CODESMA

Data Driven Learning Outcomes on C&D Waste Management

O1-T3 Report

Coventry University

COVUNI

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1. Introduction

1. 1. CODESMA Project objectives and target groups

The training of site management staff, and especially site managers employed by construction, demolition and renovation companies, varies across the EU, depending on each country's qualification framework and approach. In most countries, site managers usually receive CVET courses or in-company workplace training in the context of 2-3 years apprenticeships, building up experience in work areas such as planning, and assisting construction engineers & technicians. **CODESMA** (**C**onstruction and **D**emolition waste management training for **S**ite **MA**nagers) project forms a Strategic Partnership to modernise VET for site managers in the EU, aiming to:

OBJ-1. Define appropriate learning outcomes and develop a training course to address C&D waste management skills needs, to enhance relevant VET provision for site managers.

OBJ-2. Introduce modern training methods in the form of Open Educational Resources (OERs -learning material) and Vocational Open Online Course (VOOC).

OBJ-3. Support the integration of C&D waste management skills into EU certification and standardisation schemes.

The project is aimed at following target groups:

-Initial VET & Continuous VET students intending to work as site managers

-Site managers and other construction industry practitioners employed in the construction sector.

-VET providers for construction site managers

-Construction industry employers such as renovation companies and demolition contractors that provide in-house training

-Stakeholders and associations in the construction sector

Overall, the project will provide an opportunity for all involved stakeholders in the construction industry (sector representatives, VET providers, field experts) to upskill current staff, as well as to offer modernised IVET to students looking for employment as site managers and construction operatives involved in construction and demolition sector.

1.2. Content of the Intellectual Output 1 – Data driven learning outcomes

The output will provide the research methodology and data collection to support the evidence based definition of what a learner knows, understands and is able to do on completion of the developed course, in terms of specific learning outcomes. The elaboration of the original learning outcomes will be based on the collection and analysis of evidence from field experts, on the current and future C&D waste management skills needs in the construction industry (with regards to on-site preparation for demolition, re-use of materials and recycling). Based on this research evidence, the output will define the specific knowledge, skills and competences that construction site managers should prove to have acquired after the completion of a comprehensive course on C&D waste management. The objective of this output is to support VET providers to develop training offerings tailored to the needs of the modern construction site managers' sector, building a solid case for the integration of project results into existing vocational education and training offerings for site managers.

1.3. Purpose and use of the Intellectual Output 1

The evidence based learning outcomes will support the development of a modular course following a structure of separate modules appropriate to be integrated into existing VET offerings for construction site managers in the 5 partner countries (UK, EL, LT, DE, PL). VET providers for the construction sector (including construction, demolition and renovation companies) will be able to adapt the modular course either as a whole or partially, enriching their training provision for site managers, as well as for other construction operatives employed in site work supervision regarding renovation and demolition site works, with an increased effect on the expected impact

and the transferability potential of the output.

2. Methodology for the development of the IO1

The development of the CODESMA learning outcomes is based on the collection and analysis of sectoral and VET evidence on current and future C&D waste management skills and training needs (with regards to waste identification, separation & collection at source) in the five partnership countries. The output is based primarily on national and European desk and field research activities that will involve the project target groups and relevant stakeholders, namely VET providers, C&D waste management field experts, employers, sector representatives and associations. It relies on EQF and ECVET methodology frameworks and standards for the definition of knowledge, skills and competences, employing techniques such as descriptions of learning outcomes based on European guidelines (EQF and ECVET).

1. O1 - T1. DEFINITION OF RESEARCH TOOLS FOR DATA COLLECTION

Partners are given guidance on the data gathering by addressing: a) sampling considerations, and b) provision of appropriate research methods & tools per target group (VET providers, field experts, employers, sectoral stakeholders). The data gathering tools include: a) online closed and/or semi-structured questionnaires to be distributed electronically to the target groups, and b) a desk research template to help the identification of best practices in existing C&D waste management training for construction site managers in the partnership countries (UK, EL, PL, DE, LT). The research tools & guidelines are developed and distributed to partners by PROMEA.COVUNI as the output leader, provided the relevant input and support to PROMEA, before fine tuning and forwarding these(questionnaires and forms for data collection and analysis) to partners for translation in EL, DE, LT and PL.

3. O1 - T2. DATA COLLECTION

Once the questionnaire is agreed COVUNI sought and was given an institutional Ethics approval (Annex 1) The questionnaires in each of the partners' languages were then uploaded on the secure survey platform (Bristol Online) and the links were provided to each partner to distribute to the potential survey participants. Each partner (COVUNI, PROMEA, PSMB, BZB, VSRC), based on the provided aforementioned methodological guidance and tools, collected national data from the research target groups located in its own country, namely VET providers, field experts, employers and

sector representatives. COVUNI kept overall control and access to the questionnaire data and was regularly updating partners on the numbers of questionnaires completed by each partners' participants. Each partner also contributed in the desk research with regards to relevant VET provision offered in its own country, before consolidation of all collected evidence (in EN) into a common data set by the task-activity lead partner (COVUNI).

2. O1 - T3. DATA ANALYSIS AND REPORTING ON LEARNING OUTCOMES

COVUNI carried out the analysis of the data collected, the development of learning outcomes and delivery of a report, addressed to VET providers and course designers for the construction site managers sector. This report, produced by COVUNI, presents the collected data and their final synthesis, comparative analysis and presentation concluding on the definition of the CODESMA learning outcomes. As the core aspect of O1, the report, in the context of this task, presents the CODESMA learning outcomes definitions in the form of specific knowledge, skills and competences. BZB, as the partner supporting COVUNI in the provision of research tools, reviewed the learning outcomes report and provided input. COVUNI will also be responsible for the fine-tuning of the CODESMA learning outcomes after the validation of the project results task (O5-T1).

2.1. Context

Construction & Demolition (C&D) waste is the largest waste stream in the EU, representing about one third of all waste produced in terms of volume. EC initiatives such as the EU Construction & Demolition Waste Management Protocol (2016), the Construction 2020 Strategy (2012), the Communication on Resource Efficiency Opportunities in the Building Sector (2014), and essentially the Circular Economy Package (2015), demonstrate a strong will at EU level to raise awareness and build knowledge in the EU construction sector regarding C&D waste management.

This has in turn resulted in an increased need for up-skilled construction operatives, especially site managers, properly trained and knowledgeable in C&D waste management procedures. According to Eurostat, app. 882.000 enterprises operate in the EU-27's construction sector (NACE Division 41, 2010), employing 3.9 million persons, from which 260.000 are site managers. Site management in construction

involves overseeing operations on a day-to-day basis, and ensuring that work is done safely, on time, within budget and to proper quality standards. Competition is global, and workforce skills have to be continuously updated following technical advances, environmental priorities and legislation. The training of site management technicians, and especially site managers employed by renovation, construction & demolition companies, varies across the EU, depending on each country's qualification framework & approach. In most countries, site managers usually receive CVET courses or in-company workplace training in the context of 2-3 years apprenticeships, building up experience in work areas such as planning and assisting construction engineers & technicians.

2.2 Training needs addressed

Improved waste identification requires a good understanding and implementation of the pre-demolition audits and comprehensive waste management plans to be prepared and executed. Source separation targets, the elimination of hazardous waste, as well as the separation of materials that hamper recycling. Improved collection of goods for recycling requires selective demolition & appropriate on-site operations. However, decisions on such on-site preparation for demolition need to be taken on a case by-case basis taking into account economic, environmental, social and health factors and risks. Within this context, even the most experienced site managers need additional knowledge in order to respond to the above procedures. Specifically, there is a need to provide the construction sector, and especially renovation and demolition companies, with up-skilled site managers capable to:

- supervise on-site works regarding waste identification, separation & collection at source,
- follow the instructions of the pre-demolition audits,
- implement adequate dismantling & demolition practices,
- execute waste management plans for site-works,
- eliminate hazardous waste,
- deal with technical and organization challenges,

- ensure the safety of workers,

- consult with customers, architects, workers and other involved agents.

Construction and demolition waste definition

CODESMA project output aims to provide the training material for the operatives involved in the construction and demolition waste management. It is necessary to clarify the project definitions of some of the most used terms

Construction Site Managers

For the purposes of this survey, the term "construction site managers" is used to define the construction professionals that are responsible for managing construction sites by overseeing operations on a day-to-day basis, and ensuring that work is done safely, on time, within budget and to required quality standards.

Construction and Demolition Waste management

For the purposes of this survey, the term "C&D waste management" is used to define the mechanisms and technologies used for the correct handling of waste that results from construction, demolition or renovation sites, with an overall target to eliminate the hazardous waste and promote the recycle/ reuse of materials. When the references are made to demolition it is mostly intended to indicate the demolition that is integral part of the construction process, more so than the demolition as a sector that precedes the construction site, clearing of the site from previous buildings/structures. Waste management involved in the demolition sector have similarities to the approach in the construction sector and these similarities will be explored by the CODESMA project. However for the demolition sector waste is, in quantitative terms, a much more significant issue in comparison to the construction sector where waste is a by-product of the construction process. Whilst it is possible to manage the construction site waste in design and construction phases by exploring waste minimizing, in the demolition sector this is not easy to achieve.

The findings of the desktop research by partners also supports this distinction and indicates that there are more training provisions for the demolition waste management in partners' countries.

2.3 Data collection and research methods

2.3.1 Purpose and research questions

The purpose of the proposed research tools (O1-T1), according to the CODESMA AF, is to make available up-to-date, tailormade solutions to the needs of the modern construction sector, modern "green" learning outcomes that can be integrated into existing VET offerings for construction site managers.

The research tools recommended by this report aim to collect and analyse the views of CODESMA target groups (VET providers, field experts, employers, sectoral stakeholders & associations), to address the following research questions:

a) What are the current and future C&D waste management skills and training needs for construction site managers arising from an increasing will, at EU level, to build knowledge on C&D waste management?

b) How well does existing training provision for construction site managers meet the needs of the modern C&D industry, in regard to on-site preparation for demolition, re-use of materials and recycling?

2.3.2 Suggested methodology

The data collection of current and future waste management skills and training needs in the CODESMA partnership countries will be a combination of field and desk research. **Field research** will be the primary activity for gathering relevant stakeholders' perceptions on skills requirements for site managers in the Construction industry through an online questionnaire. While **desk research** will act as a complementary method to collect data on existing training provision.

2.3.2.1 Field Research

Field research will be the primary source of research for collecting evidence/data on current and future C&D waste management skills and training needs for construction site managers. Based on the evidence found, this research activity will (a) define the most needed skills in the construction industry (with regards to on-site preparation for demolition, re-use of materials and recycling), and (b) identify existing skill deficiencies in the construction.

2.3.2.2 Online questionnaire

The field research methodology uses an online structured questionnaire (Annex 2); this approach is time and cost-efficient, and is expected to facilitate data collection, coding and analysis. The questionnaire asks relevant stakeholders and research target groups to identify, prioritise, and describe areas and tasks on which the CODESMA learning materials should mostly be focused. The online questionnaire will be disseminated via a survey hosting platform (i.e. Bristol Online) by partners in their own countries, and the recipients receive the link by e-mail. The survey process will also include asking survey respondents' consent for further direct communication to ask clarifications on certain aspects regarding the skills needs in C&D waste management in the construction industry, if needed. The questionnaire mostly comprises of closed questions as they are quicker to answer, easier to code and analyse, and are more practical to make comparisons. It is advisable not to use open questions, since it is possible to receive answers that lack the necessary focus or even be irrelevant, and thus difficult to analyse and draw comparisons. The questionnaire will be developed in English and project partners will translate the questionnaire in their own language. The questionnaire will also include a short part on the scope of this survey

2.3.2.3 Survey population

Taking into account the objectives of the survey, the population can be defined as stakeholders and experts who have an insight into the current and emerging skills required by construction site managers in the field of C&D waste management. An indicative list of target groups includes the following:

- VET providers and trainers in C&D waste management
    - VET providers in the construction and building industry
    - VET providers in the demolition area
    - VET providers in the C&D waste management
    - Associations of VET providers and trainers involved in the lifelong learning education of individuals that fit the profile of a construction site manager
- Employers in the C&D sector
    - Construction/ building companies
    - Demolition services companies
    - Waste management companies

- Associations of employers in the C&D sector
- Field experts, such as academics, researchers and consultants in C&D (e.g. C&D waste management contractors)
- Associations of employees in the C&D sector
- Sectoral stakeholders, such as professional associations and representatives of local administration authorities

Possible sources to identify relevant stakeholders will be:

- National and European directories of C&D waste management
- National associations of construction site managers / relevant services companies
- Publications on the most used/ suggested waste management techniques in C&D sector
- Participants list from conferences, forums and workshops in own countries and EU

2.3.2.4 Sampling and performance indicators

The online survey will be run in all 5 partnership countries (UK, Greece, Poland, Lithuania, and Germany). The target set by the AF is 100 completed questionnaires; during the project kick-off meeting, partners shared the view that an increased number of answers would be desirable for the purposes of a more thorough analysis for the development of the CODESMA learning outcomes.

The target per partner takes into consideration the population of each partner's country, the type of the organisation and access to relevant stakeholders, as well as the degree to which C&D waste management is developed in each consortium country. These estimates will be useful for tracking and monitoring the collection process, in order to make sure sufficient evidence will be gathered.

The Table 1 below summarises numbers of surveys completed by each partner

Table 1: Consortium partners and numbers of questionnaires

Consortium Partner	Type of organisation	Consortium Country	Number of questionnaires
COVUNI	University	United Kingdom	16
PROMEA	Non-profit society	Greece	14
PSMB	Association	Poland	13
VSRC	VET provider	Lithuania	27
BZB	VET provider	Germany	22
TOTAL			92

2.3.2.5 Desk Research

Desk research is complementary to the field research, to enhance both the quantity and quality of information gathered on current training provision for site managers in the partnership countries. A desk research template is used by project partners to facilitate the identification of best practices in existing C&D waste management training for construction site managers.

The distinct purpose of desk research is that existing training provision can act as a measure of skill supply in the labour market, even this is not the only way to acquire such skills. The present desk research can provide valuable insights into the available skill supply, while exploring potential labour market mismatches and imbalances. This activity includes:

1. Reviewing the availability and content of academic sources and training courses, and
2. Evaluating their effectiveness in addressing existing construction site managers skills needs regarding C&D waste management.

Some data is gathered from secondary relevant sources of information, such as existing (environmental) training programs for construction site managers in universities and

VET schools academic publications, university brochures, as well as the outcomes of other relevant EU projects and the context of existing national, European-level and international analyses.

Both external and internal sources of information are used.

Evidence on training provision in the C&D sector are gathered, as cases of reference, and are also utilised to formulate the CODESMA curriculum learning outcomes, namely statements of what a learner knows, understands and is able to do upon completion of the learning process.

