



## Work Package 5- Standard EU Training Package – Report



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# 1. Introduction and development of the course outline and competencies

Work Package (WP) 5 – the Standard EU Training Package was led by Rural Development Initiatives Limited.

The main aims of the work package were to produce:

- a. a course outline
- b. learning outcomes
- c. assessment criteria
- d. and course materials

for a standard EU wide training programme on woodfuel production and supply.

Table 1 below sets out the timetable for the completion of this Work Package.

Month	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13
Month Number	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
<b>WP 5 Standard EU Training Package</b>																
Define learning outcomes																
Produce course outline (based on competency list)																
Develop assessment criteria																
Develop learning resources																
Produce quality assurance process																
Revise outline, criteria and resources in light of feedback																
Produce discussion document on engagement																

**Table 1. WP5 Timetable**

Under WP3 a training needs assessment of woodfuel suppliers from across the 6 partner countries was completed and an analysis undertaken by the Estonian partners, Eremets. A report on this analysis has been produced as part of WP3. This training needs analysis was then used to create a

wide ranging consultation of woodfuel suppliers, again from across the 6 partner countries, on the core competencies of woodfuel suppliers. These competencies were presented under the results of WP4.

The consultation produced 6 core competencies as follows:

- I. Woodfuel and Energy
- II. Woodfuel quality and properties
- III. Sustainability
- IV. Woodfuel logistics
- V. Further processing of woodfuel
- VI. Woodfuel entrepreneurship

These 6 core competencies were used to create the course outline and in turn set the required learning level. After detailed discussions at both the meetings in Estonia in September 2012 and Austria in December 2012 it was agreed that learning levels should be set at levels 2 and 3 with the following European Framework Qualification descriptions as follows:

*Level 2:* work or study under supervision with some autonomy

*Level 3:* Take responsibility for completion of tasks in work or study; adapt own behaviour to circumstances in solving problems

The core competencies were used to produce the course outline, with each core competency making up a Unit. Each of the 6 Units were then further sub divided into sub units as a result of the consultation undertaken in WP4.

Following the first lead trainer event in France in November 2012, the core competencies and therefore unit structure was re-ordered as follows:

- I. Woodfuel and Energy
- II. Woodfuel logistics
- III. Further processing of woodfuel
- IV. Woodfuel quality and properties
- V. Sustainability
- VI. Woodfuel entrepreneurship

The final Unit structure, course outline and competencies are shown in Table 2. Course outline below.

Unit Number	Name	Sub unit number	Name	Level
1	Woodfuel and energy	1.1	Concepts of energy, forestry and woodfuel	2

		1.2	Knowledge of the energy content of woodfuel products	2
		1.3	Basics of energy technologies and processes	2
		1.4	Use of wood products as sources of energy	3
		1.5	Typical physical characteristics of the main 2 woodfuel types - woodchip and firewood	3
		1.6	Sources of raw material for each product	3
		1.7	Comparative advantages and disadvantages of each woodfuel	3
		1.8	Typical production methods of woodchips and firewood	3
		1.9	The carbon balance of woodfuel	3
2	Woodfuel Logistics	2.1	Harvesting and on site transportation of woodfuels	2
		2.2	Nutrient removal from the forests caused by woodfuel harvesting	2
		2.3	Woodfuel storage for transportation and processing	3
		2.4	Understanding the range of local storage options available for firewood and chipped woodfuel	3
		2.5	Understand the range of delivery options for firewood and woodchips	3
		2.6	Understand the issues associated with fuel delivery at the point of use and can plan for suitable delivery	3
3	Further processing of woodfuel	3.1	Awareness of the range of splitting, processing and chipping machinery available and the individual operating characteristics of each type.	2
		3.2	Awareness of the range of screening technology and characteristics of each	2
		3.3	Specialist knowledge to select appropriate methods for reducing timber moisture content on-site	2
4	Woodfuel quality and properties	4.1	The importance of moisture content of woodfuels	2
		4.2	The importance of particle size of woodfuels	2
		4.3	The quality of woodfuel raw material	3

