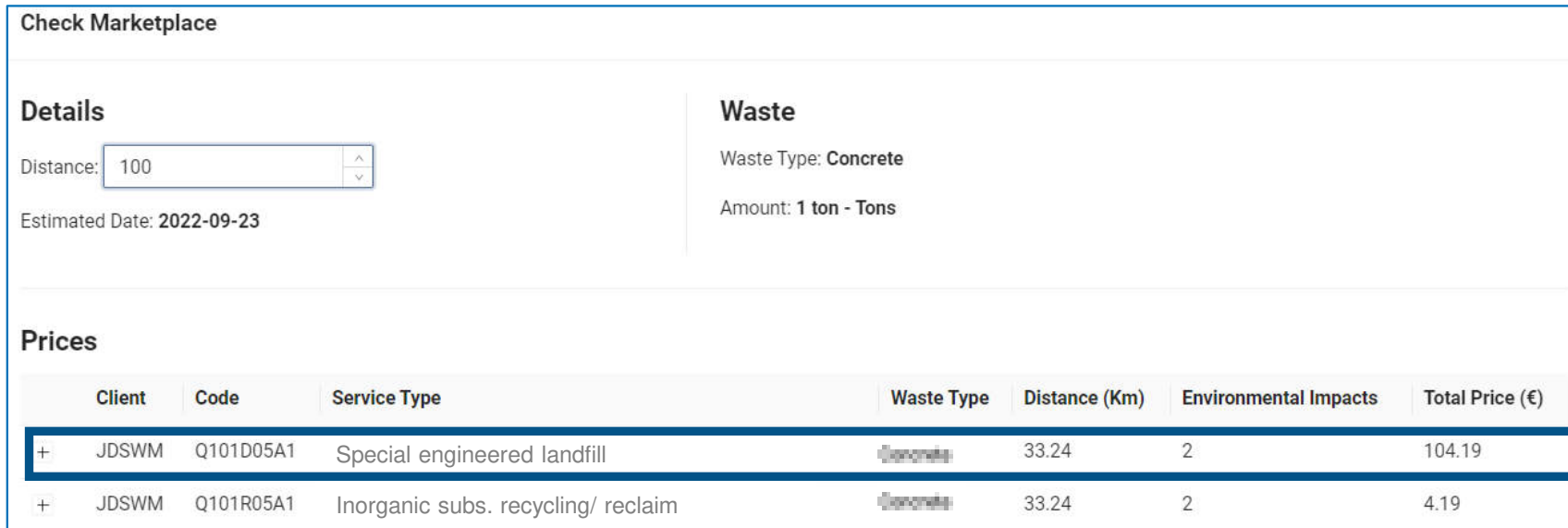
### C+D Platform for calculating the economic and environmental benefits and impacts of CDW management

#### - Profile 2 (Designer, Contractor or Owner):

##### - CDW producer



A vertical navigation menu for the C+D platform. It features the C+D logo at the top, followed by four menu items: Marketplace, Waste, Services, and Construction Work. The 'Construction Work' item is highlighted with a blue background and a white arrow pointing to the left. The other items have small icons to their left and an upward-pointing arrow to their right.



The 'Check Marketplace' interface is divided into three main sections: Details, Waste, and Prices. The Details section includes a 'Distance' input field with the value '100' and an 'Estimated Date' of '2022-09-23'. The Waste section shows 'Waste Type: Concrete' and 'Amount: 1 ton - Tons'. The Prices section contains a table with two rows of data. The first row is highlighted with a blue border.

	Client	Code	Service Type	Waste Type	Distance (Km)	Environmental Impacts	Total Price (€)
+	JDSWM	Q101D05A1	Special engineered landfill	Concrete	33.24	2	104.19
+	JDSWM	Q101R05A1	Inorganic subs. recycling/ reclaim	Concrete	33.24	2	4.19



**C+D Platform for calculating the economic and environmental benefits and impacts of CDW management**

**- Profile 2 (Designer, Contractor or Owner):**

**- CDW producer**

**C+D**

- Marketplace
- Waste
- Services
- Construction Work**

Client	Code	Service Type	Waste Type	Distance (Km)	Environmental Impacts	Total Price (€)	
JDSWM	Q101D05A1	Special engineered landfill	Concrete	33.24	2	104.19	
<b>Prices</b>							
Shipping Price (€)	Service Price (€)	Price (€/ton)	Client's Mail				
4.19	100.00	100	..... <input type="button" value="See Email"/>				
<b>GWP Costs</b>							
GWP Transport		GWP Service		GWP Total			
6.65		10.00		16.65			
<b>NRE Costs</b>							
NRE Transport		NRE Service		NRE Total			
123.00		250.00		373.00			
<b>+</b>	JDSWM	Q101R05A1	Inorganic subs. recycling/ reclaim	Concrete	33.24	2	4.19