The information gathered by desk research aims to establish a satisfactory degree of basic and comprehensive pre-analysis, to be used by COVUNI for the preparation of the final data analysis and synthesis report. All partners are asked to compile their research findings in the form of a desk research template provided in English, which will be included and analysed by COVUNI in the final learning outcomes report.

A common approach will be used for documenting information on existing training programs. The reporting form and a completed example are presented in the following page

All partners contributed with evidence from their own country using the abovementioned form in English and provided information to COVUNI as the task lead.

3. Main Findings

3.1. Online questionnaire

3.1.1 Population, organization and specialization.

Each project partner was tasked to deliver 30 respondents to the survey to make up the total of 100 as set out in the AF. The total was not achieved by any partner and a total of 92 respondents had completed the survey by 27th April 2018, when it was closed.

While the target was not achieved, the data from the survey provides a solid basis for analysis with some noted limitations. The research was designed to provide a simple, snapshot of the current state of C&D waste management in the industry and was not designed to provide either a statistically viable sample size nor comparison between the countries.

Limitations of the online survey results included:

- Only one respondent came from the demolition sector
- Approximately one third of respondents were in the top two categories of management responsibility.
- The balance of levels of respondents was different across the partners

3.1.2 Knowledge, skills and competences.

The survey revealed both the differences and similarities in responses, however it is reasonable to summarize the responses as being largely consistent across the partner countries.

The series of data tables presented below show the averaged response score across all 92 responses for the questions asked relating to knowledge, skills and competencies. In each case the responses have been ranked, highest to lowest, and the top three responses have been highlighted.

Table 2: C&D Knowledge Topics

6. B1. How high is the need for construction site managers to have the following knowledge? (1 = very low, 5= very high).	
6.5. Knowledge of processes and technologies of dealing with waste on site	**4.253012**
6.4. Waste awareness for construction sites at the site mobilisation stage	**4.238095**
6.7. Awareness of accessing relevant information regarding dealing with waste	**4.168675**
6.1. Awareness of national legislation framework on construction waste management	4.08642
6.3. Awareness of up-to-date demolition techniques	4.035714
6.2. Awareness of national legislation framework on demolition waste management	4.012195
6.6. Knowledge of processes and technologies of dealing with waste off site	3.5875

Table 3: C&D Skills

6.a. B2. How high is the need for construction site managers to have the following skills? (1 = very low, 5= very high).	
6.a.5. Skills in handling hazardous waste	**4.337349**
6.a.2. Skills in managing construction waste	**4.207317**
6.a.6. Skills in storing of hazardous waste	**4.085366**
6.a.4. Skills in managing demolition waste	4.0625
6.a.3. Skills in managing deconstruction waste	4.060976
6.a.9. Communication skills	4.024096
6.a.1. Skills in using a site waste management plan	3.963855
6.a.8. Skills in using waste hierarchy	3.939024
6.a.7. Skills in removing of hazardous waste	3.891566

Table 4: C&D Competence

6.b. B3. How high is the need for construction site managers to have the following competences? (1 = very low, 5= very high).	
6.b.2. Ability to effectively supervise on-site works	**4.452381**
6.b.6. Ability to provide confident leadership.	**4.439024**
6.b.5. Ability to monitor compliance with regulations	**4.231707**
6.b.4. Ability to monitor waste management	4.012048
6.b.3. Ability to implement effective waste strategies.	3.926829
6.b.1. Ability to select innovative technology solution for waste management	3.719512

Although the top three have been highlighted, it is noteworthy that the ranges of average scores in each table are small, especially for skills (Table 3), with difference between the 3rd and 4th ranked skill being marginal. As a consequence the formulation of the learning objectives has not be restricted to covering only the top three in each table, the ranking has been used a guide only. This method is further supported by the breakdown by country of the ranked scores (Table 5), which shows that while some responses ranked high with all partners' respondents I.e. 6.5, 6.a.5, 6.b.2 and 6.b.6, there was not commonality everywhere. This is not surprising as each

country's construction sector is at different levels of maturity on C&D waste management and the nature of the respondents was not consistent.

Table 5: Breakdown by country

Highlighted topics in each category show the top three ranked in the combined tables (Tables 1-3)

6. B1. How high is the need for construction site managers to have the following knowledge? (1 = very low, 5= very high).					
	UK	PL	GR	GER	LT
6.1. Awareness of national legislation framework on construction waste management	**4.375**	3.8333	**4.3846**	4.1429	3.8462
6.2. Awareness of national legislation framework on demolition waste management	3.8125	**3.8462**	**4.3077**	**4.2857**	3.9231
6.3. Awareness of up-to-date demolition techniques	3.6875	3.6923	3.9231	4.2000	4.3704
6.4. Waste awareness for construction sites at the site mobilisation stage	**4.3125**	**3.9231**	**4.0000**	4.0000	**4.5926**
6.5. Knowledge of processes and technologies of dealing with waste on site	**4.3125**	**3.8462**	**4.0000**	**4.2143**	**4.5556**
6.6. Knowledge of processes and technologies of dealing with waste off site	3.4667	3.1538	3.6667	3.6923	3.7778
6.7. Awareness of accessing relevant information regarding dealing with waste	3.8	**4.0000**	3.9231	**4.4667**	**4.4074**
6.a. B2. How high is the need for construction site managers to have the following skills? (1 = very low, 5= very high).					
6.a.1. Skills in using a site waste management plan	4.0625	4.1538	**3.7692**	3.5000	4.1481
6.a.2. Skills in managing construction waste	**4.375**	**4.2308**	**3.7692**	4.0769	**4.3704**
6.a.3. Skills in managing deconstruction waste	3.75	4.0000	3.6923	**4.2308**	**4.3704**
6.a.4. Skills in managing demolition waste	3.933	4.0000	3.6154	**4.1667**	4.3333
6.a.5. Skills in handling of hazardous waste	**4.125**	**4.3846**	**3.9231**	**4.7143**	**4.4444**
6.a.6. Skills in storing of hazardous waste	3.875	4.0769	3.6923	4.1538	**4.3704**
6.a.7. Skills in removing of hazardous waste	3.5625	3.8462	3.5385	3.9286	4.2593
6.a.8. Skills in using waste hierarchy	4	4.0769	**4.0000**	3.4615	4.0370
6.a.9. Communication skills	**4.3125**	**4.3077**	3.5385	4.1429	3.8889

6.b. B3. How high is the need for construction site managers to have the following competences? (1 = very low, 5= very high).					
6.b.1. Ability to select innovative technology solution for waste management	3.5625	3.6923	3.1538	3.4286	**4.2692**
6.b.2. Ability to effectively supervise on-site works	**4.4375**	**4.4615**	**4.0769**	**4.4000**	**4.6667**
6.b.3. Ability to implement effective waste strategies.	**4.3125**	4.0769	3.6154	3.4286	4.0385
6.b.4. Ability to monitor waste management	3.9375	3.8462	3.9231	3.8571	4.2593
6.b.5. Ability to monitor compliance with regulations	4.125	**4.1538**	**4.3077**	**4.3571**	4.2308
6.b.6. Ability to provide confident leadership.	**4.5**	**4.6154**	**4.0000**	**4.2000**	**4.6538**

It is apparent from the responses that a number of key issues are of common concern. Hazardous waste is ranked highly and the need to understand requirements at mobilization is rightly seen as a critical part in achieving good waste management practices. Perhaps surprisingly is the relatively low rank of understanding of national legislation (Table 2), on reflection however it is the more practical applications of the legal framework is more relevant to construction site managers.

Finally, two results from this part of the survey are worth extracting:

- The low ranking of 6.a.7 - skills in removing hazardous waste - demonstrates that the respondents appreciated the responsibility of waste contractors rather than the construction manager in this task; and
- The low ranking is 6.b.4 - ability to monitor waste - is of concern in relation to EU initiatives such as circular economy, but perhaps demonstrates the vast range of competencies now expected and required of a construction site manager.

The survey asked respondents for their opinion on the provision of training on C&D Waste Management in the sector. Table 5 sets out the country responses.

Table 6: Level of provision of training in each country

	LT	GER	GR	UK	PL
Very sufficient	0	0	0	0	1
Rather sufficient but needs to be improved	9	0	0	9	0
Insufficient	7	11	11	7	5
There are no courses	2	8	3	0	6
Not applicable / no opinion	9	3	0	0	1

The respondents felt there were insufficient training courses offered, with only one of 92 feeling there were very sufficient. This presents an opportunity to the CODESMA project.

3.2. Desk Research results

3.2.1 The desktop research data

The purpose of the desk top research was to facilitate the identification of best practices in existing C&D waste management training for construction site managers in partners countries. Common template is used by project partners to gather the required information.

In total 41 provisions were identified in all partners countries and the numbers are as follows:

Table 7- Number of relevant training provisions per partners' countries

Consortium Partner	Consortium Country	Training provisions
COVUNI	United Kingdom	16
PROMEA	Greece	4
PSMB	Poland	10
VSRC	Lithuania	3
BZB	Germany	8
	Total	41

The findings of this desktop exercise was not intended to create an exhaustive list of all the training provisions related to the construction and demolition waste management but to give predominate trends in all partners countries. All partners' data is enclosed in (ANNEX 3) and the comparative summary table of all partners provisions is enclosed in (ANNEX 4)

3.2.2 Key training provision trends identified

There is a significant variety of the provisions across the partners 'countries making it difficult to make definite and quantifiable conclusions but some general observations that apply to all partner's countries are as follows:

- Training context
  Construction and demolition waste management training is mostly contained as a part of the more general construction or health and safety training in either specialised construction context or more general waste management context.

- Training Providers
  When it comes to providers of training it depends on the length and the scope

of the training provided. If the training is part of the qualification type of course than it is usually provided by the formal educational provider – academic and vocational alike and in some cases accreditation bodies e.g.UK. If it is more specialised upskill type of training than it is provided by employers or relevant professional bodies.

- Length
  If the training is part of the formal qualification than it is within 1 or 2 modules of the relevant course. Otherwise if it is upskilling type of course it is normally ½ to days long

- Main training focus
  In most cases the training is focused on health and safety aspects or on the mandatory legislation. The practical as well as theoretical aspects of management are equally addressed

- Delivery mode
  In overwhelming majority of cases it is classroom/attendance based training.

- Target Audience
  Current and future construction management operatives e.g.site managers supervisors) or manual operatives directly involved in handling of the construction waste.

3.2.3 Desk top research conclusions.

The desk top research of construction and demolition waste management training provisions conducted by all the partners in their respective countries helped, in conjunction to the questionnaire data gathered, inform the IO1 lead partner COVUNI in a process of defining the project learning outcomes. The research has identified the training provision gap in the market with the obvious lack of online training provisions.
The research defined strong emphasis on health and safety aspects of the waste management as well as mandatory legislative requirements. With this in mind,

whilst these two aspect will feature in defining the LOs, the focus of the project training is shifted more towards developing practical, hands-on skills and approach to the waste management on the construction site and the learning from the good practices within the construction sector and across other sectors.

4. The Definition of Learning Outcomes

4.1 Methodology to develop the CODESMA learning outcomes

All the information, collected through questionnaire and desk researches, were the basis to define the learning outcomes of the CODESMA. As requested by the CODESMA project, the learning outcomes should match the requirements set out by the European Qualification Framework. The EQF comprises eight reference levels based on 'learning outcomes' – defined in terms of knowledge, skills and competences, thus shifting the emphasis from input (type and duration of learning experience) to actual learning, i.e. to what a person is able to do upon the completion of a learning process. Moreover, learning outcomes are used as a basis for credit transfer and accumulation (ECVET) and are specified in the three categories of knowledge, skills and competence.

In the context of the CODESMA project, the development of a VET curriculum for Construction and Demolition waste management requires the acquired knowledge, skills and competences that will be recognised through an independent process based on accepted European standards

Each one of the eight EQF reference levels represents a different set of requirements, defining the associated level of knowledge, skills, and competences. The CODESMA learning outcomes correspond to levels 4 and 5 of the EQF:

Table 8: EFQ level 4 and 5 descriptions

Level 4	***Factual and theoretical knowledge in broad contexts within a field of work or study***	***A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study***	***Exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change; supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities***
Level 5	***Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge***	***A comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems***	***Exercise management and supervision in contexts of work or study activities where there is unpredictable change; review and develop performance of self and others***

For their nature and scope, the questionnaire and the collected responses were sufficient to encompass the spectra of environmental and digital knowledges, skills and competences. Herewith follow complete list of statements/qualification (skills, knowledges and competences) on environmental and digital technologies, as ranked by respondents from 1 = not at all necessary to 5 = absolutely necessary:

Table 9

Qualifications	**1**	**2**	**3**	**4**	**5**
Awareness of national environmental legislation framework on energy saving practices for the building industry – policy principles and planning.	0%	1,8%	14,3%	36,6%	47,3%
Awareness of EU environmental legislation framework on energy saving practices for the building industry – policy principles and planning.	2,8%	3,6%	19,1%	49%	25,5%

Knowledge of processes and technologies applied in energy saving and carbon emissions reduction.	1,6%	0,5%	6,9%	30,6%	60,4%
Knowledge of the environmental impacts from the use of energy saving practices.	1,6%	1%	14,9%	39,5%	43%
Knowledge on no-cost vs. low-cost energy saving measures for buildings.	0%	3,2%	26,7%	25,6%	44,5%
Knowledge of the network infrastructure and the internet systems that cover the wide range of "smart" metering devices (sensors, actuators, meters etc.)	0%	13,2%	20,4%	31%	35,7%
Knowledge of the health and safety issues associated with site works / buildings that include energy monitoring technologies and services.	1,1%	12,5 %	25,6%	22,8%	38%
Technical skills for operating equipment monitoring and auditing energy (electricity, gas, water).	1,4%	3,7%	22,8%	38,6%	33,5%
Digital skills in using building log books.	0,6%	4,1%	23%	34,2%	38,1%
Digital skills operating sophisticated electronic energy monitoring systems.	4,4%	10,4 %	23%	34,8%	27,4%
Technical skills on incorporating smart metering technologies in automated home infrastructures.	6,7%	21%	12,5%	34,4%	25,5%
Competence in developing an energy policy and introducing an energy efficiency campaign.	11,7%	10%	14%	31,3%	33%

Competence in implementing energy saving measures.	-	3,2%	9,7%	40,2%	46,9%
Competence in technical issues related to the installation of energy saving technologies and services in existing buildings.		0,6%	15,7%	43,1%	40,6%

Competence in technical issues related to the installation of energy saving technologies and services in new buildings.	-	5,1%	15,3&	50,5%	29,1%
Competence in building installation and supervision regarding of energy saving technologies and services in buildings.	-	3,1%	13,1%	54,3%	29,5%
Customer consultation skills on the selection of the most suitable energy saving solutions.	0,6%	-	12,3%	40,2%	46,9%
Customer consultation skills on the use and impact (environmental, economic) of smart energy saving solutions.	1,2%	1,8%	23,7%	43%	30,4%