		4.4	The general quality requirements of woodfuel products	3
		4.5	Awareness of current solid wood fuel standards and specifications and the importance of maintaining quality and consistency	3
		4.6	Understanding of woodfuel quality assurance processes	3
		4.7	Ability to collect a representative sample of woodfuel for testing	3
		4.8	Ability to perform basic testing of woodfuel products for moisture content using a hand held or portable device	3
		4.9	Basic knowledge of the different types of wood combustion systems and equipment, log burners, woodchip boilers etc. and the efficient incineration to minimise emissions	3
5	Sustainability: Ecological, economic, social, cultural	5.1	Understanding of the main positive and negative environmental, economic and social impacts of woodfuel	2
		5.2	Define the sustainability credentials of woodfuel	3
		5.3	Understand the implications both economic and environmental of delivery distances and volumes on woodfuel transportation	3
		5.4	Impact on the ecology or managing land for woodfuel production including nutrient removal from woodfuel harvesting operations	3
		5.5	Knowledge of alternative uses of wood – preferring other material use, re-use and recycling before energy use.	2
6	Woodfuel entrepreneurship	6.1	Understand the economics of the full supply chain, from forest to boiler, for both woodchips and firewood	3
		6.2	Understanding of the concept of selling heat to potential customers	3
		6.3	The necessary skills to market, promote and sell wood fuel products to a wide range of customer types.	3
		6.4	Awareness of the value of timber for non woodfuel markets	3
		6.5	Ability to take into account the regulations, orders, and instructions pertaining to the	3

			preparation of timber for woodfuel	
		6.6	To draw up a plan for the work involved in the further processing of woodfuel	3
		6.7	Know how to write a material safety data sheet for woodfuel products	3

**Table 2. Course outline**

## **2. Defining learning outcomes and assessment criteria**

Once the course outline was developed, learning outcomes and assessment criteria were developed.

The excel spread sheet – *WP5 WETNet Unit Structure and core competencies* - which accompanies this report provides a full breakdown of the learning outcomes and assessment criteria on a sub unit basis.

## **3. Development of the learning resources**

Once the full unit structure, learning outcomes and assessment criteria were in place, the learning resources and course materials were produced.

The course materials were initially presented as technical data backed up with case studies, exercises and images in Microsoft PowerPoint format supported by handbooks for each of the Units. The materials were developed in this way to allow the first lead trainer event to be used as a pilot to test both the course structure and materials including the technical content in front of a team of experienced woodfuel trainers and experts. This event, held in France in November 2012 is discussed in the WP 6 report.

The feedback from this event was used to restructure the course outline (see section 1 above for changes to the course outline) and to improve on the presentation of the technical data and case studies.

It was agreed following the Lead Trainer event in France that just the PowerPoint slides would be used as the core learning resource and course materials. This would allow changes to be more easily made as just one document would need to be edited rather than 2. Further changes were made to the materials following the course in France with a second version being presented at the Austria Lead Trainer event in February 2013. Further feedback was gained from this event and a final draft of the course materials produced ready for each of the partner countries to use at their own Train the Trainer courses. See WP6 report for more details.

In addition to the core PowerPoint based course materials, other learning resources to support the training programme were developed and these are listed in **Error! Reference source not found.** below.

Once all partner Train the Trainer courses were completed during the summer, further adjustments to the course outline and materials were made. The final course outline is produced in Table 2 above with the full sub unit breakdown presented in the excel spread sheet - *WP5 WETNet Unit Structure and core competencies*. The core course materials are presented in the PowerPoint files Unit 1 to Unit 6 along with additional supporting documents in Microsoft Excel and Word format.

Unit	For demonstrations and site visits	For the classroom
1	Visit to woodfuel processing site with firewood processing and splitting machines, woodchippers/shredders capable of producing firewood and woodchips.	Handbooks Calculators Samples of firewood Samples of woodchips made from a chipper Samples of woodfuel from a hammer mill or shredder (Hog fuel)
2	Visit to a woodland harvesting site, woodfuel storage facility and woodfuel delivery site.	Handbooks Calculators Exercises Fuel samples as per unit 1
3	Live demonstration or woodfuel processing, firewood and woodchip, with a visit to a woodfuel processing site to show storage, processing and handling.	Handbooks Calculators Exercises Fuel samples
4	Visit to a fuel processing and storage depot where firewood and or woodchips are produced. Access to fuel storage area is required in order for trainees to practice sampling techniques.  For sampling and testing: Small stock pile of woodchips (25-500m <sup>3</sup> ) Sample tools-4-5litre shovels, weight scales Sample bagging equipment-air tight plastic sacks, tape	Handbooks Calculators Fuel samples  Optional: Moisture meters-pin, probe and bucket types Sample trays Conventional oven Microwave oven Set of basic testing sieves
5	Site visit to a woodland harvesting site to allow discussions on sustainable forest management	Handbooks
6		Handbooks Calculators Exercises