**C+D Platform for calculating the economic and environmental benefits and impacts of CDW management**

**- Profile 2 (Designer, Contractor or Owner):**

- CDW producer

**C+D**

- Marketplace
- Waste
- Services
- Construction Work**

Client	Code	Service Type	Waste Type	Distance (Km)	Environmental Impacts	Total Price (€)
+	JDSWM	Q101D05	Special engineered landfill	33.24	2	104.19
-	JDSWM	Q101R05	Inorganic subs. recycling/ reclaim	33.24	2	4.19

Prices			
Shipping Price (€)	Service Price (€)	Price (€/m3)	Client's Mail
4.19	0.00	0	..... See Email

GWP Costs		
GWP Transport	GWP Service	GWP Total
6.65	-10.00	-3.35

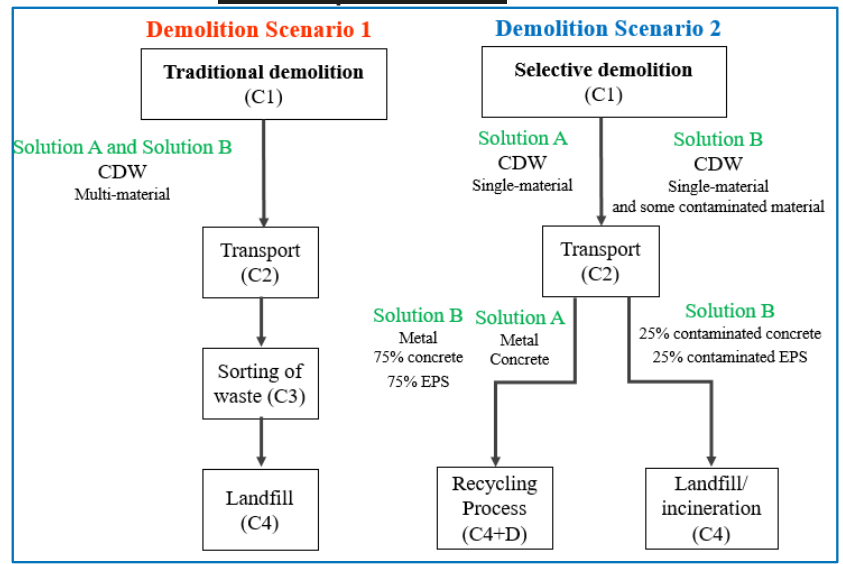
NRE Costs		
NRE Transport	NRE Service	NRE Total
123.00	-193.00	-70.00



## C+D Platform for calculating the economic and environmental benefits and impacts of CDW management

ANTUNES, A.; MARTINS, R.; SILVESTRE, J. D.; CARMO, R. do;  
 COSTA, H.; JÚLIO, E.; PEDROSO, P. (2021). Environmental impacts and benefits of the end-of-life of building materials: database to support decision making and contribute to circularity. Sustainability. 13, 12659, DOI: 10.3390/su132212659.3

- Profile 2 (Designer, Contractor or Owner):
- CDW producer



Inputs			Outputs								
A	B	B1	Concrete (E1)								
		Coimbra (B1.1)	Possible destinations (E2)								
		Deconstruction (B1.2)	<b>Name</b>	<b>Localization</b>	<b>Services</b>						
		17 01 01(B1.3)	Operator 1	Ferreira a Nova	- Collect; - Transport; - Recycling (R5)						
		37500 kg (B1.4)	Operator 2	Portunhos	- Collect; - Transport; - Processing (R12); - Landfill (D1)						
			Environmental Impact (H4) (GWP e ADP (f.f.))								
			Stage - Process								
Generator (B)	Edit (B2)	B2	Company	Indicators	C1 - SD	C1 - TD	C2 - Tr	C3 - Pr	C4+D - Rc	C4 - Lf	Total
Consumer (C)		Demolition work reference(B2.1)	Operator 1	GWP (kgCO <sub>2</sub> eq)	466,5		138,2		150		616,5
Operator (D)		Demolition/Deconstruction (B2.2)		ADP (f.f.) (MJ)	9322,5		2165,1		2066,3		11388,8
		Type of CDW (B2.3)	Operator 2	GWP (kgCO <sub>2</sub> eq)		559,8	66,7	338,3		398,7	1296,8
		Quantity (B2.4)		ADP (f.f.) (MJ)		13983,8	1044,8	5756,3		9289,7	29029,7