Herewith follow the statements quoted above in order of importance, ranking from #1 to #18 According to the '4+5' scores they got by respondents to the questionnaire:

Table 10

Qualification	'4+5' score	Ranking
Knowledge of processes and technologies applied in energy saving and carbon emissions reduction.	91	1
Competence in implementing energy saving measures.	87,1	2

Customer consultation skills on the selection of the most suitable energy saving solutions.	87,1	3
Awareness of national environmental legislation framework on energy saving practices for the building industry – policy principles and planning.	83,9	4
Competence in building installation and supervision regarding of energy saving technologies and services in buildings.	83,8	5
Competence in technical issues related to the installation of energy saving technologies and services in existing buildings.	83,7	6
Knowledge of the environmental impacts from the use of energy saving practices.	82,5	7
Competence in technical issues related to the installation of energy saving technologies and services in new buildings.	79,6	8
Awareness of EU environmental legislation framework on energy saving practices for the building industry – policy principles and planning.	74,5	9
Customer consultation skills on the use and impact (environmental, economic) of smart energy saving solutions.	73,4	10
Digital skills in using building log books.	72,3	11
Technical skills for operating equipment monitoring and auditing energy (electricity, gas, water).	72,1	12
Knowledge on no-cost vs. low-cost energy saving measures for buildings.	70,1	13

Knowledge of the network infrastructure and the internet systems that cover the wide range of "smart" metering devices (sensors, actuators, meters etc.)	66,7	14
Competence in developing an energy policy and introducing an energy efficiency campaign.	64,3	15
Digital skills operating sophisticated electronic energy monitoring systems.	62,2	16
Knowledge of the health and safety issues associated with site works / buildings that include energy monitoring technologies and services.	60,8	17
Technical skills on incorporating smart metering technologies in automated home infrastructures.	59,9	18

4.2 CODESMA learning outcomes

Once that the statements/qualifications has been ranked and adapted to the ECVET framework, a set of knowledges, skills and competences started to emerge. To develop a coherent list of learning outcomes, SNS grouped the statements into coherent pack. Herewith follows the result of grouping work:

<table>
<tr><th>Learning Unit A</th><th colspan="3">Title of the Learning Unit (Materials)</th></tr>
<tr><td rowspan="2">Learning outcomes corresponding to EQF Level 4</td><td colspan="3">Ability to distinguish between hazardous and non-hazardous materials and arrange on site material management.</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Competence</td></tr>
<tr><td></td><td><u>Knows/Aware of:</u>

Recognise the difference between hazardous and non-hazardous materials

Identify good practices of effective use of materials on site.</td><td><u>Able to:</u>

Effectively utilise space, logistics and site operations</td><td><u>Able to:</u>

Carry out monitoring against planned activities.</td></tr>
</table>

Learning Unit A	***Title of the Learning Unit (Materials)***		
Learning outcomes corresponding to ***EQF Level 5***	*Have knowledge of types of hazardous waste and ability to manage hazardous waste on site.*		
	Knowledge	***Skills***	***Competence***
	<u>Knows/Aware of:</u> *Various types of hazardous waste and its appropriate handling, storage and disposal.* .	*<u>Able to:</u>* *Separate hazardous waste from non-hazardous waste.* *Identify types of hazardous waste* *Designate appropriate resources to effectively manage identified hazardous waste.*	*<u>Able to:</u>* *Instruct others and coordinate management of the hazardous waste.*

Learning Unit A	***Title of the Learning Unit (Materials)***		
Learning outcomes corresponding to ***EQF Level 5***	*Capability to identify and classify materials and waste and apply on-site based framework for waste.*		
	Knowledge	***Skills***	***Competence***
	<u>Knows/Aware of:</u> *Identification and classification of materials.* *Identification and classification of waste* *Knowledge of waste hierarchy.* *Working knowledge of the general law related to waste*	*<u>Able to:</u>* *Distinguish clearly when material becomes waste* *Apply waste hierarchy*	*<u>Able to:</u>* *Monitoring compliance with on site-based framework for waste and being aware of the implementation.*

Learning Unit B	***Title of the Learning Unit (Process)***		
Learning outcomes corresponding to ***EQF Level 4***	*Knowledge of responsibilities within and implementation of a Site Waste Management Plan*		
	Knowledge	***Skills***	***Competence***
	<u>Knows/Aware of:</u> *Responsibilities within Site Waste Management Plan (SWMP)* .	*<u>Able to:</u>* *Assign tasks and activities to appropriate personnel.* *Compare performance against the SWMP*	*<u>Able to:</u>* *Communicate effectively with the on-site team*

Learning Unit B	***Title of the Learning Unit (Process)***		
Learning outcomes corresponding to ***EQF Level 5***	*Development of Site Waste Management Plan for a specific site and monitoring its implementation.*		
	Knowledge	***Skills***	***Competence***
	<u>Knows/Aware of:</u> *Principles of Site Waste Management Plan.*	*<u>Able to:</u>* *Draft SWMP for a particular site.*	*<u>Able to:</u>* *Assume responsibility for development and monitoring of the SWMP.* *Disseminate and explain the SWMP to relevant stakeholders.*

Learning Unit B	***Title of the Learning Unit (Process)***		
	Ability to carry out after action review of Site Waste Management Plan and recommend improvements.		
	Knowledge	***Skills***	***Competence***
Learning outcomes corresponding to ***EQF Level 5***	*<u>Knows/Aware of:</u>* *Knowledge of measuring performance of Site Waste Management Plan (SWMP)* *Knowledge of Plan-Do- Check -Act management model.* *.*	*<u>Able to:</u>* *Interpret the results of the SWMP performance.* *Recognise good practices in site waste management.*	*<u>Able to:</u>* *Disseminate good practices and lessons learned as appropriate to on site operational team*

Learning Unit C	***Title of the Learning Unit (Technologies)***		
Learning outcomes corresponding to ***EQF Level 4***	*Having knowledge of waste management technologies and the utilisation of appropriate technologies on site.*		
	Knowledge	***Skills***	***Competence***
	<u>Knows/Aware of:</u> *Awareness of existing technologies for dealing with waste.*	*<u>Able to:</u>* *Recognise and utilise appropriate technologies to deliver Site Waste Management Plan (SWMP).*	*<u>Able to:</u>* *Monitor use and performance of technologies as identified in SWMP*

<table>
<tr><th>Learning Unit C</th><th colspan="3">Title of the Learning Unit (Technologies)</th></tr>
<tr><td rowspan="3">Learning outcomes corresponding to EQF Level 5</td><td colspan="3">Knowledge of existing technologies for waste within the sector and their optimisation on-site.</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Competence</td></tr>
<tr><td><u>Knows/Aware of:</u>

Evaluating the opportunities of existing sector technologies for waste.

Awareness of measurement criteria for evaluation of technologies for waste.</td><td><u>Able to:</u>

Identify opportunities for implementation of existing technologies.

Match needs of an individual site to best available technologies.</td><td><u>Able to:</u>

Select good practices to use on-site</td></tr>
</table>

Learning Unit C	***Title of the Learning Unit (Technologies)***		
Learning outcomes corresponding to ***EQF Level 5***	*Investigation of existing technologies dealing with similar waste streams from non-construction sector to apply on site if feasible.*		
	Knowledge	***Skills***	***Competence***
	<u>Knows/Aware of:</u> *Introduction to relevant software and IT as it relates to waste management.* *Knowledge of technologies of the circular economy model in non-construction sector for similar waste streams e.g packaging. plastics*	*<u>Able to:</u>* *Identify potential opportunities for using good practices from non-construction sector.* *Communicate the benefits to site of use of non-construction sector technologies.*	*<u>Able to:</u>* *Investigate practices in non-construction sector and potential of applying them in construction.* *Raising awareness of alternative technologies from non-construction sector with the site management.*

4.3 From Learning Outcomes towards Learning Units

The O2 of the CODESMA project aims to translate the Learning Outcomes, as emerged from the present report, into the Learning Units that will be further elaborated in modules for the training offer definition. The grouping of the learning outcomes has been already implemented during the defining of the learning outcomes in 3 broad groups Materials process and Technologies. To facilitate the translation as well as to detail the selection of the above mentioned learning outcomes, it seems useful to enrich the identified learning outcomes with other skills and competences emerged from the desk research on existing training offers for construction and demolition waste management.

ANNEX 1

Certificate of Ethical Approval

Applicant:

Amela Bogdanovic

Project Title:

Construction and demolition waste management training for site managers

This is to certify that the above named applicant has completed the Coventry University Ethical Approval process and their project has been confirmed and approved as Medium Risk

Date of approval:

06 March 2018

Project Reference Number:

P67846

Medium to High Risk Research Ethics Approval

Project Title

Construction and demolition waste management training for site managers

Record of Approval

Principal Investigator

I **request an ethics peer review** and confirm that I have answered all relevant questions in this checklist honestly.	X
I confirm that I will carry out the project in the ways described in this checklist. I will immediately suspend research and request new ethical approval if the project subsequently changes the information I have given in this checklist.	X
I confirm that I, and all members of my research team (if any), have read and agreed to abide by the Code of Research Ethics issued by the relevant national learned society.	X
I confirm that I, and all members of my research team (if any), have read and agreed to abide by the University's Research Ethics, Governance and Integrity Framework.	X

Name: Amela Bogdanovic .....

Date: 13/02/2018 .....

Student's Supervisor (if applicable)

I have read this checklist and confirm that it covers all the ethical issues raised by this project fully and frankly. I also confirm that these issues have been discussed with the student and will continue to be reviewed in the course of supervision.

Name: .....

Date: 26/02/2018 .....

Reviewer (if applicable)

Date of approval by anonymous reviewer: 06/03/2018

Medium to High Risk Research Ethics Approval Checklist

Project Information

Project Ref	P67846
Full name	Amela Bogdanovic
Faculty	Faculty of Engineering, Environment and Computing
Department	School of Energy, Construction and Environment
Supervisor	
Module Code	EECSTAFF
EFAAF Number	
Project title	Construction and demolition waste management training for site managers
Date(s)	01/10/2017 - 31/03/2020
Created	13/02/2018 10:52

Project Summary

CODESMA is an Erasmus+ strategic partnership of 5 partners from 5 countries. The project aims to support Vocational Education and Training (VET) provision for site managers in construction and demolition (C&D) waste by: addressing modern training needs, and developing Open Educational Resources (OERs) that ensure easy and free access to on-line training and certification.

Following this aim, the project will develop an innovative course on waste management, to support site managers to address modern skills needs with regards to environmental sustainability awareness, knowledge, supervision and site organisation competences.

Names of Co-Investigators and their organisational affiliation (place of study/employer)	Stephen Austin, Amela Bogdanovic, Janet Campbell, Andy Reid, Ben Vivian, Gary O'Neill (CU) Violetta Koutsogiannopoulou,'Konstantina Spyropoulou(PROMEA, Greece) Renata Cerneckiene (VSRC- Lithuania) Jacek Zawistowski (PSMB- Poland) Frank Bertelmann-Angenendt, Claudia Burgraff (BZB, Germany)
Is the project self-funded?	YES
Who is funding the project?	Co-funded by the Erasmus+ Programme of EU
Has the funding been confirmed?	YES

Are you required to use a Professional Code of Ethical Practice appropriate to your discipline?	NO
Have you read the Code?	NO

Project Details

What is the purpose of the project?	The project aims to support Vocational Education and Training (VET) provision for site managers in construction and demolition (C&D) waste by: addressing modern training needs in accordance with EU priorities regarding waste management, and developing Open Educational Resources (OERs) that ensure easy and free access to on-line training and certification. Following this aim, the project will develop an innovative course on waste management, to support site managers to address modern skills needs with regards to environmental sustainability awareness, knowledge, supervision and site organisation competences. Project Application with more details attached
What are the planned or desired outcomes?	CODESMA outputs have been designed to address the projects aims and objectives. The following outputs are expected to be delivered by the end of the project O1 – data driven learning outcomes O2 - CODESMA Learning Units and VET integration guidelines O3- CODESMA Open Educational Resources O4- CODESMA VOOC O5- Framework for the integration of C&D waste management skills into EU certification and standardisation scheme. Project Application with more details attached
Explain your research design	We are going to use both quantitative and qualitative research methods. We are mostly going to use qualitative research methods. The online questionnaire will provide us with quantitative data but the evaluation will be qualitative. Respondents will be selected based on expertise, knowledge and experience in the relevant sectors and our ability to

	access it.
Outline the principal methods you will use	The principal methods we are using are: 1. desktop research of existing training provisions for C & D waste management for site managers in all partner countries. 2. on-line questionnaire survey to identify, prioritise and describe areas and tasks on which the CODESMA learning materials should be focused. 3.Pilot training workshops which will produce feedback from participants which will inform the final training material 4. On going review and comment following the dissemination of the final training material
Are you proposing to use an external research instrument, validated scale or follow a published research method?	NO
If yes, please give details of what you are using	
Will your research involve consulting individuals who support, or literature, websites or similar material which advocates, any of the following: terrorism, armed struggles, or political, religious or other forms of activism considered illegal under UK law?	NO
Are you dealing with Secondary Data? (e.g. sourcing info from websites, historical documents)	YES
Are you dealing with Primary Data involving people? (e.g. interviews, questionnaires, observations)	YES
Are you dealing with personal or sensitive data?	NO
Is the project solely desk based? (e.g. involving no laboratory, workshop or off-campus work or other activities which pose significant risks to researchers or participants)	NO
Are there any other ethical issues or risks of harm raised by the study that have not been covered by previous questions?	NO
If yes, please give further details	

DBS (Disclosure & Barring Service) formerly CRB (Criminal Records Bureau)

Question			Yes	No
1	Does the study require DBS (Disclosure & Barring Service) checks?			X
	If YES, please give details of the serial number, date obtained and expiry date			
2	If NO, does the study involve direct contact by any member of the research team:			
	a) with children or young people under 18 years of age?			X
	b) with adults who have learning difficulties, brain injury, dementia, degenerative neurological disorders?			X
	c) with adults who are frail or physically disabled?			X
	d) with adults who are living in residential care, social care, nursing homes, re-ablement centres, hospitals or hospices?			X
	e) with adults who are in prison, remanded on bail or in custody?			X
	If you have answered YES to any of the questions above please explain the nature of that contact and what you will be doing			

External Ethical Review

Question		Yes	No
1	Will this study be submitted for ethical review to an external organisation? (e.g. Another University, Social Care, National Health Service, Ministry of Defence, Police Service and Probation Office)		X
	If YES, name of external organisation		
2	Will this study be reviewed using the IRAS system?		X
3	Has this study previously been reviewed by an external organisation?		X