**Table 3 Learning resources**

## 4. Production of the quality assurance process

During both the partner meetings in Estonia and Austria it was agreed that the quality assurance processes to be produced should follow each of the partner countries own training centre, course and instructor quality assurance processes.

We have set out below the quality assurance process for the UK as an example.

### Course Quality Assurance Process

1. Trainers invited to take part in the lead trainer course. Dates set as 13 – 17 May 2013; location was Aske Estate, Richmond, North Yorkshire. Dietary or any special requirements such as access and learning needs discussed and actioned with each trainer attending.
2. On confirmation of trainer attending, joining instructions<sup>1</sup> and agenda for the course were issued via e-mail.
3. Trainers given direct dial and e-mail for lead trainers – Will Richardson and John Farquhar.
4. During course, trainers were given course feedback form which was collected and results collated.
5. The course materials and content were reviewed at the end of each Unit (6 units in total). A full course content evaluation was carried out at the end of the course with a general group discussion. The feedback was used to improve the course materials. The lead instructors were responsible for collating this information and updating the materials.
6. A complaints procedure was in place whereby dissatisfied attendees could contact an external evaluator to discuss the complaint and gain resolution.

### Training Centre Quality Assurance Process

1. All training centres that wish to deliver the WETNet programme must be affiliated to a recognised UK accreditation body such as City and Guilds and or Lantra Awards where the training centre has passed the necessary legal, professional, health and safety and insurance checks.
2. The training centre must be able to provide the required tools and equipment for the delivery of the courses as per the requirements of the course and list of course materials and resources set out in table 3 above.
3. The training centre must be able to provide access to appropriate site visits throughout the course in order to fulfil the practical elements of the course as set out in table 3 above.

### Trainer Quality Assurance Process

All UK trainers on the WETNet network will be required to have the following as a minimum requirement to be an instructor:

1. Current Emergency First Aid at Work or First Aid at Work certificate

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<sup>1</sup> See copy of course joining instructions in the appendix to this report.

2. Train the trainer qualification such as Basic Instructional Techniques
3. Risk Assessment and or NEBOSH H&S at work award or certificate
4. 5 years' experience of the woodfuel sector and or
5. 10 years' experience of the forestry sector
6. On on-going requirement of 15 hours Continual Professional Development in the woodfuel sector per year

Attendance at an annual meeting of trainers will be held either in person or via teleconferencing facilities to ensure all trainers are keeping up to date with the latest information on the woodfuel sector and training materials are kept up to date and co-ordinated across the adopting training providers.

## **5. Discussion**

Work Package 5 has produced a Standard EU training programme for woodfuel entrepreneurs from across Europe that can be adopted and adapted to fit in with exiting training courses or indeed be used to develop new training packages, accredited to levels 2 and 3.

The materials and resources for the programme have been developed in a way that they can easily be changed to suit regional and local conditions and requirements so fulfilling the pedagogical requirements of the project. In particular, regional and local differences lie in some of the technical data presented in the course materials such as solid densities of different species of wood and indeed currencies. These changes can easily be implemented by those countries adopting the programme and materials.

It is envisaged that each of the partner countries and any of those from within Europe will be able to take the training programme and use it to complement existing courses, such as forestry based higher education courses where entrepreneurs can send employees to receive high quality training on woodfuel production and supply.

Here in the UK, the partners will be working with training providers, and in particular, rural and land based colleges to see if the programme can be incorporated into existing forestry and other land based higher education courses. As part of this process, the UK partners are working with Proskills, the sector skills council for Process and Manufacturing, to develop a National Occupational Standard (NOS) for Woodfuel Production and Supply. Once the NOS has been developed and approved at a national level, education and skills development in woodfuel production and supply can be mainstreamed at the higher and further education levels. This will help training providers and colleges to adopt the programme and receive funding for its delivery.