**C+D Platform for calculating the economic and environmental benefits and impacts of CDW management**

**- Profile 2 (Designer, Contractor or Owner):**

**C+D**

- Marketplace
- Waste
- Services
- Construction Work**

**- CDW producer**

Client	Code	Service Type	Waste Type	Distance (Km)	Environmental Impacts	Total Price (€)
JDSWM	Q405D05B1	Special engineered landfill	iron and steel	33.24	2	24.19

Prices			
Shipping Price (€)	Service Price (€)	Price (€/ton)	Client's Mail
4.19	20.00	20	..... <input type="button" value="See Email"/>

GWP Costs			
GWP Transport	GWP Service	GWP Total	
6.65	60.00	66.65	

NRE Costs			
NRE Transport	NRE Service	NRE Total	
123.00	660.00	783.00	

+	JDSWM	Q405R04C1	Metals and metallic compounds recycling/ reclaim	33.24	2	4.19
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**C+D Platform for calculating the economic and environmental benefits and impacts of CDW management**

**- Profile 2 (Designer, Contractor or Owner):**

**C+D**

- Marketplace
- Waste
- Services
- Construction Work**

**- CDW producer**

Client	Code	Service Type	Waste Type	Distance (Km)	Environmental Impacts	Total Price (€)	
+	JDSWM	Q405D05B1	Special engineered landfill	iron and steel	33.24	2	24.19
-	JDSWM	Q405R04C1	Metals and metallic compounds recycling/ reclaim		33.24	2	4.19

**Prices**

Shipping Price (€)	Service Price (€)	Price (€/ton)	Client's Mail
4.19	0.00	0	..... <input type="button" value="See Email"/>

**GWP Costs**

GWP Transport	GWP Service	GWP Total
6.65	-1730.00	-1723.35

**NRE Costs**

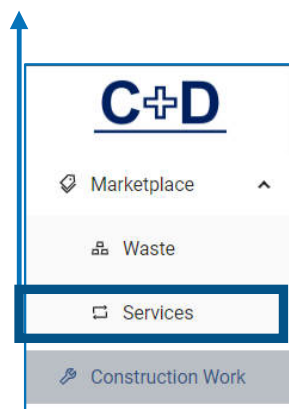
NRE Transport	NRE Service	NRE Total
123.00	-17400.00	-17277.00



## C+D Platform for calculating the economic and environmental benefits and impacts of CDW management

### - Profile 2 (Designer, Contractor or Owner):

#### - CDW producer



The image shows a screenshot of the C+D platform interface. On the left, there is a sidebar with three main categories: 'Waste', 'Services', and 'Construction Work'. The 'Services' category is selected. The main content area displays a service profile for 'LucianaTest'. The 'Radius (Km)' slider is highlighted with a blue box. The 'Details' section is also highlighted with a blue box, showing information like 'Code: Q405R04C1', 'Distance: 16.92', 'Price: € 777.00', 'Waste Type: Iron and Steel', and 'Service Type: Metal recycling/ reclaim'. The 'Construction' and 'Waste' sections are also highlighted with blue boxes.



## C+D Platform for calculating the economic and environmental benefits and impacts of CDW management

### - Short-term developments:

- Ongoing **validation** process with designers, contractors, owners and CDW operators
- Editorial and formatting **correction**
- Presentation of all possible end-of-life options, including the **environmental and economic potential of selective demolition**
- Integration of the **indicator of environmental and economic advantages of circularity**
- Accounting of generated **environmental and economic savings**
- Database **registration**
- Finalization of the C+D platform **handbook**



## C+D Platform for calculating the economic and environmental benefits and impacts of CDW management

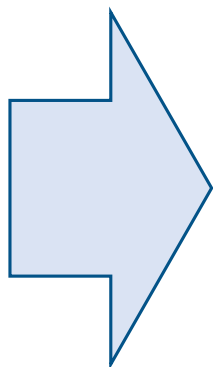
### - Future developments:

- **Dissemination** of the C+D platform and handbook to their potential users
- **C+D platform** - incorporate: impacts of the demolition operation; link to **Waste Prevention and Management Plan**; re-use of construction products
- **Selection of the deconstruction technique** (demolition) that minimizes environmental and economic impacts
- **Promotion of construction solutions** with greater potential for reuse (or recycling)
- **Reduction in the production of CDW** and **increase in the recovery** of secondary materials
- **Dissemination** of the knowledge produced in courses at university level