Confidentiality, security and retention of research data

Question			Yes	No
1	Are there any reasons why you cannot guarantee the full security and confidentiality of any personal or confidential data collected for the study?			X
	If YES, please give an explanation			
2	Is there a significant possibility that any of your participants, and associated persons, could be directly or indirectly identified in the outputs or findings from this study?			X
	If YES, please explain further why this is the case			
3	Is there a significant possibility that a specific organisation or agency or participants could have confidential information identified, as a result of the way you write up the results of the study?			X
	If YES, please explain further why this is the case			
4	Will any members of the research team retain any personal of confidential data at the end of the project, other than in fully anonymised form?			X
	If YES, please explain further why this is the case			
5	Will you or any member of the team intend to make use of any confidential information, knowledge, trade secrets obtained for any other purpose than the research project?			X
	If YES, please explain further why this is the case			
6	Will you be responsible for destroying the data after study completion?		X	
	If NO, please explain how data will be destroyed, when it will be destroyed and by whom			

Participant Information and Informed Consent

Question			Yes	No
1	Will all the participants be fully informed BEFORE the project begins why the study is being conducted and what their participation will involve?		X	
	If NO, please explain why			
2	Will every participant be asked to give written consent to participating in the study, before it begins?		X	
	If NO, please explain how you will get consent from your participants. If not written consent, explain how you will record consent			
3	Will all participants be fully informed about what data will be collected, and what will be done with this data during and after the study?		X	
	If NO, please specify			
4	Will there be audio, video or photographic recording of participants?			X
	Will explicit consent be sought for recording of participants?			
	If NO to explicit consent, please explain how you will gain consent for recording participants			
5	Will every participant understand that they have the right not to take part at any time, and/or withdraw themselves and their data from the study if they wish?		X	
	If NO, please explain why			
6	Will every participant understand that there will be no reasons required or repercussions if they withdraw or remove their data from the study?		X	
	If NO, please explain why			
7	Does the study involve deceiving, or covert observation of, participants?			X
	Will you debrief them at the earliest possible opportunity?			
	If NO to debrief them, please explain why this is necessary			

Risk of harm, potential harm and disclosure of harm

Question			Yes	No
1	Is there any significant risk that the study may lead to physical harm to participants or researchers?			X
	If YES, please explain how you will take steps to reduce or address those risks			
2	Is there any significant risk that the study may lead to psychological or emotional distress to participants?			X
	If YES, please explain how you will take steps to reduce or address those risks			
3	Is there any risk that the study may lead to psychological or emotional distress to researchers?			X
	If YES, please explain how you will take steps to reduce or address those risks			
4	Is there any risk that your study may lead or result in harm to the reputation of participants, researchers, or their employees, or any associated persons or organisations?			X
	If YES, please explain how you will take steps to reduce or address those risks			
5	Is there a risk that the study will lead to participants to disclose evidence of previous criminal offences, or their intention to commit criminal offences?			X
	If YES, please explain how you will take steps to reduce or address those risks			
6	Is there a risk that the study will lead participants to disclose evidence that children or vulnerable adults are being harmed, or at risk or harm?			X
	If YES, please explain how you will take steps to reduce or address those risks			
7	Is there a risk that the study will lead participants to disclose evidence of serious risk of other types of harm?			X
	If YES, please explain how you will take steps to reduce or address those risks			
8	Are you aware of the CU Disclosure protocol?		X	

Payments to participants

Question			Yes	No
1	Do you intend to offer participants cash payments or any kind of inducements, or reward for taking part in your study?			X
	If YES, please explain what kind of payment you will be offering (e.g. prize draw or store vouchers)			
2	Is there any possibility that such payments or inducements will cause participants to consent to risks that they might not otherwise find acceptable?			
3	Is there any possibility that the prospect of payment or inducements will influence the data provided by participants in any way?			
4	Will you inform participants that accepting payments or inducements does not affect their right to withdraw from the study at any time?			

Capacity to give valid consent

Question			Yes	No
1	Do you propose to recruit any participants who are:			
	a) children or young people under 18 years of age?			X
	b) adults who have learning difficulties, mental health condition, brain injury, advanced dementia, degenerative neurological disorders?			X
	c) adults who are physically disabled?			X
	d) adults who are living in residential care, social care, nursing homes, re-ablement centres, hospitals or hospices?			X
	e) adults who are in prison, remanded on bail or in custody?			X
	If you answer YES to any of the questions please explain how you will overcome any challenges to gaining valid consent			
2	Do you propose to recruit any participants with possible communication difficulties, including difficulties arising from limited use of knowledge of the English language?		X	
	If YES, please explain how you will overcome any challenges to gaining valid consent	Participants will be recruited from all partner countries (Greece, Poland, Lithuania,Germany and UK). The questionnaire, project information sheet, online consent are all translated in the partners' languages as well as confirmation of translation letters. all of these documents are uploaded with this application		
3	Do you propose to recruit any participants who may not be able to understand fully the nature of the study, research and the implications for them of participating in it or cannot provide consent themselves?			X
	If YES, please explain how you will overcome any challenges to gaining valid consent			

Recruiting Participants

Question			Yes	No
1	Do you propose to recruit any participants who are:			
	a)	students or employees of Coventry University or partnering organisation(s)?		X
		If YES, please explain if there is any conflict of interest and how this will be addressed		
	b)	employees/staff recruited through other businesses, voluntary or public sector organisations?	X	
		If YES, please explain how permission will be gained	Participant consent will be used for all elements of the research. For the online questionnaire the appropriate on-line consent will be included at the beginning of the questionnaire. We are using Bristol online Surveys and we are in control of all the results - partners will be only responsible for recruiting participants in their country. The way the participants will be selected is via team members' personal contacts and via social media (LinkedIn) and we will encourage participants to forward the survey to their contacts (Snowballing)	
	c)	pupils or students recruited through educational institutions (e.g. primary schools, secondary schools, colleges)?		X
		If YES, please explain how permission will be gained		
	d)	clients/volunteers/service users recruited through voluntary public services?		X
		If YES, please explain how permission will be gained		
	e)	participants living in residential care, social care, nursing homes, re-ablement centres hospitals or hospices?		X
		If YES, please explain how permission will be gained		
	f)	recruited by virtue of their employment in the police or armed forces?		X
		If YES, please explain how permission will be gained		
	g)	adults who are in prison, remanded on bail or in custody?		X
		If YES, please explain how permission will be gained		

	h)	who may not be able to refuse to participate in the research?		X
		If YES, please explain how permission will be gained		

Online and Internet Research

Question			Yes	No
1	Will any part of your study involve collecting data by means of electronic media (e.g. the Internet, e-mail, Facebook, Twitter, online forums, etc)?		X	
	If YES, please explain how you will obtain permission to collect data by this means	The electronic media will be used to distribute the access to the online questionnaire but not to collect data. The online questionnaire has an appropriate online consent included		
2	Is there a possibility that the study will encourage children under 18 to access inappropriate websites, or correspond with people who pose risk of harm?			X
	If YES, please explain further			
3	Will the study incur any other risks that arise specifically from the use of electronic media?			X
	If YES, please explain further			
4	Will you be using survey collection software (e.g. BoS, Filemaker)?		X	
	If YES, please explain which software	Yes we will be using the Bristol online Surveys and as a coordinator we will have full control of the data by all participants. The data will be stored on the project SharePoint in the folder only accessible to CU project staff		
5	Have you taken necessary precautions for secure data management, in accordance with data protection and CU Policy?		X	
	If NO	please explain why not		
	If YES	Specify location where data will be stored	CODESMA project Sharepoint site- folders only accessible to CU staff	
		Planned disposal date	30/09/2020	
		If the research is funded by an external organisation, are there any requirements for storage and disposal?	X	
		If YES, please specify details	The project grant agreement expect the beneficiary to keep the documents especially tax and accounting records for the 5 years from the date of the payment of the final balance. However any documentation related to the project output has to be retained until final review of the project is completed. The final report is due 2 months after the ending date of the project and the National Agency evaluates the project within 4 months	

Languages

Question			Yes	No
1	Are all or some of the consent forms, information leaflets and research instruments associated with this project likely to be used in languages other than English?		X	
	If YES, please specify the language[s] to be used	Yes - questionnaires, consent forms and project information will be translated in - Greek, Lithuanian,German and Polish		
2	Have some or all of the translations been undertaken by you or a member of the research team?		X	
	Are these translations in lay language and likely to be clearly understood by the research participants?		X	
	Please describe the procedures used when undertaking research instrument translation (e.g. forward and back translation), clarifying strategies for ensuring the validity and reliability or trustworthiness of the translation	The devised questionnaire is very simple and is based on individual's choice from the drop down menus. Each partner has translated the questionnaire to their native language and has signed the letter confirming their ability to		
3	Have some or all of the translations been undertaken by a third party?			X
	If YES, please specify the name[s] of the persons or agencies performing the translations			
	Please describe the procedures used when undertaking research instrument translation (e.g. forward and back translation), clarifying strategies for ensuring the validity and reliability of the translation			

Laboratory/Workshops

Question			Yes	No
1	Does any part of the project involve work in a laboratory or workshop which could pose risks to you, researchers or others?			X
	If YES: If you have risk assessments for laboratory or workshop activities you can refer to them here & upload them at the end, or explain in the text box how you will manage those risks			

Research with non-human vertebrates

Question			Yes	No
1	Will any part of the project involve animal habitats or tissues or non-human vertebrates?			X
	If YES, please give details			
2	Does the project involve any procedure to the protected animal whilst it is still alive?			
3	Will any part of your project involve the study of animals in their natural habitat?			
	If YES, please give details			
4	Will the project involve the recording of behaviour of animals in a non-natural setting that is outside the control of the researcher?			
	If YES, please give details			
5	Will your field work involve any direct intervention other than recording the behaviour of the animals available for observation?			
	If YES, please give details			
6	Is the species you plan to research endangered, locally rare or part of a sensitive ecosystem protected by legislation?			
	If YES, please give details			
7	Is there any significant possibility that the welfare of the target species of those sharing the local environment/habitat will be detrimentally affected?			
	If YES, please give details			
8	Is there any significant possibility that the habitat of the animals will be damaged by the project, such that their health and survival will be endangered?			
	If YES, please give details			
9	Will project work involve intervention work in a non-natural setting in relation to invertebrate species other than Octopus vulgaris?			
	If YES, please give details			

Blood Sampling / Human Tissue Analysis

Question			Yes	No
1	Does your study involve collecting or use of human tissues or fluids? (e.g. collecting urine, saliva, blood or use of cell lines, 'dead' blood)			X
	If YES, please give details			
2	If your study involves blood samples or body fluids (e.g. urine, saliva) have you clearly stated in your application that appropriate guidelines are to be followed (e.g. The British Association of Sport and Exercise Science Physiological Testing Guidelines (2007) or equivalent) and that they are in line with the level of risk?			
	If NO, please explain why not			
3	If your study involves human tissue other than blood and saliva, have you clearly stated in your application that appropriate guidelines are to be followed (e.g. The Human Tissues Act, or equivalent) and that they are in line with level of risk?			
	If NO, please explain why not			

Travel

Question			Yes	No
1	Does any part of the project require data collection off campus? (e.g. work in the field or community)			X
	If YES: You must consider the potential hazards from off campus activities (e.g. working alone, time of data collection, unfamiliar or hazardous locations, using equipment, the terrain, violence or aggression from others). Outline the precautions that will be taken to manage these risks, AS A MINIMUM this must detail how researchers would summon assistance in an emergency when working off campus. For complex or high risk projects you may wish to complete and upload a separate risk assessment			
2	Does any part of the project involve the researcher travelling outside the UK (or to very remote UK locations)?			
	If YES: Please give details of where, when and how you will be travelling. For travel to high risk places you may wish to complete and upload a separate risk assessment			
3	Are all travellers aware of contact numbers for emergency assitance when away (e.g. local emergency assistance, ambulance/local hospital/police, insurance helpline [+44 (0) 2071 737797] and CU's 24/7 emergency line [+44 (0) 2476 888555])?			
4	Are there any travel warnings in place advising against all, or essential only travel to the destination? NOTE: Before travel to countries with 'against all travel', or 'essential only' travel warnings, staff must check with Finance to ensure insurance coverage is not affected. Undergraduate projects in high risk destinations will not be approved			
5	Are there increased risks to health and safety related to the destination? e.g. cultural differences, civil unrest, climate, crime, health outbreaks/concerns, and travel arrangements?			
	If YES, please specify			
6	Do all travelling members of the research team have adequate travel insurance?			
7	Please confirm all travelling researchers have been advised to seek medical advice regarding vaccinations, medical conditions etc, from their GP			

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CODESMA
COnstruction and DEmolition waste
management training for Site MAnagers

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ANNEX 2

COnstruction and DEmolition waste management training for Site MAnagers

Survey on construction and demolition waste management skills needs in the construction industry for site managers

Page 1: Participant Information Sheet

Co-funded by the Erasmus+ Programme of the European Union

Project acronym:	CODESMA
Project name:	Construction and demolition waste management training for site managers

Project code:	2017-1-UK01-KA202-036562
Project website	www.codesma.eu
Project duration:	1st October 2017- 31st March 2020

What is the purpose of the project?

CODESMA is an Erasmus+ strategic partnership of 5 partners from 5 countries. The project aims to support Vocational Education and Training (VET) provision for site managers in construction and demolition (C&D) waste by: addressing modern training needs, and developing Open Educational Resources (OERs) that ensure easy and free access to on-line training and certification.

Following this aim, the project will develop an innovative course on waste management, to support site managers to address modern skills needs with regards to environmental sustainability awareness, knowledge, supervision and site organisation competences.

Why have I been approached?

Your responses to this survey will help us collect information about the skills required by construction site managers for the C&D waste management in order to improve the quality and relevance of future training modules.

Do I have to take part?

No. Participation is entirely voluntary. If you change your mind about taking part in the study you can withdraw at any point during the sessions and at any time in the two weeks following that session. You can withdraw by contacting me on email and providing me with your participant information number. If you decide to withdraw all your data will be destroyed and will not be used in the study. There are no consequences to deciding that you no longer wish to participate in the study.

What do I have to do?

You will be expected to complete a short survey. The survey focuses on the training needs for site manager's regarding C&D waste management.

What are the possible disadvantages and risks of taking part?

There are no foreseeable risks in participating in the study. The main disadvantage to taking part i is that you will be giving 10-15 minutes of your time.

What are the possible benefits of taking part?

There are no direct benefits to taking part. However, the information we get from the survey and the project will help us define the most appropriate and relevant content for the on-line C&D waste management training course. Furthermore, we will provide you with a final report describing the main findings,

Will my taking part in this study be kept confidential?

Yes. All raw data will be stored on password protected CODESMA project sharepoint in the area accessable only to Coventry University project team members. You will only be identified on the score sheet by your participant code number. The raw data from the project will be retained until final project review by the EU Commission has taken place – 2 months following project end 31 March 2020. They will then be destroyed.

What will happen to the results of the research study?

The results will be written up and presented as part of CODESMA project Report on learning outcomes for the proposed online course. That will be available from the project website www.codesma.eu If the results are novel, it may also be presented at academic conferences and / or written up for publication in peer reviewed academic journals.

Who is organising and funding the research?

The research is organised by CODESMA partnership consortium and is co-funded by the Erasmus+ Programme of the European Union

Who has reviewed the study?

This study has been through the University Peer Review process and been approved.

What if something goes wrong?

If you change your mind about taking part in the study you can withdraw at any point during the sessions and at any time in the two weeks following that session by contacting me using the email address stated below. If you decide to withdraw all your data will be destroyed and will not be used in the study.

If you have any questions or require more information about this study, please contact me using

the contact details below

if you wish to make a complaint about the conduct of the study you can contact the Chair of the University Applied Research Committee

Prof. Olivier Sparagaro

Coventry University

Priory Street

Coventry

CV1 5FB

Contact email: ab8677@coventry.ac.uk

Contact for further Information

name: Amela Bogdanovic

email address: aa5163@coventry.ac.uk

Page 2: Consent

Online informed consent Participation in the survey is entirely voluntary; you can withdraw from the survey at any point of time, without giving a reason for doing so. Please be assured that the information you provide will remain strictly confidential and anonymous. Answers will be reported so that no individual or organization will be identifiable from any publication presenting the results of the survey. By responding to the questionnaire, your consent to take part in the study is assumed and that you agree to the use of anonymised quotes in publications. If you would like to have further information about the project, please see project website www.codesma.eu. or contact Amela Bogdanovic, Coventry University via email aa5613@coventry.ac.uk . ✱ *Required*

- YES
- NO

Construction Site Managers

For the purposes of this survey, the term “construction site managers” is used to define the construction professional that are responsible for managing construction site by overseeing operations on a day-to-day basis, and ensuring that work is done safely, on time, within budget and to required quality standards.

Construction and Demolition Waste management

For the purposes of this survey, the term “C&D waste management” is used to define the mechanisms and technologies used for the correct handling of waste that results from construction, demolition or repair sites, with an overall target to eliminate the hazardous waste and promote the recycle/ reuse of materials.

Page 4: A Respondent's profile (Optional)

Country

Organisation/company

Email address

Page 5

A1. What is the type of your organisation (if applicable)-select one option that most closely describe your organisation? ✱ *Required*

- Civil engineering company
- Construction company
- Demolition company
- Building services engineering company
- Estate management company/departments
- Professional bodies for site managers' employers and employees
- Vocational Education and Training (VET)provider/in house training in the construction industry
- VET provider /in house training in demolition industry
- VET/in house training provider in the waste management
- Agencies and societies, specialised in C&D waste management (e.g. C&D waste management contractors)
- Environmental Agency
- Other

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A2. Please, specify your role in the organisation *Required

- Director level
- Senior manager
- Middle manager
- First line/site supervisor
- Site operator
- Teacher/Trainer
- Other

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A3 Are you a member of a relevant professional body ✱ *Required*

- ○ Yes
- ○ No

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B. Knowledge, skills, and competences required by construction site managers with regards to C&D waste management

B1. *How high is the need for construction site managers to have the following* ***knowledge****? (1 = very low, 5= very high).* ✱ *Required*

Please don't select more than 1 answer(s) per row.

Please select at least 7 answer(s).

	Don't know	1	2	3	4	5
Awareness of national legislation framework on construction waste management	☐	☐	☐	☐	☐	☐
Awareness of national legislation framework on demolition waste management	☐	☐	☐	☐	☐	☐
Awareness of up-to-date demolition techniques	☐	☐	☐	☐	☐	☐
Waste awareness for construction sites at the site mobilisation stage	☐	☐	☐	☐	☐	☐
Knowledge of processes and technologies of dealing with waste on site	☐	☐	☐	☐	☐	☐
Knowledge of processes and technologies of dealing with waste off site	☐	☐	☐	☐	☐	☐

Awareness of accessing relevant information regarding dealing with waste	☐	☐	☐	☐	☐	☐

B2. *Howhigh is the need for construction site managers to have the following* ***skills****? (1 = very low, 5= very high).* ✱ *Required*

Please don't select more than 1 answer(s) per row.

Please select at least 9 answer(s).

Skills in using a site waste management plan	☐	☐	☐	☐	☐	☐
Skills in managing construction waste	☐	☐	☐	☐	☐	☐
Skills in managing deconstruction waste	☐	☐	☐	☐	☐	☐
Skills in managing demolition waste	☐	☐	☐	☐	☐	☐
Skills in handling of hazardous waste	☐	☐	☐	☐	☐	☐
Skills in storing of hazardous waste	☐	☐	☐	☐	☐	☐
Skills in removing of hazardous waste	☐	☐	☐	☐	☐	☐
Skills in using waste hierarchy	☐	☐	☐	☐	☐	☐
Communication skills	☐	☐	☐	☐	☐	☐

B3. *Howhigh is the need for construction site managers to have the following* ***competences****? (1 = very low, 5= very high).* ✱ *Required*

Please don't select more than 1 answer(s) per row.

Please select at least 6 answer(s).

Ability to select innovative technology solution for waste management	☐	☐	☐	☐	☐	☐
Ability to effectively supervise on-site works	☐	☐	☐	☐	☐	☐
Ability to implement effective waste strategies.	☐	☐	☐	☐	☐	☐
Ability to monitor waste management	☐	☐	☐	☐	☐	☐
Ability to monitor compliance with regulations	☐	☐	☐	☐	☐	☐
Ability to provide confident leadership.	☐	☐	☐	☐	☐	☐

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C. Training of construction site managers

C1. *Are you aware of any training provision addressing any of the following topics (Please provide your indicative suggestions):* ✱ *Required*

- ☐ National legislation framework on construction waste management
- ☐ National legislation framework on demolition waste management
- ☐ Up-to-date demolition techniques
- ☐ Waste awareness for construction sites at the site mobilisation stage
- ☐ Knowledge of processes and technologies of dealing with waste on site
- ☐ Knowledge of processes and technologies of dealing with waste off site
- ☐ Awareness of accessing relevant information regarding dealing with waste
- ☐ Communication skills (with customers, architects, workers and other involved agents, such as contractors) in the C&D waste management process

C2. *To your knowledge, what is the availability of on-line training courses for site managers in your country? (Please select one answer)* ✱ *Required*

- ○ Very sufficient
- ○ Rather sufficient but needs to be improved
- ○ Insufficient
- ○ There are no courses available
- ○ Not applicable/ no opinion

C3. ***Would you be prepared to use any of the following training tools and techniques as a part of your training programme*** *(Please select all options that apply to you)* ✱ *Required*

- ☐ Mentoring and coaching
- ☐ Role play
- ☐ Virtual reality

- [ ] Simulation
- [ ] Case studies
- [ ] Gamification

Page 10: Follow up (optional)

If you would be willing to further explain and discuss your views and ideas regarding C&D waste management skills for construction site managers at some time in the future, please complete the following details.

Name

Email

Contact phone number

Hours you would be available to be contacted by phone

Page 11: Thank you for completing the CODESMA survey!

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ANNEX 3

A. Desk research data collection form – best practices

Data collection form for presenting information gathered via desk research on best practices in existing training provision in C&D waste management for construction site managers.

At the moment in Lithuania there is no specialised training for construction site managers in C&D waste management. In VET programmes related to building and construction C&D waste management topics are included in the modules dealing with environmental protection and Occupational health and safety issues. They provide very general information about identification of construction waste, its impacts on the environment and people, main principles of waste management and disposal.

Specialised training in the form of 1 day seminars are provided by private companies, usually in collaboration with Environmental Protection Agency or the Ministry of the Environment. Most of these courses deal with waste management in general, and only some are focused on construction waste management.

Course title: **Environmental safety**	
Qualification / Accreditation	Part of an B.Sc. in Civil Engineering
Institution / Provider	Vilnius Gediminas Technical University
Country	Lithuania
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	80-hour module
Scope of course	Up-skilling
Main focus	– Identification of construction waste – The impacts of construction waste – The legal framework for waste management with particular reference to construction – Health and safety of workers

	– Risk management
Target audience information	Students in Civil Engineering programme (Level 6 EQF)
Core Modules / Topics addressed	– Identification of construction waste – The impacts of construction waste – The legal framework for waste management with particular reference to construction – Health and safety of workers – Risk management
Knowledge/skills/competences (to be) obtained upon the completion of training	Awareness of waste management during the construction process
Source	http://www.vgtu.lt/norintiems-studijuoti/bakalauro-ir-vientisosios-studijos/studiju-programos/pagal-sritis-ir-kryptis/334?pid=118501#Studijų dalykai

Course title: **Construction waste management**	
Qualification / Accreditation	-
Institution / Provider	UAB “Biosistema”
Country	Lithuania
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	1 day seminar
Scope of course	Up-skilling
Main focus	

	– Identification of construction waste – The impacts of construction waste – The legal framework for waste management with particular reference to construction – Completing waste management documentation.
Target audience information	– Designers – Contractors – Site managers
Core Modules / Topics addressed	• The legal framework for waste management with particular reference to construction • Environmental protection documentation and its application for waste management object. • Environmental Impact Assessment procedures. • Integrated Pollution Prevention and Control. • Hazardous waste management. • Completing waste management register. • Taking responsibility.
Knowledge/skills/competences (to be) obtained upon the completion of training	Implement waste minimisation and management strategies and procedures during construction process
Source	http://komage.lt/wp-content/uploads/2017/03/Atlieku_tvarkymas_viskas_ka_reikia_zinoti_Programa_2017-03-02-1.pdf

Course title: **Environmental requirements for waste management. Legal acts, innovation, practical aspects.**	
Qualification / Accreditation	-

Institution / Provider	Open Academy
Country	Lithuania
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☒ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	1 day seminar
Scope of course	Up-skilling
Main focus	– The legal framework for waste management – Completing waste management documentation and accounting
Target audience information	– Representatives of companies that deal with waste management in their regular activities.
Core Modules / Topics addressed	• Legal regulation of waste management activities. Recent and planned changes. • Environmental requirements for waste management activities • Waste generation and management accounting. • Integrated Pollution Prevention and Control.
Knowledge/skills/competences (to be) obtained upon the completion of training	Implement waste minimisation and management measures in any waste generation fields.
Source	http://www.openacademy.lt/mokymai/aplinkosaugos-srities-specialistams/11-aplinkosauginiai-reikalavimai-atlieku-tvarkymo-veiklai-teises-aktai-naujoves-praktiniai-aspektai

A. Desk research data collection form – best practices

Data collection form for presenting information gathered via desk research on best practices in existing training provision in C&D waste management for construction site managers.

CCDO Demolition Managers Course	
Qualification / Accreditation	– NDTG administers the CCDO card Scheme (Certificate of Competence for demolition Operatives) – NDTG is an Accredited NVQ Centre
Institution / Provider	National Demolition Group(NDTG)
Country	UK
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	5 day
Scope of course	Up-skilling
Main focus	– Better understanding of all aspects of project management and how to run a demolition site effectively – Greater understanding of behavioural Safety in the Workplace
Target audience information	Key personnel who are actively involved in the site management of a demolition project:
Core Modules / Topics addressed	Environmental Management Project Planning Identifying the Project Team Waste Management The Control of Substances Hazardous to Health Legislation Monitoring Project Activities Meeting Deadlines Statutory Forms & Notices Identify, Allocate, Deployment & use of Plant, Equipment & Machinery Managing their own personal development Behavioural Safety

Knowledge/skills/competences (to be) obtained upon the completion of training	Implement waste minimisation and management of the demolition site as a part of the overall effective running of the demolition site
Source	http://ndtg.training/course/ccdo-demolition-managers-course

Course title: Construction Waste Management	
Qualification / Accreditation	– none
Institution / Provider	WS training
Country	UK
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	1 day
Scope of course	Up-skilling
Main focus	To demonstrate environmental waste awareness for construction projects at the pre construction phase and assist in the implementation of environmental best practice on construction projects during the construction phase
Target audience information	A one day course for all those involved in construction work at the planning and implementation phases i.e. - clients, developers, designers, CDM coordinators, principal contractors, contractors, health and safety managers, regulators and local authorities
Core Modules / Topics addressed	• Environment Legislation and the Construction Industry • Regulators and enforcement • Environment Management Systems • Environmental Permitting • Site Waste Management Plans • Best practice on site • Monitoring and record keeping)
Knowledge/skills/competences (to be) obtained upon the completion of training	• Obtain an understanding of waste legislation • Identify the requirements of the Site Waste Management Plans Regulations • Complete a Site Waste Management Plan • Have a better understanding of the Environmental Permitting Regulations and exemptions • Manage waste on the construction site • Identify current best practice
Source	http://www.wstraining.co.uk/training-courses/environmental/construction-waste-management

Source	https://www.icetraining.org.uk/courses/environment-sustainability/construction-waste-waste-management

A. Desk research data collection form – best practices

Data collection form for presenting information gathered via desk research on best practices in existing training provision in C&D waste management for construction site managers.

Course title: Site Environmental Awareness Training Scheme **'please fill in'**	
Qualification / Accreditation	part of Site Safety Plus
Institution / Provider	Construction Industry Training Board (CITB)
Country	UK
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	1 day
Scope of course	CITB Site Safety Plus certificate
Main focus	Basic environmental knowledge that the sub-contract chain is required to prove to major contractors. It also covers the environmental aspects of the CITB Health, safety and environment (HS&E) test.
Target audience information	suitable for staff with management or supervisory responsibilities.
Core Modules / Topics addressed	• Best practice techniques and legal compliance • The environment and why it matters • Environmental management systems • Waste management • How to be a good neighbour: statutory nuisance,communication • Archaeology and heritage. • Energy and resources • Being a responsible contractor

Knowledge/skills/competences (to be) obtained upon the completion of training	None specified
Source	https://www.citb.co.uk/national-construction-college/health-and-safety-courses/site-environmental-awareness-training-scheme/

Course title: Level 2 NVQ Diploma in Removal of Hazardous Waste – Licensed Asbestos Removal 'please fill in'	
Qualification / Accreditation	National Occupation Standards Level 2 NVQ Diploma – Licenced Asbestos Removal
Institution / Provider	Various including CITB, Scottish Qualification Authority (SQA) and CITBNI
Country	UK
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☒ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	420 hours
Scope of course	Removal of Hazardous Waste - Asbestos
Main focus	Removal of Hazardous Waste - Asbestos
Target audience information	Not stipulated
Core Modules / Topics addressed	• Conforming to general health, safety and welfare in the workplace • Conforming to productive working practices in the workplace • Moving, handling and storing resources in the workplace • Installing and removing enclosure or containment areas for the removal of licensed asbestos materials in the workplace • Stripping and removing licensed asbestos materials in the workplace
Knowledge/skills/competences (to be) obtained upon the completion of training	None specified
Source	https://www.citb.co.uk/documents/qualifications/suites%20of%20national%20occupational%20standards/roc/tqt%20folder/l2%20nvq%20dip%20removal%20hazardous%20waste%20v3%20tqt%2031-05-17.pdf

Course title: Level 2 NVQ Diploma in Removal of Non- Hazardous Waste 'please fill in'	
Qualification / Accreditation	National Occupation Standards Level 2 NVQ Diploma – Removal of Non-Hazardous Waste
Institution / Provider	Various including CITB
Country	UK
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☒ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	300 hours
Scope of course	Removal of Non-Hazardous Waste
Main focus	Removal of Non-Hazardous Waste
Target audience information	Not specified
Core Modules / Topics addressed	• Conforming to general health, safety and welfare in the workplace • Conforming to productive working practices in the workplace • Moving, handling and storing resources in the workplace • Installing and removing enclosure or containment areas for the removal of non-hazardous waste in the workplace • Stripping and removing non-hazardous waste in the workplace
Knowledge/skills/competences (to be) obtained upon the completion of training	None specified
Source	https://www.citb.co.uk/documents/qualifications/suites%20of%20national%20occupational%20standards/roc/tqt%20folder/l2%20nvq%20dip%20removal%20hazardous%20waste%20v3%20tqt%2031-05-17.pdf

Course title: Level 2 NVQ Diploma in Removal of Hazardous Waste 'please fill in'	
Qualification / Accreditation	National Occupation Standards Level 2 NVQ Diploma – Removal of Hazardous Waste
Institution / Provider	Various including CITB
Country	UK
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☒ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	380 hours
Scope of course	Removal of Hazardous Waste
Main focus	Removal of Hazardous Waste
Target audience information	suitable for staff with management or supervisory responsibilities.
Core Modules / Topics addressed	• Conforming to general health, safety and welfare in the workplace • Conforming to productive working practices in the workplace • Moving, handling and storing resources in the workplace • Installing and removing enclosure or containment areas for the removal of hazardous waste in the workplace • Stripping and removing non-hazardous waste in the workplace
Knowledge/skills/competences (to be) obtained upon the completion of training	None specified
Source	https://www.citb.co.uk/documents/qualifications/suites%20of%20national%20occupational%20standards/roc/tqt%20folder/l2%20nvq%20dip%20removal%20hazardous%20waste%20v3%20tqt%2031-05-17.pdf

Course title: Level 3 NVQ Diploma in Supervising Licensed Asbestos Removal (Construction) 'please fill in'

Qualification / Accreditation	National Occupation Standards Level 3 NVQ Diploma
Institution / Provider	Various including CITB, Scottish Qualification Authority (SQA) and CITBNI
Country	UK
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☒ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	Not stipulated
Scope of course	Supervising Licensed Asbestos Removal (Construction)
Main focus	Supervising Licensed Asbestos Removal (Construction)
Target audience information	suitable for staff with management or supervisory responsibilities.
Core Modules / Topics addressed	• Confirm work activities and resources for the work • Develop and maintain good working relationships • Confirm the occupational method of work • Implement and maintain health, safety and welfare • Co-ordinate and organise work operations • Install and remove licensed asbestos enclosure or containment areas • Licensed asbestos removal
Knowledge/skills/competences (to be) obtained upon the completion of training	None specified
Source	https://www.citb.co.uk/documents/qualifications/suites%20of%20national%20occupational%20standards/roc/tqt%20folder/l2%20nvq%20dip%20removal%20hazardous%20waste%20v3%20tqt%2031-05-17.pdf

(Please copy the table as many times as needed)

A. Desk research data collection form – best practices

Data collection form for presenting information gathered via desk research on best practices in existing training provision in C&D waste management for construction site managers.

Course title: **Construction Waste Management**	
Qualification / Accreditation	Nil./Internal Certificate of Attendance
Institution / Provider	WS Training
Country	UK
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	1 day
Scope of course	Waste awareness
Main focus	e.g. – Identification of C&D waste generated – Elimination of hazardous waste – Health and safety of workers – Provision of guidance on the separation of materials
Target audience information	A one day course for all those involved in construction work at the planning and implementation phases i.e. - clients, developers, designers, CDM coordinators, principal contractors, contractors, health and safety managers, regulators and local authorities.
Core Modules / Topics addressed	• Environment Legislation and the Construction Industry • Regulators and enforcement • Environment Management Systems • Environmental Permitting • Site Waste Management Plans • Best practice on site • Monitoring and record keeping

Knowledge/skills/competences (to be) obtained upon the completion of training	At the end of the course learners will be able to: • Obtain an understanding of waste legislation • Identify the requirements of the Site Waste Management Plans Regulations • Complete a Site Waste Management Plan • Have a better understanding of the Environmental Permitting Regulations and exemptions • Manage waste on the construction site • Identify current best practices
Source	http://www.wstraining.co.uk/training-courses/environmental/construction-waste-management

(Please copy the table as many times as needed)

A. Desk research data collection form – best practices

Data collection form for presenting information gathered via desk research on best practices in existing training provision in C&D waste management for construction site managers.

Course title: **Waste Documentation Training**	
Qualification / Accreditation	Nil./Internal Certificate of Attendance
Institution / Provider	EMS
Country	UK
Mode of study (check all that apply, e.g. in case of blended learning)	☐ Class-based learning ☒ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	1/2 day (0.5)
Scope of course	Waste documentation training
Main focus	An understanding on what waste is and how it needs to be managed to meet legislative requirements.
Target audience information	Anyone completing waste documentation
Core Modules / Topics addressed	• What waste is • Legal requirements of waste management • Understanding waste documentation • Knowing when to use waste documentation • How to complete waste documentation
Knowledge/skills/competences (to be) obtained upon the completion of training	• Meet your legal requirements in regards to waste management • Ensure all waste documentation is completed correctly • Demonstrate a commitment to the environment
Source	http://www.em-solutions.co.uk/training/waste-documentation-training#sthash.ZNEPSwRg.1F5KELNc.dpbs

(Please copy the table as many times as needed)

A. Desk research data collection form – best practices

Data collection form for presenting information gathered via desk research on best practices in existing training provision in C&D waste management for construction site managers.

Course title:	
Construction Management: Safety & Health	
Qualification / Accreditation	.none
Institution / Provider	Lynda.com (linkedin)
Country	America
Mode of study (check all that apply, e.g. in case of blended learning)	☐ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☒ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	Small video elements that can be viewed ad hoc, if viewed altogether – 1 and a half hours
Scope of course	Awareness training
Main focus	Health and safety of workers
Target audience information	Site managers (USA focus and practices)
Core Modules / Topics addressed	Recognizing health hazards in the industry Integrating safety, quality, and productivity Creating a culture of learning Recognizing leading indicators Using digital solutions to improve safety Using BIM to identify hazards early
Knowledge/skills/competences (to be) obtained upon the completion of training	Identification of health and safety hazards on a construction site Use of BIM to improve health and safety on site
Source	https://www.lynda.com/CAD-tutorials/Construction-Management-Safety-Health/606056-2.html?srchtrk=index%3a1%0alinktypeid%3a2%0aq%3aasbestos%0apage%3a1%0as%3arelevance%0asa%3atrue%0aproducttypeid%3a2

A. Desk research data collection form – best practices

Data collection form for presenting information gathered via desk research on best practices in existing training provision in C&D waste management for construction site managers.

Course title: **The Duty of Care in waste management**	
Qualification / Accreditation	6 CPD hours for CIOB members
Institution / Provider	Chartered Institution of Wastes Management (CIWM) / The Chartered Institute of Building (CIOB)
Country	UK
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☒ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	1 day
Scope of course	Continuous Professional Development / Up-skilling
Main focus	This course provides practical up-to-date advice on the legislation and how to comply with the regulations in conjunction with the anticipated new code of practice.
Target audience information	Those responsible for the production, transport, handling, treatment, control and disposal of wastes, and waste producers in all industry sectors.
Core Modules / Topics addressed	-Understand the key reasons that we have Duty of Care and how the producer plays a fundamental role -Awareness of the current legislative requirements and what this means in practice -Be familiar with the statutory Code of Practice -Understand auditing requirements as identified in the Code of Practice -Appreciate how YOUR Duty of Care obligations relate to the requirements of environmental permitting, carrier controls and future legislation -Know how to complete a waste transfer note -Understand your role and that of others in directing how waste is managed (brokers, sub contractors, etc).
Knowledge/skills/competences (to be) obtained upon the completion of training	Gain essential knowledge to ensure you control the management of waste and comply with your waste Duty of Care obligations.
Source	https://www.ciwm.co.uk/training-ciob

Course title: Environmental Permitting and Exemptions	
Qualification / Accreditation	6 CPD hours for CIOB members
Institution / Provider	Chartered Institution of Wastes Management (CIWM) / The Chartered Institute of Building (CIOB)
Country	UK
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☒ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	1 day
Scope of course	Continuous Professional Development / Up-skilling
Main focus	This course provides practical up-to-date knowledge on applications for waste-related environmental permits or exemptions and the application of process requirements.
Target audience information	Anyone considering starting a waste activity who needs to know more about the application requirements and processes; or who is involved in waste applications for new or existing activities for either themselves or on behalf of waste operators and needs to understand the processes or requires an update.
Core Modules / Topics addressed	-Overview of legislation relevant to permitting and waste exemptions -Understand what type of activities require a permit -Understand the difference between tier 2 and tier 3 permits -Overview of the permitting process -Awareness of relevant fees and charges and OPRA -Understand key requirements of permit conditions/rules and relevant guidance -Awareness of process for varying transferring and surrendering permits.
Knowledge/skills/competences (to be) obtained upon the completion of training	Gain essential knowledge on applications for waste-related environmental permits or exemptions, compliance scheme and application process requirements.
Source	https://www.ciwm.co.uk/training-ciob

Course title: Hazardous Waste Regulations	
Qualification / Accreditation	6 CPD hours for CIOB members
Institution / Provider	Chartered Institution of Wastes Management (CIWM) / The Chartered Institute of Building (CIOB)
Country	UK
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☒ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	1 day
Scope of course	Continuous Professional Development / Up-skilling
Main focus	This course explains which wastes are classified as hazardous and provides up-to-date advice on how to comply with the regulations
Target audience information	Everybody responsible for dealing with or producing hazardous waste
Core Modules / Topics addressed	-Understand the legal basis of the regulations -Understand the specific regulations relating to the management of hazardous wastes -Understand the effect of the regulations on operational activities for waste producers, carriers and waste -Management sites -Have a detailed knowledge of the implementation of the regulations.
Knowledge/skills/competences (to be) obtained upon the completion of training	Gain a detailed understanding of regulations governing the wastes that are classified as hazardous and get up-to-date advice on how to comply with the regulations.
Source	https://www.ciwm.co.uk/training-ciob

Course title: Introduction to Waste Legislation	
Qualification / Accreditation	2 CPD hours for CIOB members
Institution / Provider	Chartered Institution of Wastes Management (CIWM) / The Chartered Institute of Building (CIOB)
Country	UK
Mode of study (check all that apply, e.g. in case of blended learning)	☐ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☒ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	2 hours
Scope of course	Continuous Professional Development / Up-skilling
Main focus	This innovative online course provides a truly interactive way of examining the key requirements set out by a number of pieces of prominent UK waste management legislation. Focusing on the roles of the waste producer and waste carrier, the module illustrates the compliance 'journeys' of a number of different waste materials to a range of recycling, recovery and disposal outlets. In doing so, legal requirements are examined.
Target audience information	Anyone involved in waste management, particularly those with compliance related responsibilities and consultants new to waste or needing a refresher.
Core Modules / Topics addressed	-Understand some of their key legal obligations in relation to waste management -Awareness of the necessary associated compliance documentation -Appreciate legal requirements throughout the waste management chain -Understand key elements including Duty of Care and the Waste Hierarchy.
Knowledge/skills/competences (to be) obtained upon the completion of training	Gain a detailed understanding of some of key legal obligations in relation to waste management and the associated compliance documentation you need to be aware of.
Source	https://www.ciwm.co.uk/training-ciob

Course title: Management of Hazardous Waste	
Qualification / Accreditation	6 CPD hours for CIOB members
Institution / Provider	Chartered Institution of Wastes Management (CIWM) / The Chartered Institute of Building (CIOB)
Country	UK
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☒ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	1 day
Scope of course	Continuous Professional Development / Up-skilling
Main focus	This course provides a sound understanding of the issues involved in the management of industrial hazardous wastes to ensure your hazardous waste is safe, economical, effective and legally compliant.
Target audience information	Technical staff and managers from waste producing companies and waste contractors and environmental regulators, insurance risk assessors and waste brokers.
Core Modules / Topics addressed	-Appreciate the nature and definition of hazardous wastes -Understand the main hazards and risks associated with the management of industrial hazardous wastes, including its production, treatment and disposal -Appreciate the legal controls, both national and international, that apply to industrial hazardous wastes, from the point of production through to disposal -Understand the range of technical options available for the effective management of industrial hazardous wastes -Appreciate the main controls on the transport of hazardous waste.
Knowledge/skills/competences (to be) obtained upon the completion of training	Gain a detailed understanding of the hazards associated with managing and handling hazardous waste to ensure safe, effective and legally compliant practice.
Source	https://www.ciwm.co.uk/training-ciob

Course title: Waste Legislation Essentials	
Qualification / Accreditation	6 CPD hours for CIOB members
Institution / Provider	Chartered Institution of Wastes Management (CIWM) / The Chartered Institute of Building (CIOB)
Country	UK
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☒ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	1 day
Scope of course	Continuous Professional Development / Up-skilling
Main focus	This course provides an introduction into the key legal requirements of managing waste
Target audience information	Anyone who handles waste, whether as a waste producer, waste carrier or waste management company, who needs to be aware of a range of complex legislation relevant to wastes and resource management in England.
Core Modules / Topics addressed	-Appreciate the extent of UK legislation relating to wastes (specifically in relation to England) -Appreciate the key issues in relation to waste definition -Understand the practical implications of Duty of Care and other related controls on wastes management -Awareness of the essential elements of hazardous waste controls -Recognise the implications of environmental permitting to the recovery and disposal of waste. -Gain an understanding of the essential elements of a range of waste controls including waste pre-treatment and waste acceptance criteria.
Knowledge/skills/competences (to be) obtained upon the completion of training	Learn all the essentials to ensure the compliance with the relevant waste legislation in England, Scotland or Wales.
Source	https://www.ciwm.co.uk/training-ciob

Course title: WasteSmart Online	
Qualification / Accreditation	3 CPD hours for CIOB members
Institution / Provider	Chartered Institution of Wastes Management (CIWM) / The Chartered Institute of Building (CIOB)
Country	UK
Mode of study (check all that apply, e.g. in case of blended learning)	☐ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☒ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	3 hours. The course takes approximately 3 hours in total and students have 30 days from point of purchase to complete it.
Scope of course	Continuous Professional Development / Up-skilling
Main focus	This online course provides the knowledge and understanding necessary to make astute and efficient waste-related decisions, whilst also increasing sustainability and improving performance
Target audience information	Aimed at anyone who generates, handles or manages waste within their organisation
Core Modules / Topics addressed	The course is comprised of 5 modules: 1. Waste as a Resource 2. The Environmental Impact of Waste 3. The Costs of Managing Waste 4. Understanding and Applying the Waste Hierarchy 5. Legislation and Ensuring Compliance
Knowledge/skills/competences (to be) obtained upon the completion of training	By the end of the course students will: -Recognise the factors that need to be considered when making waste-related decisions -Be able to reduce the production of workplace waste -Consider ways of improving waste management processes.
Source	https://www.ciwm.co.uk/training-ciob

Course title: Waste Management Legislation (Duty of Care)	
Qualification / Accreditation	Delegates will receive a Certificate of Attendance on successful completion of twenty multi-choice questions.
Institution / Provider	QSP Training
Country	UK
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☒ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	1 day
Scope of course	Up-skilling
Main focus	The principle aim of this course is to introduce and provide an overview of the Duty of Care legislation to individuals. The course will assist candidates in developing methodologies for implementing the Duty of Care legislation on site, and to provide examples of what could happen when the law is ignored.
Target audience information	All employees who are new entrants to the Waste Management Industry or for those who have responsibilities in the production, transport, handling, treatment and disposal of waste.
Core Modules / Topics addressed	-Overview of the Duty of Care legislation -Knowledge on where information for Duty of Care can be found -Methodologies for implementing the Duty of Care legislation on site -Examples of what could happen when the law is ignored
Knowledge/skills/competences (to be) obtained upon the completion of training	At the end of the course delegates will: -Describe the various terminology used throughout the course - Have an awareness of the existence of Duty of Care -Have in depth knowledge on where information for Duty of Care can be found - Disseminate information on Duty of Care to others
Source	http://www.qsptraining.co.uk/data-page.asp?PID=26

Course title: Asbestos Awareness	
Qualification / Accreditation	Delegates who successfully complete this course will be awarded an Asbestos Awareness Certificate of Attendance. Individuals undertake a multiple choice question paper at the end of the course and are awarded a certificate for correctly answering 75% of the questions.
Institution / Provider	QSP Training
Country	UK
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☒ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	3 hours
Scope of course	Up-skilling
Main focus	The course goes through how to respect and handle Asbestos, Identify the different types, the uses, how it can harm individuals and others and how to avoid harm from Asbestos.
Target audience information	Those who are involved or may become exposed in handling or disturbing Asbestos. People who make work as General Maintenance Staff, Electricians, Plumbers & Gas Fitters, Painters & Decorators, Construction & Demolition Workers, Joiners and Plasterers, Computing & Telecommunications Engineers, Heating & Ventilation Engineers, Roofers, Architects & Building Surveyors and Fire & Burglar Alarm Installers.
Core Modules / Topics addressed	-Brief understanding of the history of Asbestos to give the individuals full understanding of Asbestos Awareness. -Awareness of the danger of Asbestos, how to respect and handle Asbestos -Identification of the different types of Asbestos and uses -How to avoid harm from Asbestos
Knowledge/skills/competences (to be) obtained upon the completion of training	-It is a basic requirement for people working with Asbestos - Regulation 10 of the Control of Asbestos Regulations 2006 (CAR 2006) -Delegates are made aware of the danger of Asbestos -It reduces the likelihood of Asbestos becoming a problem whilst working
Source	http://www.qsptraining.co.uk/data-page.asp?PID=27

Course title: Level 3 Waste Supervisor Diploma	
Qualification / Accreditation	On successful completion of the qualification candidates receive a level 3 certificate and a portfolio recording their achievement to keep as a reference. The award is assessed against the set WAMITAB standard, allowing employees to develop the skills necessary to perform their role effectively.
Institution / Provider	QSP Training
Country	UK
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☒ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	To achieve this qualification a minimum of 59 credits must be achieved.
Scope of course	Up-skilling
Main focus	The course aim is to encourage best practice at supervising personnel and activities associated with sustainable waste management activities.
Target audience information	Employees who have supervisory and managerial roles in the Waste Management Industry.
Core Modules / Topics addressed	Group A (worth 47 credits) • Ensure that staff conform to productive and efficient working practices • Supervise health and safety in the working environment for waste management Activities • Supervise the work of others • Contribute to the management of the environmental impact of work • Provide leadership in area of responsibility Group B (worth a minimum 4 credits) • Manage own professional development within an organisation • Inspection of vehicles used in waste management facilities • Conforming to general safety in the workplace • Identify and evaluate sustainable resources in a waste environment Group C (ensuring that at least two of these are at Level 3 or above and therefore worth a minimum of 8 credits)

	• Control maintenance and other engineering operations • Manage the transfer of outputs and disposal of residues from remediation of contamination land • Control work activities on a waste management facility • Make effective decisions
Knowledge/skills/competences (to be) obtained upon the completion of training	Achievement of the qualification shows competence has been demonstrated by the learner to supervise personnel and activities associated with sustainable waste management activities.
Source	http://www.gsptraining.co.uk/data-page.asp?PID=14

Co-funded by the Erasmus+ Programme of the European Union

INTELLECTUAL OUTPUT 1 – O1-T2

ANNEX A: Data collection through desk research - GREECE

Data collection form for presenting information gathered via desk research on best practices in existing training provision in C&D waste management for construction site managers, in Greece.

Main Findings

Despite the fact that 'Waste Management' is a commonly met subject as a module in academic courses offered by the biggest universities in Greece (National Technical University of Athens, Aristotle University of Thessaloniki, Technical University of Crete, University of the Aegean), there is only a sporadic coverage C&D waste management (Waste from Excavation, Construction and Demolition in Greek); most often the modules are more general and cover C&D waste along with all other types of waste. Similarly the courses with a module in C&D waste are addressed to a wider group of professionals in the Building and Construction sector.

Schools/ Laboratories in specialised waste management fields operate within the big academic institutions of Greece, offering opportunities for further research and specialisation (M.Sc. and PhD courses), as well as participation in EU-funded research programmes, as follows:

University	Department	School/ Lab
National Technical University of Athens	Chemical Engineering	Thermodynamics & Transport Phenomena Laboratory
Democritus University of Thrace	Environmental Engineering	Laboratory for Solid and Hazardous Waste Management and Technology
University of the Aegean	Department of Environment	Waste Management Laboratory
Technical University of Crete	Environmental Engineering	Management of Toxic and Hazardous Waste Laboratory
		Management of Gaseous, Liquid and Solid Waste Laboratory
Aristotle University of Thessaloniki	Mechanical Engineering	Laboratory of Heat Transfer and Environmental Engineering
University of Western Macedonia	Energy Management Engineering	Renewable Energy Sources Laboratory
Western Macedonia – University of Applied Sciences	Department of Environmental and Pollution Control Engineering	Management of Toxic and Hazardous Waste
National Technical University of Athens	Chemistry	Laboratory of Environmental Chemistry
Aristotle University of Thessaloniki	Chemical Engineering	Environmental Engineering Laboratory

Moreover, digital courses and seminars, taught in the Greek Universities, are freely accessible and free of charge on the Internet for everyone. These courses offer new knowledge, training and specialization for all. As distance learning programs, they do not provide further teaching support and do not lead to the award of a training certificate.

In detail, the existing training provision on C&D waste management in Greece is listed below.

Course title: **Environmental Engineering and Waste Treatment**	
Qualification / Accreditation	No qualification
Institution / Provider	Technological Educational Institution of Piraeus (Mechanical Engineering Department)
Country	GR
Mode of study (check all that apply, e.g. in case of blended learning)	☐ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☒ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	Own pace
Scope of course	Up-skilling
Main focus	– Definition of different kinds of waste - Sources of waste – Waste management techniques – EU legislation – Hazardous waste treatment – Environmental Impact Assessment – Introduction in C&D waste management
Target audience information	Undergraduate students in Mechanical Engineering, interested in acquiring more knowledge on Waste Management
Core Modules / Topics addressed	• Waste management methods • Waste disposal sites (assessment and selection of controlled deposition sites) • Comparative assessment • Institutional framework • Monitoring and control systems • Legal framework
Knowledge/skills/competences (to be) obtained upon the completion of training	Basic knowledge on different types of waste and their management, including C&D waste.
Source	http://opencourses.gr/opencourse.xhtml?id=13857&ln=el

Course title: Building I - Workshop	
Qualification / Accreditation	No qualification
Institution / Provider	Technological Educational Institution of Piraeus (Civil Engineering Department)
Country	Greece
Mode of study (check all that apply, e.g. in case of blended learning)	☐ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☒ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	Own pace
Scope of course	Up-skilling
Main focus	– Calculation of the excavation and embankment volumes in the plot for the placement of the building – Draw a digging scheme and define coordinates at the characteristic points of the excavation
Target audience information	Undergraduate students interested in the physics and origin of the C&D waste
Core Modules / Topics addressed	
Knowledge/skills/competences (to be) obtained upon the completion of training	Acquisition on sufficient knowledge about the placement of a building on a plot and the drawing of a building diagram, the structure of the general excavation diagram, calculating the volume of excavations.
Source	http://opencourses.gr/opencourse.xhtml?id=13894&ln=el

Course title: Solid urban management waste (Unit 16. Waste from Excavation, Construction and Demolition)	
Qualification / Accreditation	No qualification
Institution / Provider	Aristotle University of Thessaloniki (Civil Engineering Department)
Country	Greece
Mode of study (check all that apply, e.g. in case of blended learning)	☐ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☒ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	Own pace
Scope of course	Up-skilling
Main focus	– Definition and Classification of waste – Collection and transfer of waste – Collection at sources – EU/national legislation on waste treatment according to waste type – Provision of guidance on the separation of materials
Target audience information	Undergraduate students
Core Modules / Topics addressed	– Requirement for an integrated waste management plan – Building sector and C&D waste management – Legislation, quantities – Recycling-reuse of C&D waste in EU – Hazardous waste – C&D treatment facilities – Pilot recycling units – Reduce, recycle, reuse
Knowledge/skills/competences (to be) obtained upon the completion of training	Understanding the quantitative and qualitative characteristics of municipal solid waste and its management processes.
Source	http://opencourses.gr/opencourse.xhtml?id=15097&ln=el

Course title: Waste management	
Qualification / Accreditation	Part of an M.Sc. (ECTS units: 120)
Institution / Provider	Hellenic Open University
Country	Greece
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	2 years
Scope of course	Obtain a certification
Main focus	The aim of the program is to provide specialized knowledge on the issues of Waste Processing Technologies and Decontamination Methodologies and to understand the complex structure and operation of the environment, which is the final recipient of the waste.
Target audience information	C-VET
Core Modules / Topics addressed	– Waste treatment technologies – Decontamination methodologies – Understanding the complex structure and operation of the environment – Relevant waste management legislation – Design of recycling systems – Rehabilitation and decontamination methodologies
Knowledge/skills/competences (to be) obtained upon the completion of training	Offers: – specialised knowledge in Waste Management Techniques, Health and Environment Protection – skills in solve practical issues regarding waste management
Source	https://www.eap.gr/el/programmata-spoudwn/60-diaxeirisi-apovliton-msc/598-64e125a48ba1f2dc67c2d7bd177babaa

„COnstruction and DEmolition waste management training for Site Managers - CODESMA"

ERASMUS+ PROJECT

INTELLECTUAL OUTPUT 1 - Data-driven learning outcomes on C&D waste management.

O1 - T2. REPORT FROM DATA COLLECTION PERFORMED BY THE POLISH ASSOCIATION OF BUILDING MANAGERS (PSMB)

Summary

Field and desk research was conducted on current and emerging training and skills needs on C&D waste management. PSMB based on the provided methodological guidance and tools collected national data from the research target groups located in Poland. Some of the target groups that were reached during this task were: VET providers, field experts, employers and sector representatives.

Data collection took place during face-to-face meetings on different occasions such as conferences and associated focus groups, Faculty Advisory Board meetings (Faculty of Civil Engineering, Warsaw University of Technology), discussions with numerous construction site managers in groups and individually etc. Some of the desk researches ended up with filled report according to methodology developed by the partnership (scans to be attached), but also a lot of the remarks were gathered and written separately, outside of the agreed sheets, as being a good addition to the research subject. Responses and additional remarks are gathered and described in the following report.

Qualification / Accreditation

In general, there are no formal qualifications or systems of accreditation especially dedicated to construction and waste management and disposal. Polish law regulates the ways of dealing with waste (including industrial and construction waste) with three Acts, from which most important one dates 14/12/2012. This Act clearly defines responsibilities of "Waste Generator" and "Waste Owner". No additional trainings or accreditations of qualifications are mentioned it those acts, that could be required from site managers responsible to proper waste management.

Responsibilities of small private contractors and construction companies are similar, however they differ in terms of payment duties:

- Private owner of property (flat, apartment, house), while performing a renovation/refurbishment of his property, may dispose construction waste produced in special container which will be picked up and utilized by contracted waste disposal company delivering services. This should be done without additional charge.
- In all other cases, when a contractor, subcontractor, company, client is performing construction project, demolishing or refurbishing works, this company is obliged by law, to provide specialized containers for construction and demolishing waste, or to sign an agreement with specialized waste management and utilization company to pick up and deal with the waste.

In both cases the waste should be sorted and prepared for pickup and utilization at the construction site. Waste management company should have official certificates confirming its ability to manage, store, sort, recycle and re-use construction and demolition waste and should provide specialised containers and/or bags having relevant certificates for such use.

On 24/01/2018 a new Act will start to be obligatory, adding new responsibilities to construction companies and entrepreneurs regarding proper ways of dealing with waste, and what is more important, adding reporting duties to relevant body - The National Centre for Emissions Management (KOBiZE).

Institution / Provider

On Polish market there are not many training providers in terms of construction and demolition waste management. Majority of courses refer to proper ways of contracting waste pickup and reporting to relevant bodies (such as KOBiZE). In general there are three main types of course providers:

- private training companies
- governmental bodies: Ministry of the Environment, The National Fund for Environmental Protection and Water Management (NFEP&WM), and The National Centre for Emissions Management (KOBiZE)
- Waste Management and Treatment Companies (Lekaro, MPO, ALBA etc.)

