

Learner's Guide

<i>Project title:</i>	Whole Life Management of Sustainable Construction
<i>Project acronym:</i>	WhLMSC
<i>Project number:</i>	2012-1-GB2-LEO05-07807
<i>Agreement Number:</i>	UK/12/LLP-LdV/TOI-501
<i>Project instrument:</i>	Leonardo da Vinci (Transfer of Innovation)
<i>Document type:</i>	Deliverable
<i>Nature of document:</i>	Guideline/Manual
<i>Author:</i>	Whole Life Consultants Ltd
<i>Pertinent Work package:</i>	WP4, WP5, WP6

WhLMSC Learner’s Guide.....	2
1. Introduction.....	2
2. Background.....	2
3. Training target.....	2
4. Modules.....	3
a. Module 1: Sustainable Development and Construction.....	3
b. Module 2: Integrated Sustainability Assessment	4
c. Module 3: Sustainable Procurement	5
5. Training Material	6
a. Core Training Material: Presentations covering the curriculum.....	6
b. Supplementary Training Material: All other material pertinent to the modules and units utilised by the Trainer(s) to support the core material	6
6. Online Material - Moodle	7
7. Conclusion	8

WhLMSC Learner's Guide

1. Introduction

The Whole Life Management for Sustainable Construction project is undertaken within the context of the European Commission co-funded Leonardo da Vinci - Transfer of Innovation programme. Its aim is to promote awareness and knowledge regarding the implementation of sustainability in the construction industry, primarily through transfer of knowledge via training sessions.

This guide provides an overview of the material comprising the educational material available to trainees participating the project, explaining the content and the breakdown of the core elements presented in the sessions and giving links and guidelines to access secondary material made available to the participants for further study.

2. Background

Europe's construction sector is aware of the need to minimise its impact on sustainability: environmentally, socially and economically. There is growing recognition that there is a lack of knowledge in the management of sustainable construction throughout the life cycle of a constructed facility and a lack of appreciation of the need for a holistic approach. In the past efforts have focussed on training in technology and technical issues pertaining to sustainability. This project however addresses the need to enhance vocational skills in whole life management issues in sustainable construction which have not been previously addressed in detail. These include procurement, innovation, assessment, stakeholder engagement and more.

The project highlights the importance of shifting the mind-set to embrace the management of sustainable construction and the need to transfer knowledge that encourages the development of holistic life-cycle approaches to delivering sustainable solutions in a simple and clearly defined manner.

3. Training target

The training is aimed at those who would like to understand the principles of sustainability assessment. It will be of particular interest to those involved in designing, constructing, operating and maintaining projects within client, design and contracting organisations and for materials manufacturers, suppliers, clients, sustainability assessors and academics.

Participants will gain an understanding of what they need to consider when carrying out a sustainability assessment.

4. Modules

The curriculum of the project has been broken down into three modules with thematic consistency. While the delivery method may vary and the content be slightly adjusted to better suit the needs of each training session's corresponding audience, the core of the project's content will remain intact and will revolve around the guidelines and bullet-points presented here.

Also presented are the learning objectives of each unit, to better help prospective learners assess the relevance of the material to their needs.

a. Module 1: Sustainable Development and Construction

Module Summary:

Developing sustainability is one of the most important issues facing the world at present. This module explores the history of sustainable development, sustainable construction, context and principles, and the management of sustainable construction projects. This module helps participants develop an understanding of how sustainable construction can be organised and managed to realise the benefits.

Key topics:

- Introduction to sustainable development and its principles
- The construction industry issues and its challenges for sustainable development
- Sustainable construction drivers, initiatives and policies
- Sustainable construction impacts
- Environmental, social and economic benefits from sustainable construction
- The role of construction industry to help meeting the EU Sustainable Development targets

Learning outcomes by unit:

Unit 1: Sustainable development fundamentals (0.5 day)

- Understand the principles and themes of sustainable development
- Understand the challenges of meeting sustainable development and the issues facing the world at present

Unit 2: Sustainable construction fundamentals (1 day)

- Understand the whole life thinking
- Understanding the language of sustainable construction
- Understand the drivers of sustainable construction
- Understand the principles, issues and the challenges of sustainable construction
- Understand sustainable construction impact
- Learn how the impact of the construction on sustainability can be reduced
- Learn the importance of integrating design and construction
- Learn how sustainable construction is achieved in practice

Unit 3: Management of sustainable construction (0.5 day)

- Understand the relation between project management and sustainability
- Understand the importance of team integration and stakeholder engagement to achieve a high level of sustainability
- Understand how to take into account sustainability requirements throughout the life cycle of a construction project

Unit 4: EU directives and policies (0.25 day) & Sustainability of construction works CEN/TC 350 fundamentals (0.25 day)

- Understand an overview of the EU directives and policies and their impact on the construction industry
- Understand the CEN/TC 350 standards, its work packages

b. Module 2: Integrated Sustainability Assessment

Module Summary:

The built environment has special importance within the broader context of sustainable development. The built environment directly and indirectly is responsible for the consumption of large amounts of natural resources, energy and the production of significant quantities of pollution. Huge direct and indirect social, economic and environmental consequences are thus associated with the way we design, build, operate, maintain and ultimately dispose of buildings and their support systems. Sustainability assessment as “a tool that can help decision-makers and policy-makers decide what actions they should take and should not take in an attempt to make society more sustainable”. Many tools have been developed to support the implementation of sustainable construction. Each kind of tool is designed to assess one or more sustainability dimensions (environment, social and economic). This module explores the concept of sustainability assessment, development of sustainable construction indicators, context and principles of key sustainability assessment tools, and integrated sustainability assessment toolkits. This module helps participants develop an understanding of how holistically can manage and assess sustainability of construction projects.