It is worth noting that the programme and course materials will be updated on a regular basis in order to keep it relevant and to reflect industry developments and needs.

In the UK, it is proposed that the Network of WETNet trainers will meet annually, as stated in section 4 above, to discuss these developments, co-ordinate course delivery and to satisfy the quality assurance systems set out in section 4 of the trainer centres, courses and instructors.

In Austria, the course materials have been translated into German and given to the 5 lead Austrian trainers and they will use them during consultation with farmers and businesses involved in the supply chain. FAST Pichl, are the administration of the German version, and if there are any changes necessary or if there should be important information put in they will do this and distribute the changes to the lead trainers. In addition to this and most importantly, they will use the course materials in seminars and courses as and when they are needed.

In Estonia, the WETNet course materials will be used to run a pilot training event early in 2014. In Finland, the course materials have been used to develop a series of short courses on woodfuel production and supply which will be run by JAMKs vocational training provider, POKE.

In France, the course materials will be integrated into existing vocation courses delivered to forestry workers and Entrepreneurs. It is planed that this activity will commence in 2014.

All the partner countries have committed to being involved in an on-going WETNet network. The project will continue to be represented on the Eduforest website which will be administered by Centre Forestier and all will take part in annual meeting of the lead instructors so technical and structural updates to the materials and programme can be discussed and co-ordinated. It is likely that this meeting will be conducted in a virtual environment either via an online discussion forum and or via teleconference facilities.

## **6. Conclusions**

The core competencies and unit structure for the WETNet programme has been produced along with a comprehensive set of course materials and supporting documents. Versions for the UK, France, Austria, Finland, Estonia and Turkey have been produced as well as a master European version that can be adapted by other countries.

## 7. Appendix

**UK Train the Trainer Joining Instructions**  
**WETNet UK Train the Trainer**  
**13-15 May 2013**  
**The Smithy, Aske, Richmond**

**You will find below all the information you need for joining us for the WETNet train the trainer course.**

If you have any specific requirements such as dietary or access requirements or further questions or queries, please contact Kate Hutchinson: [kate.hutchinson@sac.co.uk](mailto:kate.hutchinson@sac.co.uk) or tel 01315353075 or 07557033475

### **Location**

The course is being held at

**The Smithy**  
**Aske**  
**Richmond**  
**North Yorkshire**  
**DL10 5HJ**

**A location map can be found [here](#).**

### **Programme**

The training programme unit structure and learning objectives are listed in the table below.

#### **Day 1: Monday 13 May 2013**

9.30am start

Unit 1 – Woodfuel and Energy

12.30pm – Lunch

Unit 2 – Woodfuel Logistics

5.00pm – Finish

#### **Day 2: Tuesday 14 May 2013**

9.30am start

Unit 3 – Further Processing of Woodfuel

12.30pm Lunch

Unit 4 – Woodfuel Quality

5.00pm - Finish

### **Day 3: Wednesday 15 May 2013**

9.00am Start

Site visit – sampling at woodfuel depot and visit to boilers followed by on site discussion

12.30 – Lunch

Unit 5 – Sustainability

Unit 6 – Woodfuel Entrepreneurship

4.30pm Feedback and depart

### **Equipment**

The course is predominantly classroom based but please bring a waterproof and suitable footwear as we will be spending time outdoors. It would also be useful for you to bring a calculator, and if you have one, a moisture meter.

### **Bio-security**

Although we won't be visiting woodland sites we will be coming into contact with stacked timber and therefore due to the ever present risk of the spread of tree diseases, we would like people coming on the course to adhere to the following principles of bio-security:

Come along with clean footwear

Remove mud and plant material from footwear and plant debris from clothing before you leave the site - equipment will be provided for this purpose

Bring an additional pair of shoes/boots to change into

For more information on bio-security visit the Forestry Commission web site or visit <http://www.youtube.com/watch?v=IJJ7tUODfKE&feature=plcp> to see a short video produced by FERA.