It is worth mentioning that this subject is also discussed during studies in civil engineering courses, for example on Warsaw University of Technology, Faculty of Civil Engineering. There are no individual courses/subjects solely covering the problem of waste management, but they are mentioned on different occasions such as on subjects: Basis of Construction Management, Refurbishments, Construction Law, Project Management etc. These topics are also discussed during post-graduate studies, such as “Management in Construction” – RICS accredited course (link below).

Mode of study (check all that apply, e.g. in case of blended learning)

Courses are in most cases class-based trainings.

Duration (either hours/days/ months or own pace in case)

Most of the courses are one or two day trainings. At universities, the subject of waste management, in total, is covered during several hours of classes (BSc, MSc or post-graduate studies).

Scope of courses

- law regulations in 2018
- waste management on site in practice
- recording and reporting waste production and utilization
- fines and monitoring visits

Main focus

- The legal framework for waste management with particular reference to construction
- How to manage waste on site more effectively and according to regulations

Target audience information

Site managers, engineers, specialists.

Core Modules / Topics addressed

Core modules and topics addressed during courses are similar to scope of courses mentioned above:

- law regulations in 2018
- waste management on site and in practice
- recording and reporting waste production and utilization
- fines and monitoring visits

Knowledge/skills/competences (to be) obtained upon the completion of training

Implement waste strategies at all stages of a building or structure's life cycle and proper reporting, compliant with law regulations.

Sources

https://www.nfosigw.gov.pl/en/

https://legalnabudowa.pl/artykuly/gospodarka-odpadami-na-budowie.html

https://www.szkolenia.com.pl/katalog/szkolenie/65459

http://www.alba.com.pl/odpady_przemyslowe_i_obsluga_firm/doradztwo_srodowiskowe

http://www.portalsamorzadowy.pl/ochrona-srodowiska/odpady-komunalne-segregacja-nfosigw-organizuje-szkolenia,99482.html

http://www.szkolenia-semper.pl/component/trainings/details/print/393.html

http://www.kobize.pl/en/page/id/409/o-nas

http://www.spzwb.il.pw.edu.pl/

A. Desk research data collection form – best practices

Data collection form for presenting information gathered via desk research on best practices in existing training provision in C&D waste management for construction site managers.

Course title: Asbestos: demolition, restoration and maintenance (based on TRGS 519, annex 3)	
Qualification / Accreditation	Certification of expertise (non-formal)
Institution / Provider	Bildungszentren des Baugewerbes e.V.
Country	Germany
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	4,5 days (35 hours in class incl. test preparation)
Scope of course	Obtain a certification
Main focus	– Asbestos characteristics and health hazards – Use of asbestos – Regulations and duties to treat asbestos – Personal requirements – Safety technical measures – Final works, success control, release
Target audience information	Site manager, foremen and specialists in companies working in restoration of asbestos, public authority staff, crafts masters, technicians and civil-engineers
Core Modules / Topics addressed	See “main focus”
Knowledge/skills/competences (to be) obtained upon the completion of training	See “main focus”
Source	https://www.bzb.de/seminare/alle-seminare/seminar/64

(Please copy the table as many times as needed)

A. Desk research data collection form – best practices

Data collection form for presenting information gathered via desk research on best practices in existing training provision in C&D waste management for construction site managers.

Course title: Integated course for ASI works related to asbestos-cement-products and ASI works of minor scope related to weakly ligated asbestos (based on TRGS 519, annex 4 C) → ASI works: A=Abbruch=demolition, S=Sanierung=restoration, I=Instandhaltung=maintenance	
Qualification / Accreditation	Certification of expertise (non-formal)
Institution / Provider	Bildungszentren des Baugewerbes e.V.
Country	Germany
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	2,5 days (19 hours in class incl. test preparation)
Scope of course	Obtain a certification
Main focus	– Asbestos cement characteristics and health hazards – Use of asbestos cement – Regulations and duties to treat asbestos and asbestos cement – Personal requirements – Safety technical measures – Waste disposal
Target audience information	Entrepreneurs, site management staff, crafts masters, skilled workers
Core Modules / Topics addressed	See “main focus”
Knowledge/skills/competences (to be) obtained upon the completion of training	See “main focus”
Source	https://www.bzb.de/seminare/alle-seminare/seminar/65

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A. Desk research data collection form – best practices

Data collection form for presenting information gathered via desk research on best practices in existing training provision in C&D waste management for construction site managers.

Course title: Course for obtaining expertise in ASI works related to asbestos-cement-product (based on TRGS 519, annex 4 A) **→ ASI works: A=Abbruch=demolition, S=Sanierung=restoration, I=Instandhaltung=maintenance**	
Qualification / Accreditation	Certification of expertise (non-formal)
Institution / Provider	Bildungszentren des Baugewerbes e.V.
Country	Germany
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	2,0 days (14 hours in class incl. test preparation)
Scope of course	Obtain a certification
Main focus	– Asbestos cement characteristics and health hazards – Use of asbestos/asbestos cement – Regulations and duties to treat asbestos and asbestos cement – Personal requirements – Safety technical measures – Waste disposal
Target audience information	Entrepreneurs, site management staff, crafts masters, skilled workers; main target group stems from roofers´ branch
Core Modules / Topics addressed	See “main focus”
Knowledge/skills/competences (to be) obtained upon the completion of training	See “main focus”

Source	https://www.bzb.de/seminare/alle-seminare/seminar/66

(Please copy the table as many times as needed)

A. Desk research data collection form – best practices

Data collection form for presenting information gathered via desk research on best practices in existing training provision in C&D waste management for construction site managers.

Course title: Further training Asbestos experts based on TRGS 519, annex 3	
Qualification / Accreditation	Certification of expertise (non-formal)
Institution / Provider	Bildungszentren des Baugewerbes e.V.
Country	Germany
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	1,0 day (8 hours in class incl. test preparation)
Scope of course	Obtain a certification
Main focus	– Asbestos in use and characteristics – Updated regulations and obligations – Hints for limits in use – Technical and organizational measures – Personal protective equipment
Target audience information	Experts along TRGS 519 annex 3, experts interested in exchange of experience, monitoring experts on renovation sites, skilled workers in renovation
Core Modules / Topics addressed	See “main focus”
Knowledge/skills/competences (to be) obtained upon the completion of training	See “main focus”
Source	https://www.bzb.de/seminare/alle-seminare/seminar/67

(Please copy the table as many times as needed)

A. Desk research data collection form – best practices

Data collection form for presenting information gathered via desk research on best practices in existing training provision in C&D waste management for construction site managers.

Course title: Foreman for demolition and technique for separation of concrete	
Qualification / Accreditation	Certification of expertise (non-formal)
Institution / Provider	VET centre Hamm (Construction academy west)
Country	Germany
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	2,0 weeks fulltime
Scope of course	Obtain a certification
Main focus	– Basics in mathematics – Labour law and social law – Human resource management – Work preparation – Avoiding work accidents and work protection – Documentation and reporting – Building site organization – Surveying – Demolition works – Drilling and sawing of concrete – Machine engineering
Target audience information	Skilled workers
Core Modules / Topics addressed	See “main focus”

Knowledge/skills/competences (to be) obtained upon the completion of training	See “main focus”
Source	https://www.deutscher-abbruchverband.de/events/abz-hamm-lehrgang-vorarbeiter-abbruch-und-betontrenntechnik/ http://bauakademie-west.de/bildungsprogramm/bautechnik/lehrgaenge-zum-vorarbeiter/?baw%5Bveranstaltung%5D=57

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A. Desk research data collection form – best practices

Data collection form for presenting information gathered via desk research on best practices in existing training provision in C&D waste management for construction site managers.

Course title: Register for noxious substances with demolition of premises	
Qualification / Accreditation	Certification of expertise (non-formal)
Institution / Provider	Building Academy Nürnberg
Country	Germany
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	2,0 days fulltime (several dates and places throughout Germany)
Scope of course	Obtain a certification
Main focus	– Legal framework – Problematic substances in demolition – Primary noxious substances in building materials – Contamination due to premise in operation – Problems related to types of premises, building styles and era – Fire damages followed by specific products from this, rehabilitation of fire damages and disposal – Practical procedures – Engineering and consulting services – Public procurement – Disposal related issues – Calculation of masses and costs – Check lists and sources of information
Target audience information	Staff of public authorities (construction and monitoring), architects, civil-engineers and geologists in fields of

	contaminated land, renovation, rehabilitation and recycling of building areas
Core Modules / Topics addressed	See “main focus”
Knowledge/skills/competences (to be) obtained upon the completion of training	See “main focus”
Source	https://www.deutscher-abbruchverband.de/events/bauakademie-gmbh-nuernberg-seminare/ http://bau-akademie.de/schadstoff-kataster.html

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A. Desk research data collection form – best practices

Data collection form for presenting information gathered via desk research on best practices in existing training provision in C&D waste management for construction site managers.

Course title: Expertise in machines and tools for asbestos treatment – TRGS 519 no. 5.3	
Qualification / Accreditation	Certification of expertise (non-formal)
Institution / Provider	Competenza GmbH
Country	Germany
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	1,0 day (several dates and places throughout Germany)
Scope of course	Obtain a certification
Main focus	– Asbestos: characteristics, health hazards and works – Use, check and maintenance of venue independent dedusters – Use, check and maintenance of personal protective equipment – Use, check and maintenance of positing systems
Target audience information	Staff who monitors rehabilitation projects, skilled experts from rehabilitation companies, planning and engineering consultants, demolition companies, environmental protection officers
Core Modules / Topics addressed	See “main focus”
Knowledge/skills/competences (to be) obtained upon the completion of training	See “main focus”
Source	https://www.deutscher-abbruchverband.de/events/competenza-gmbh-seminare/ https://www.competenza.com/index.php/academy/kursangebot/asbest-und-kmf/trgs-519-geraetefachkunde-asbest

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A. Desk research data collection form – best practices

Data collection form for presenting information gathered via desk research on best practices in existing training provision in C&D waste management for construction site managers.

Course title: Damages by mould	
Qualification / Accreditation	Certification of expertise (non-formal)
Institution / Provider	ASUP GmbH
Country	Germany
Mode of study (check all that apply, e.g. in case of blended learning)	☒ Class-based learning ☐ Work place-based learning ☐ Synchronous e-learning ☐ Asynchronous e-learning ☐ Other type of distance learning
Duration (either hours/days/ months or own pace in case)	1,0 day (several dates and places in Duisburg and Seevetal)
Scope of course	Obtain a certification
Main focus	– Introduction of mould problems indoors – Visible and non-visible contamination – Optimal growing circumstances, building deficits, water damages, heating / ventilation – Detection and sample taking – Measures accompanying the rehabilitation – Technical, organizational and personal protective measures – Instructing staff – Working methods and procedures
Target audience information	Staff with relevant pre-knowledge and good German language skills
Core Modules / Topics addressed	See “main focus”
Knowledge/skills/competences (to be) obtained upon the completion of training	See “main focus”
Source	https://www.deutscher-abbruchverband.de/events/asup-seminare-ab-zweitem-halbjahr-2017-auszug/

	https://asup.info/index.php?force_sid=8074fd775d8c76e2929d6ecf49d9f674&

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Co-funded by the
Erasmus+ Programme
of the European Union

CODESMA
COnstruction and DEmolition waste
management training for Site MAnagers

Coventry University

ANNEX 4

Quick reference table of construction and demolition waste management training provisions in project partners' countries

Lithuania		Poland		Greece		Germany		UK	
Main focus	Modules/topics	Main focus	Modules/topics	Main focus	Modules/topics	Main focus	Modules/topics	Main focus	Modules/topics
Risk management	Identification of construction waste	law regulations in 2018	law regulations in 2018	Definition of different kinds of waste - Sources of waste	Waste management methods	Asbestos characteristics and health hazards	Asbestos cement characteristics and health hazards	Demolition waste management	Legislation Environmental management Control of hazardous substances
Identification of construction waste	The impacts of construction waste	waste management on site in practice	waste management on site and in practice	Waste management techniques	Waste disposal sites (assessment and selection of controlled deposition sites)	Use of asbestos	Use of asbestos cement	Environmental waste awareness for construction projects	Regulations and enforcement Monitoring and record keeping Best practices on site
The impacts of construction waste	The legal framework for waste management with particular reference to construction	recording and reporting waste production and utilization	recording and reporting waste production and utilization	EU legislation	Ccomparative assessment	Regulations and duties to treat asbestos	Regulations and duties to treat asbestos and asbestos cement	Environmental knowledge for subcontractors	Legal compliance and best practices Waste management Energy and resources
The legal framework for waste management with	Health and safety of workers	fines and monitoring visits	fines and monitoring visits	Hazardous waste treatment	Iinstitutional framework	Personal requirements	Personal requirements	Removal of Hazardous waste- asbestos	General health an safety

Quick reference table of construction and demolition waste management training provisions in project partners' countries

particular reference to construction									Moving handling and storing Best practices in the work place
Health and safety of workers	Risk management			Environmental Impact Assessment	Monitoring and control systems	Safety technical measures	Safety technical measures	Waste awareness	Identification of C&D waste generated Guidance on separation of materials
The legal framework for waste management with particular reference to construction	The legal framework for waste management Completing waste management documentation and accounting			Introduction in C&D waste management	Legal framework	Final works, success control, release	Waste disposal	Waste documentation training	Definition of waste Legal requirement How to complete waste documentation
Environmental protection documentation and its application for waste management object.	Legal regulation of waste management activities. Recent and planned changes.			Definition and Classification of waste	Requirement for an integrated waste management plan			Health and safety awareness	Recognising health hazarads Integrating safety quality and productivity

Quick reference table of construction and demolition waste management training provisions in project partners' countries

									Using BIM to identify hazards early
Environmental Impact Assessment procedures.	Environmental requirements for waste management activities			Collection and transfer of waste	Building sector and C&D waste management			The duty of care in waste management	Familiarising with statutory Code of Practice Understanding your role in waste management process Know how to complete a waste transfer note
Integrated Pollution Prevention and Control.	Waste generation and management accounting.			Collection at sources	Legislation, quantities			Hazardous Waste regulations	Legal basis of regulations Management of sites Implementation of regulation
Hazardous waste management.	Integrated Pollution Prevention and Control.			EU/national legislation on waste treatment according to waste type	Recycling-reuse of C&D waste in EU			Waste legislation	Waste hierarchy Waste management chain

Quick reference table of construction and demolition waste management training provisions in project partners' countries

Completing waste management register.				– Waste treatment technologies	Hazardous waste			Managing waste	Legislation Duty of care Environmental permits
Taking responsibility.				Decontamination methodologies	C&D treatment facilities			Waste supervision	Efficient working practices Health and safety supervision Management of the environmental impact of waste
				Understanding the complex structure and operation of the environment	Pilot recycling units				
				Relevant waste management legislation	Reduce, recycle, reuse				
				Design of recycling systems					
				Rehabilitation and decontaminati					

Quick reference table of construction and demolition waste management training provisions in project partners' countries

				on methodologies					