Key topics:

- Sustainability assessment management protocol throughout the life cycle
- Sustainable construction indicators
- Development of sustainable construction index
- Principles of sustainability assessment methods and tools
- Introduction to sustainability methods and tools (including LCA, EIA, WLC, BREEAM, etc)
- Stakeholder values and engagements
- Integrated sustainability assessment toolkit

Learning outcomes by unit:

Unit 1: Sustainability assessment fundamentals (0.25 day)

- Understand the concept, purpose and principals of sustainability assessment

- Understand sustainability assessment protocol through the whole life cycle
- The drivers surrounding the selection of sustainability assessment issues
- Understand the barriers affecting sustainability assessment
- The difficulties of assessment
- The need for integration

Unit 2: Sustainable construction indicators (0.25 day)

- Meaning of indicators
- Characteristics of effective indicators
- Steps of developing indicators
- Frameworks for sustainability indicators development
- The challenge of coming up with good indicators
- The process of developing a composite indices
- Managing a sustainable construction site

Unit 3: Sustainability assessment tools (0.5 day)

- What are sustainability assessment tools
- What are sustainability impacts
- An overview of impact-led tools
- Building rating systems

Unit 4: Integrated sustainability assessment toolkit (0.25day)

- Understand the role of stakeholders in the assessment
- Understand how to engage with stakeholders
- Understand the concept and structure of an integrated sustainability assessment toolkit (ISAT)

c. Module 3: Sustainable Procurement

Module Summary:

“Sustainable Procurement is a process whereby organisations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits to society and the economy, whilst minimising damage to the environment”. Understanding this process can lead to achieving value-for-money, which is defined as the optimal combination of whole life cost and quality (fitness for purpose) to meet the user’s requirement. The aim of this module is to equip the attendees with the knowledge to deliver sustainable procurement and understand the procurement procurements rules. The focus of the module is to consider environmental, social and economic issues in procurement, within the context of achieving value for money. The attendees will also understand the whole life costs implications of procurement decisions.

Key topics:

- Introduction to procurement process
- The role of procurement in sustainable construction outcome
- Embedding sustainability performance into the procurement process

- Achieving value for money through sustainable procurement
- Impact of sustainable procurement on construction supply chain
- EU initiatives of sustainable procurement

Learning outcomes by unit:

Unit 1: Sustainable procurement fundamentals (0.25 day)

- Introduction to procurement process
- The role of procurement in sustainable construction
- Embedding sustainability performance into the procurement process
- Achieving value for money through sustainable procurement
- Impact of sustainable procurement on construction supply chain
- EU initiatives of sustainable procurement

Unit 2: Sustainable procurement: value for money and whole life costing (0.25 day)

- The principles whole life value
- The principles and process of WLC/LCC
- The factors affecting WLC/LCC analysis
- The new ISO-15686-5 standard and the SMLCC
- Risk and uncertainty associated with LCC

5. Training Material

The Training Material can be divided into two distinct categories:

a. Core Training Material: Presentations covering the curriculum

These presentations contain the entirety of the material of the curriculum's project, and form a complete body of knowledge which can sufficiently educate the trainees in sustainable construction.

Certain elements can vary on occasion, such as the language of delivery or details pertaining to local legislation/climate conditions etc. but great care is taken to ensure that the essence of the educational material remains undiluted and complete.

b. Supplementary Training Material: All other material pertinent to the modules and units utilised by the Trainer(s) to support the core material

This material can be of manifold nature:

- i. Practice guides,
- ii. Action plans,
- iii. Official methodologies,

- iv. Papers,
- v. Reports etc.

The source of this material can be equally disparate: official governmental authorities, professional bodies, scientific journals, independent commissions etc.

This material is not considered to be essential to the training, but can contribute to the training procedure by shedding light on the background, current tendencies, and future projections on the state of the industry and where sustainability fits into the different aspects of construction. By its nature this material is heavily informed by the current state and perceived developments in local level and varies greatly between training sessions.

It is important to note that this material is considered optional, and is not required to gain a good and competent understanding in sustainable construction.

6. Online Material - Moodle

The Moodle open-source learning platform provides a handy and practical framework to set up online learning courses, training sessions, material libraries etc.

The project's material can be accessed through the project's website at <http://www.whole-life-construction.eu/>; the link to Moodle is on the upper right portion of the page, and also under the Training tab.

All of the core and most of the supplementary material will be made available through Moodle. Availability and access to the material will depend on the organisations administering the training in each country and the enrolment rules applying to each case.

The platform will also be used to conduct forum discussions and assessment exercises for participants of the regular training events.

7. Partners

The consortium comprises the following partners, all of them delivering training in their native countries and language. For more information on events and material in your language of preference, please visit the partner's website or contact them directly

Partner Organisation	Country	Website	Contact E-mail
WLC Ltd.	United Kingdom	http://www.wlcuk.com/	enquiries@wlcuk.com
PPP Centar	Croatia	http://www.pppcentar.com/index.php/en/	info@pppcentar.com
Frederick	Cyprus	http://www.frederick.ac.cy/	info@frederick.ac.cy

University			
DOCTUM	Spain	http://www.doctum.es/	through the website
ForSAS	Italy	http://www.forsas.it/index.php?lang=it	info@forsas.it

8. Conclusion

The material contained within this guide provides an overview of the project's goals and contents, allowing anyone interested in receiving training in sustainable construction to gain an understanding of what the project offers, and the knowledge they can expect to receive during through their participation in the training events.

The material and guidelines contained herein are pertinent to the WhLMSC project and so the handbook should not be used after 30 September 2014.