## Activities

### 6. Communication and dissemination of the results



## Results

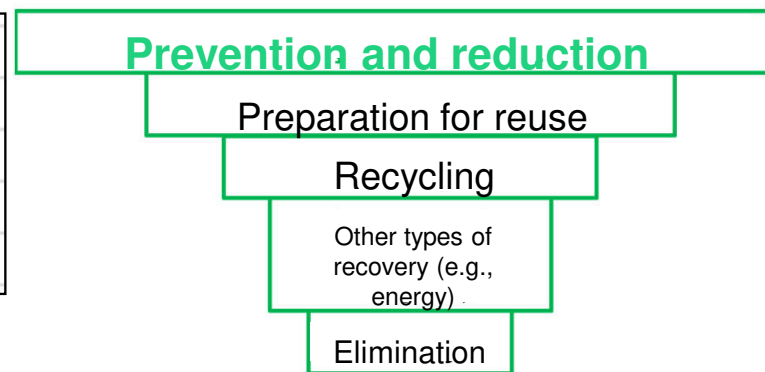
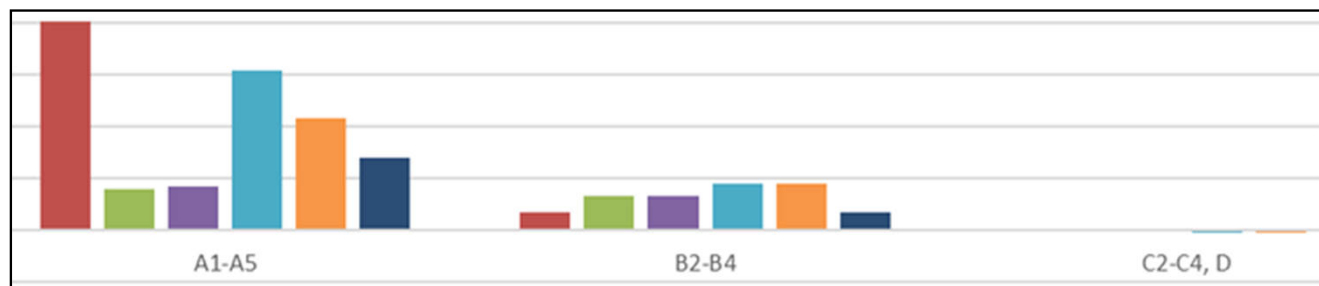
- **Project website:** *cplused-platform.pt*
- **News on the EEA grants website and video presentation of the project:**  
*youtu.be/mquqmtLCVYE*
- **Participation in Portugal Smart Cities Summit 2020**
- **Interview for *Construção Magazine***
- **Development of the project's visual identity:**



- ***Closing seminar at IST, in Portugal, 27 September 2022*** (more than 80 participants)
- ***Closing seminar in Oslo, 27 October 2022***

## Contribution to the program (1/3)

By calculating and disseminating these **environmental and economic impacts** through C+D platform to the stakeholders that can influence the decisions at the **end of life of buildings**, it is expected the **adoption of the best practices according to the principle of the waste management hierarchy**.



## Contribution to the program (2/3)



The figures of the environmental **impacts at the end of life of each construction material** are also necessary to develop their **environmental Declarations and Footprints**.



## Contribution to the program (3/3)

The C+D project therefore promotes the **circular economy of the construction sector**

and its results will create new **business opportunities** at the end of life stage of buildings

and will contribute for a **higher rate of CDW reuse**.



## About the EEA Grants

Through the Agreement on the European Economic Area (EEA), Iceland, Liechtenstein and Norway are partners in the internal market with the Member States of the European Union.

As a means of promoting a continued and balanced strengthening of economic and trade relations, the parties to the EEA Agreement have established a multi-annual financial mechanism, known as EEA Grants.

EEA Grants are aimed at reducing social and economic disparities in Europe and strengthening bilateral relations between these three countries and the beneficiary countries.

For the period 2014-2021, a total contribution of €2.8 billion has been agreed for 15 beneficiary countries. Portugal will benefit from a sum of €102.7 million.

Find out more at [eeagrants.gov.pt](http://eeagrants.gov.pt).



Iceland   
Liechtenstein  
Norway grants

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Manuel Duarte Pinheiro  
Pedro Pedroso  
Vera Durão

**Thank you for your attention!**

**Site:** [www.eeagrants.gov.pt](http://www.eeagrants.gov.pt)

**Facebook:** [ww.facebook.com/EEAGrantsPortugal/](http://ww.facebook.com/EEAGrantsPortugal/)

**Instagram:** @eeagrantspt

**Youtube:** [youtube.com/channel/UCXywLHBsmkaGfCniCLyfXsw](https://youtube.com/channel/UCXywLHBsmkaGfCniCLyfXsw)

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Programme operator:



Promoter:



Partner:

